Augmenting Management Systems in Health Care: Auditing, Integration, and Assessment

by

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A thesis submitted in partial fulfillment of the requirements for the degree of

Doctor of Philosophy

In Engineering Management

Department of Mechanical Engineering

University of Alberta

ABSTRACT

The lack of literature reporting on the use of customer-satisfaction-augmenting Management System Standards (MSS) in health care provided an opportunity to explore the use of one such augmenting (AUG) MSS, namely ISO 10002 for managing feedback in a Canadian provincial health care organization (i.e., the Case Study Organization, CSO). The CSO's Patient Concerns Resolution Process (PCRP) was compared against the guidance from ISO 10002, gaps were identified, and recommendations were made to close the gaps and to verify gap closure. Subsequently, the guidance from ISO 10002 was adapted for managing commendations and suggestions at the CSO, thus yielding an ISO 10002-based feedback handling system. The study also sought to identify subsequent research components, one of which was the development of an interdepartmental process audit.

After examining literature on interdepartmental audits, and determining the opportunity to develop a method that would enable the auditing of interdepartmental processes through a focus on 'interactions', the "Boundary Audit Method" (BAM) was developed, verified and validated.

The development of the BAM (also referred to as "1.5-party audit", *one and a half party audit*) included developing a conceptual framework, supporting concepts and adapting or creating new supporting tools. The BAM was subsequently verified using CSO records (i.e., closed complaints), and changes were identified and implemented. Next, the BAM was validated through interviews with human subjects, after which changes were identified and implemented.

Lastly, exploratory research was undertaken regarding the potential use of Financial Statements (FS) and Financial Ratio Analysis (FRA) with MSSs. After a literature search yielded

no results on the use of FS and FRA with relation to MSSs, an "Accounting-based model for Structuring and Integration of MSS requirements" (ABSI model) was developed, as well as an "Accounting-based Assessment technique" (ABA technique) to examine Standardized Management Systems (SMS) component-interrelationships through the adaptation of financial ratios. The ABSI model was subsequently pre-tested using the HLS guidance, and requirements from ISO 9001 and ISO 14001, and then verified using ISO 10002, ISO 10003 and the CSO's PCRP. The latter (i.e., the CSO's PCRP) was also used to verify the ABA technique. Anticipated academic value of this research includes:

- The study was the first to examine the use of an AUG MSS such as ISO 10002 (2014) in a provincial health care organization for handling not only concerns but also commendations and suggestions.
- To my knowledge, the Boundary Audit Method is the first method for auditing interdepartmental processes through a focus on interactions. The designation "*1.5-party audit*" (first-and-a-half or one-and-a-half party audit) is another contribution, used to reflect the examination of a department's own involvement in a process in addition to that of any other process partners.
- A novel model was proposed for structuring and integrating MSSs requirements. The model is the result of abstracting the Income Statement and Balance Sheet components and their interrelationships and using such a framework to organize (and integrate when multiple) MSSs requirements.
- A novel assessment technique was proposed for examining SMS-component interrelationships. The assessment technique adapts financial ratio analysis and substitutes the numbers in the ratios with the juxtaposed SMS components, questions are then prepared to examine how SMS-components interrelate amongst each other, answers to the questions are found by examining documentation, interviewing personnel or observing the SMS, and recommendations for improvement are ultimately provided to management of the organization.

PREFACE

This thesis is an original work by Enrique Fernández-Ruiz. The research project, of which this thesis is a part, received research ethics approval from the University of Alberta Research Ethics Board, Project Name "Development and testing of six methods related to unsolicited feedback handling in a Patient Concerns Department", ID No. "Pro00024963", August 30, 2011.

Partial content of Chapter 4, namely subsection 4.2 and subsubsections 4.3.1 - 4.3.3, was preliminary published as Fernandez, E., Karapetrovic, S., and Brooks, P. M. (2010), "ISO 10002 in Health Care: Update on a Case Study", *Proceedings of the 14th International Conference on ISO and TQM (ICIT)*.

Chapters 5, 6, 7 and 8 are my original work, as well as the introduction in Chapter 1, the literature review in Chapter 2, the explanation of the research methodology in Chapter 3, and the conclusions in Chapter 9.

ACKNOWLEDGMENTS

Graduate research work can become lonely, since one spends many hours locked in an office reading papers, taking notes, thinking, writing, and revising. A certain need for isolation may be required since PhD Candidates are expected to come up with their own original contributions. Notwithstanding the individual effort, I enjoyed the support of a group of people that provided guidance and encouragement. I owe them a great deal, and in no small part due to them this work at last sees the light. I would like to thank them as follows:

My greatest appreciation goes to Dr. Maria Teresa de Guadalupe Ruiz Esparza and Dr. Enrique Fernandez Valadez or just 'mom and dad', who even though shed tears at the airport when I left Guadalajara to pursue grad school at the UofA, also felt that I was making the right decision and never ceased to root for me. I am grateful to have them as parents because they are both exemplary role models and they are also my best friends. I am happy to make them proud of this accomplishment. My love goes out to my sister Mayte and her family (Alfredo, Mia and Diego).

I am also deeply indebted to Ozlem, my common-law partner, who has always done her best to allow me time and space to work on my research. She knew when to push me, and she also knew when to be patient. She is one of the most upstanding people I know; I look up to her and feel lucky to share my path with her.

All my gratitude goes to Dr. Stan Karapetrovic, my supervisor, who is not only a world expert in Quality Management, Standardization, and Auditing, but also an outstanding researcher, professor, and friend. I am very lucky to have enjoyed his guidance and benefited from his expertise: my pride in this work is largely due to his initial vision and suggestions, which allowed the 'output' to exceed my expectations. Throughout the years, he had an influence not only in my professional development, but also in my development as a person.

I am also grateful to the members of my Supervisory Committee (SC): Dr. Reay, Dr. Doucette, and Dr. Ma. Dr. Reay, from whom I learned about organizational change when I took SMO 633, always offered a refreshing perspective and brought to my attention relevant aspects of my research that I had overlooked (like the importance of commendations, or the potential applicability of my research in the for-profit world). Dr. Doucette, a multi-disciplinary expert, provided domain-specific guidance as a fellow Industrial Engineer, as well as logistics and

administrative advice in his capacity as Associate Chair (Graduate Program). Dr. Ma, another multi-disciplinary expert, helped me identify opportunities to improve the thesis (e.g., cutting appendices) and allowed me in the Oral Examination to expound on how my findings could be applied in different settings. My gratitude to the SC members derives not only from their research-related guidance, but also from the knowledge I acquired when I was their student.

A big thank you to Dr. Tian and Dr. Gotzamani, who, as examiner and reader, respectively, took the time to read my thesis and provided questions during the Final Examination that allowed me to emphasize originality of contributions, and generalizability of findings.

I am also really appreciative of Dr. Lipsett, who graciously accepted to Chair my examination: I could not have asked for a better pick. I admire Mike as a person, as a professor, and as a researcher. I will always be grateful because I learned from him about Financial Management (FM), first as his Teaching Assistant and then as a Principal Instructor of Eng M 401. I grew to appreciate FM so much that I ended up using FM tools in this research.

I would also like to acknowledge my AIMS-lab mates: especially Ashique, Katarina S., Katharina A., Norman, Patricia and Tijana, who always had a word of encouragement.

Lastly, I would like to thank the Case Study Organization (CSO), and the Parent of the CSO (POCSO), the latter who funded this research. I will be eternally grateful for the access granted to me by the CSO Directors and for the data they provided (from documentation and records, to the interviews, and the numerous meetings we held to review progress). The CSO Directors not only provided data, but they also actively contributed, through their feedback, to the refinement of the Boundary Audit Method. Moreover, the CSO Directors always showed interest and appreciation for the work I was doing, even when at times it appeared as if I was going nowhere. I am grateful for their patience, their encouragement, and their contributions. Without them, this research could not have taken place.

This work is dedicated to my friend Pat.

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List of acronyms

AAP	Advancement Action Plan
ABA	Accounting-based Assessment [technique]
ABSI	Accounting-based Structuring and Integration of MSS requirements [model]
AFST	Audit Finding Summary Template
AS	Assimilating (with relation to MSSs)
AUG	Augmenting (with relation to MSSs)
BAM	Boundary Audit Method
BEM	Business Excellence Model
BSC	Balanced Scorecard Categories, i.e., *"Customer, Financial, Internal Business Processes, and Learning and Growth"* (Kaplan and Norton, 1996)
B/S	Balance Sheet
CH	Complaints-handling
CSO	Case Study Organization
DR	Dispute resolution
EMS	Environmental Management System
FHS	Feedback handling system
FRA	Financial Ratio Analysis
FS	Financial Statements
FS (O/S)	Finding Sheet (Opportunities/Strengths)
FS (W/T)	Finding Sheet (Weaknesses/Threats)
HLS	*"High level structure, identical core text, common terms and core definitions"* (ISO/IEC, 2015)
IAPOCSO	Internal Audit [Department] of the Parent of the Case Study Organization
ICS	Interaction Classification System
IdPFD	Interdepartmental Process Flow Diagram

IMS	Integrated Management System (or Integration of Management Systems)
IPIC	Interview Personnel (Interactions) Checklist
ISO	International Organization for Standardization
IUMSS	*"Integrated Use of Management System Standards"* (ISO, 2008a)
I/S	Income Statement
MS	Management System
MSS	Management System Standard
OMT	Objective Mapping Template
OPIC	Observe Process (Interactions) Checklist
OPRC	Observe Process Result Checklist
PCC	Patient Concerns Consultant
PCDir	Patient Concerns Director
PCED	Patient Concerns Executive Director
PCO	Patient Concerns Officer
PEEMMM	"People, Equipment, Environment, Materials, Measures, and Methods" (Process elements originally by Ishikawa, 1986 as adapted and expanded by Russell, 2003, 2005)
PFIC	Patient Concerns Feedback Intake Coordinator
POCSO	Parent of the Case Study Organization
QA	Quality Audits
QMS	Quality Management System
RCA	Root Cause Analysis
REB	Research Ethics Board
ROA	Return on Assets
ROE	Return on Equity

RPE	Reframed Process Elements (i.e., *"Customer, Packaging, Customer experience, Product, Satisfaction & feedback, Delivery method"*, adapted from PEEMMM by Russell, 2003, 2005)
SA	Self-assessments
SMS	Standardized Management System
SWOT	Strengths, Weaknesses, Opportunities, and Threats

1 Introduction

Management System Standards (MSSs) continue to evolve. Since the time this research started (i.e., 2008), most of the standards that were utilized in the research have been updated, for example ISO 19011 in 2011, ISO 10002 in 2014, and ISO 9001 and ISO 14001 in 2015. The update to some standards at times was minor, such as for ISO 10002 (2014) where only minimal changes to the text were made; while other times it was more meaningful, such as for ISO 9001 (2015c) and 14001 (2015a), whose structure was significantly re-organized and content enhanced. For example, the latter two flagship standards, as revised, now follow the ISO's "High level structure, identical core text, common terms and core definitions" or simply "HLS" (ISO/IEC, 2015), in an attempt to provide "consistency among future and revised management system standards and make integrated use simpler" (Tangen and Warris, 2012). Changes did not stop at the structural level, but also included changes to the substance or content, as evidenced by the new section (ISO 14001, 2015a; ISO 9001, 2015c) called *4. Context of the Organization*, and the incorporation of "risk-based thinking", which requires the organization to actively work towards "identifying and addressing risks and opportunities" (e.g., sub-clause 6.1 in both ISO 9001, 2015c and ISO 14001, 2015a). Another example of the update to the topic of integrated use of management system standards is evidenced by the current work in progress of the team revising the handbook "The Integrated Use of Management System Standards" (IUMSS) (ISO, 2008a). Such handbook provides not only helpful guidance and illustrations on how to incorporate multiple MSSs in an organization, but also real life examples of companies who have done it and how they did it.

1.1 Augmenting MSSs in Health Care

Notwithstanding the efforts done by the academics and professionals that comprise the Technical Committees who undertake the design and revision of MSSs, incorporation and integrated use of MSSs by organizations is still lacking, especially with regards to the utilization of process-specific MSSs, or augmenting MSS (AUG MSS) (Karapetrovic, 2005), as found through a recent survey of organizations in Serbia (Karapetrovic and Spasojevic, 2014). Utilization of a particular group of AUG MSSs, known as customer satisfaction standards, such as ISO 10001/2/3/4 (Dee *et al.*, 2004), continues to be an area of opportunity (as initially noticed by Hughes and Karapetrovic, 2006, and more recently confirmed by Ang and Buttle, 2012). Even though some

researchers have studied the application of standards such as ISO 10001, 10002 and 10004 in health care (e.g., Khan and Karapetrovic, 2013; Khan and Karapetrovic, 2015), the academically reported studies on the use of AUG MSSs in health care are far from overwhelming. This research (preliminarily reported in Fernandez *et al.,* 2010) seeks to contribute to the study of the potential use of AUG MSS in a Canadian provincial health care organization.

1.2 Auditing of Interdepartmental Processes

MSSs, even though they provide best practices that would benefit many organizations and their departments; can be at times implemented only within a department. Such occurrence may not be surprising, because such MSS-adoption is usually a result of Management's commitment, and since Management's span of control could be limited to within their own department, such will be the domain wherein the MSS is implemented. As a result, processes or systems that span over multiple departments, some of which may have not incorporated a given MSS could have a negative impact on the performance of the process or system. Such a challenge was discovered in this research and prompted the development (i.e., design, verification and validation) of an audit method that could allow the examination of an interdepartmental process.

1.3 Exploring the use of FS and FRA with MSS and MS

Following the study of the application of an AUG MSS in health care, and the development of an audit method for examining an interdepartmental process, the author came upon the idea of exploring how two seemingly unrelated sets of tools (i.e., Financial Statements (FS) and Financial Ratio Analysis (FRA) on the one hand, and Management System Standards (MSSs) on the other) could work together. The method and results of such open-ended exploratory question are presented in the Chapter 8 of this dissertation.

1.4 Organization of the dissertation

This Introduction is followed by the Literature Review in Chapter 2 and Research Methodology in Chapter 3. Then, Chapter 4 presents the methods and results of a study on the Use of an AUG MSS in a Provincial Health Care Organization; while Chapters 5, 6, and 7 present the Development of the Boundary Audit Method (BAM), its Verification, and Validation, respectively. Chapter 8 presents the method and results pertaining to the Development of the ABSI approach, followed by Chapter 9 with the Contributions of the research, together with Limitations and Possibilities for Future Research. Next, the Literature Review is presented.

2 Literature review

2.1 Introduction

This section presents the findings related to the state of the art of the different components of the dissertation. The main topics addressed were 'AUG MSS in health care', 'audits', and 'integrated management systems'. Figure 1 presents the sub-topics that were further examined under each main topic.

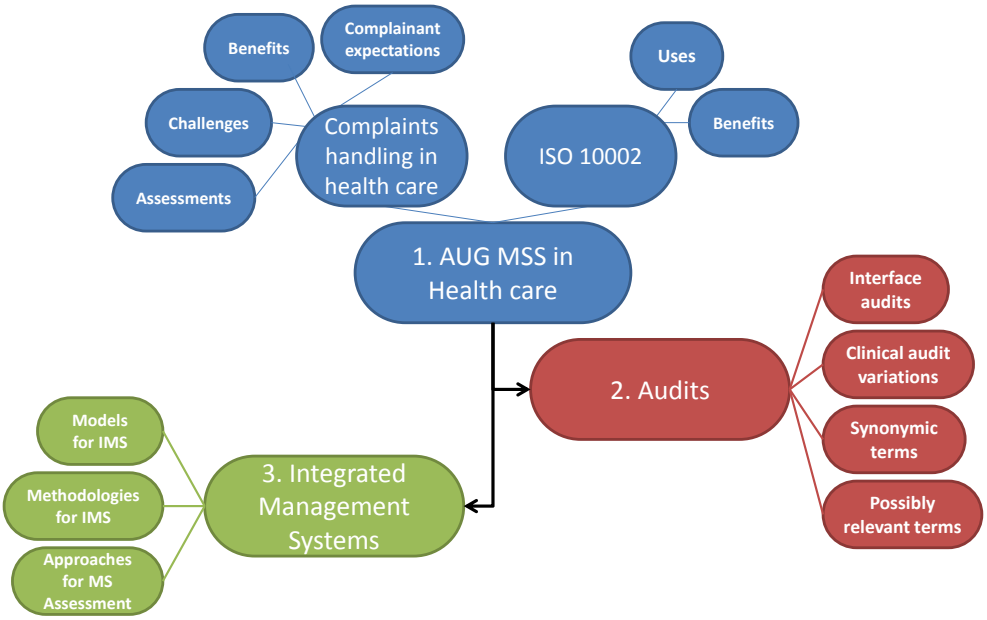


Figure 1 - Graphic depicting literature review topics and sub-topics

Firstly, under the topic 'Augmenting (AUG) Management Systems Standards (MSS) in health care', the lack of literature on AUG MSS is reported, followed by an exploration of 'complaints handling in health care' through a review of complainant expectations, benefits and challenges of complaints handling, and a review of assessments of complaints handling systems. Then, a review of the literature on the use of ISO 10002 (2014) for complaints and feedback handling is presented.

Secondly, regarding the topic of 'audits', the focus is on audits of interdepartmental processes. An exhaustive examination was carried out by researching the term 'interface audit', synonymic terms, and possibly relevant terms. A summary is given of the characteristics of the different types of audits that were found.

Thirdly, the reader is presented with the findings regarding 'Integrated Management Systems (IMS)', with special emphasis on 'models', 'methodologies', and 'approaches for assessment of Management Systems (MS)'. Attention is given to recent models and methodologies, and assessment techniques that rely on self-assessment.

Lastly, the motivation for research is presented, followed by the research objectives. In the next subsection, the literature review starts with the topic of Augmenting Management System Standards in Health care.

2.2 Augmenting Management System Standards in health care

ISO provides annual updates regarding the number of certificates issued for Management System Standards (MSSs); however, such survey, i.e., ISO Survey 2014 (2015d), is restricted to assimilating (AS) MSSs (using the classification developed by Karapetrovic, 2005 and 2007), such as ISO 9001, ISO 14001, ISO 50001, and ISO 27001, which provide minimum requirements for their respective functions (i.e., Quality, Environment, Energy, and Information security, respectively). Statistics on the usage of non-assimilating MSSs, for example, augmenting (AUG) MSSs which provide process- or function-specific guidance (Karapetrovic, 2005 and 2007) such as ISO 19011 or the customer-satisfaction quintet comprised by ISO 10001/2/3/4/8 are harder to come by, perhaps due to their relative recency, and correspondingly lack of 'critical mass' pertaining to their adoption. Researcher-led surveys help to address such a gap, e.g., the survey of 298 organizations headquartered in Catalonia and the Basque Country (Karapetrovic *et al.*, 2006), and the more recent survey of 39 organizations in Serbia (Karapetrovic and Spasojevic, 2014).

Recent findings from the latest survey reported on by Karapetrovic and Spasojevic (2014) with relation to AUG MSSs continue to indicate limited adoption, in line with prior findings from the survey reported on by Karapetrovic *et al.,* (2006). The survey of organizations in Serbia that had adopted both ISO 9001 and ISO 14001, reports the highest usage of additional MSSs related to ISO 19011 (18 out of 39, or 46% of respondents), followed by ISO 10005 (8 out of 39, or 21% of respondents); with usage pertaining to the remaining AUG MSSs (i.e., ISO 10001, ISO 10002, ISO 10003, ISO 10004, ISO 10012, and ISO 14031) ranging from 5% to 13% (Karapetrovic and Spasojevic, 2014). Such survey findings are in line with findings reported by other academics, for example, Karapetrovic *et al.*'s (2010) prior recognition of the limited academic studies of

AUG MSS in general; and Ang and Buttle's (2012) acknowledgement of the limited literature related to ISO 10002 (2014) in particular; as well as Khan and Karapetrovic's (2015) similar findings pertaining to the lack of literature on the usage of ISO 10001 (2007) for developing 'promises'. Such lack of literature could provide an opportunity to explore the use of an AUG MSS, i.e., ISO 10002 (2014) in health care. Next, a brief exploration of the literature on customer satisfaction, the focus of a significant share of AUG MSS, and customer feedback is presented, followed by a discussion of complaints handling in health care, and a review on the use of ISO 10002 for complaints handling in general and in health care in particular.

2.2.1 Customer satisfaction and customer feedback

Having satisfied customers (ISO, 2015c; and the ISO 10000 series, 2007a, 2007b, 2012, and 2014 initially published in 2004), and even seeking their delight (Johnston, 2004; Torres and Kline, 2006) should be now more than ever a priority of organizations; not only to achieve repeat business and increased profitability (Fornell and Wernerfelt, 1987 and 1988; Johnston, 2001 and 2004; Patterson, 1997 and Keiningham *et al.*, 1999 via Torres and Kline, 2006), but also to improve (or at least prevent damage to) organizational reputation (Carmeli and Tishler, 2005; Walsh *et al.*, 2009), especially within an ultra-connected world that allows magnification of customer expressiveness.

Unsurprisingly, interest on customer feedback handling as a means to improve customer satisfaction has also grown since the turn of the century (e.g., Dee *et al.*, 2004; Fundin and Bergman, 2003; Fernandez *et al.*, 2010; Honarkhah, 2010; ISO, 2012 and 2014; Karapetrovic 2010; Khan and Karapetrovic 2013, 2014 and 2015; Wirtz and Tomlin, 2000). One example of such increased interest is the addition of the term 'feedback' to the revised edition of the standard "ISO 9000, Quality management systems – Fundamentals and vocabulary" (ISO, 2015b). Therein, the term 'feedback' is defined as: "[the] opinions, comments and expressions of interest in a *product* (3.7.6), a *service* (3.7.7) or a complaints-handling *process* (3.4.1)" (ISO, 2015b). Moreover, as per Van Doorn *et al.* (2010), customer feedback could be categorized as either 'positive' (e.g., compliments or commendations), 'negative' (e.g., complaints or concerns), or 'neutral' (e.g., suggestions) (Van Doorn *et al.*, 2010 as referenced by Nasr *et al.*, 2014 who further suggested a 5-category classification).

Organizations have traditionally focused their efforts on managing negative-type feedback (i.e., handling complaints), perhaps due to pressures from regulatory requirements. For example, the Financial Services Authority (FSA) in the United Kingdom *"requires [financial services] firms to have in place an appropriate written complaints procedure and to ensure that it is operated effectively,"* in addition to minimum requirements regarding availability, accessibility, timeliness, appropriate response, keeping records, and cooperating with the Financial Ombudsman Service (Terentis *et al.*, 2002); also in the UK, per Seelos and Adamson (1994), the Citizen's Charter from 1991 stated that "it is fundamental to the Citizen's Charter that all public services should have clear and well publicized complaints procedures." Similar conditions exist in Canada; where, for example, it was reported that a Canadian Electrical Utility was required by law to "record all complaints it receives and provide proof if and how each complaint is resolved" (Hughes and Karapetrovic, 2006); or where regarding public health care services, the provinces of Alberta and British Columbia have issued regulations requiring health authorities to have patient concerns resolutions processes in place (e.g., AR 124/2006; S.B.C. 2008, c.35). In addition to regulatory requirements, complaints-handling in health care can have its own complexities, as presented in the next subsection.

2.2.2 Complaints handling in health care

It could be expected that regarding a service that involves something as precious as life, or where the 'customer' (e.g., patient or family) seeks help to regain their health or at least comfort during end of life, expectations can be quite high. Notwithstanding the efforts made by care providers, events in the provision of care can occur that may create a negative impression in the customer. Compounding complexity at such a setting there exist a few aspects that make handling complaints in health care more challenging than returning an item at the store, or requesting a fee refund from the bank. In the next subsubsections the following aspects are discussed: complainant expectations with regards to complaints handling in health care, benefits of complaints handling in health care, challenges of complaints handling in health care, and a review of assessments of complaints handling processes.

2.2.2.1 Complainant expectations with regards to complaints handling in health care

A principle of quality management is customer focus (ISO 9001, 2015c), and in a complaints-handling process or system, the complainant could be considered as the customer of the complaints handling process or system, therefore 'the focus'. Thus, having an accurate

understanding of the complainant expectations regarding complaints handling in health care is of paramount importance. Table 1 presents findings regarding complainant expectations regarding health care related complaints handling processes or systems, from different countries at different points in time.

Table 1 - Sample expectations regarding complaints handling in different countries at different points in time

UK (from NAHAT, 1993 and CCTF, 1995 via McCrindle and Jones, 1998)	**Netherlands (from Friele and Sluijs, 2006 as summarized by Cowan and Anthony, 2008)**	**New Zealand (from Bismark *et al.*, 2006 via Beaupert *et al.*, 2014)**	**UK (Clwyd and Hart, 2013)**
speed of response	Fair and impartial procedure	Explanation	Freedom from fear
keeping complainant informed about progress	… to be treated with respect and with understanding	Apology	Sensitivity
knowing who is dealing with the complaint	… be given a chance to tell their own story of what had happened	Corrective measures	Responsiveness
how helpful and friendly staff are	… most wanted outcome was a change in hospital's practices		Prompt and clear process
knowing the complaint will be dealt with fairly (Mulcahy and Tritter, 1994; Woodyard and Darby, 1996; Woolf, 1996)	… (that) the professional concerned admit if he/she had made a mistake		Seamless service
having a clear complaints procedure	… an explanation of how the incident occurred		Support
receiving a written explanation			
receiving an apology if the organization is wrong			
having senior staff investigate			
receiving compensation			

As is apparent from Table 1, irrespective of the location and year, complainant expectations regarding complaints handling in health care appear consistent in that they seek to have a prompt and fair complaints handling procedure, along with effective communication and where appropriate, an apology.

Worth noting is that in Clwyd and Hart's (2013) "Review of the NHS Hospitals Complaints System", two items appear for the first time, namely "sensitivity" (i.e., "patients want their complaint dealt with sensitively") and "seamless service" (i.e., "patients do not want to have to

complain to multiple organisations in order to get answers"). Such two items could point to an increased level of expectations across time, reflecting Seelos and Adamson's (1994) realization, prescient then and now, that *"... consumers have come of age. They have gone beyond the stage of simply accepting that organizations provide them with basic services. Today's consumers are more aware than ever of their rights..."* Wirtz and Tomlin (2000) also identified the challenge of ever-rising expectations: *"customer expectations are constantly rising due to various reasons, including advancement in technology [...], and service levels experienced in other industries, etc.*" (Wirtz and Tomlin, 2000).

Regarding a sub-set of health care services, namely those regarding elderly care, Leventhal (2008) argued that customer expectations are more complex than those of other health care services: *"Aged care services have been seen to be even more complex as the customers include multiple stakeholders such as immediate family that have their own interests, concerns and expectations to be met. A case study of negative disconfirmation in aged care illustrated how it is the expectations of other stakeholders that are critical in understanding, and that to avoid complaints to the external complaint resolution scheme, it is vital to understand all stakeholders' quality aged care expectations"* (Leventhal, 2008).

Being aware of complainant expectations regarding complaints handling in health care could contribute to a complaints-handling process that is effective and satisfactory to the complainant. The next subsection presents benefits of complaints handling in general and with respect to health care in particular.

2.2.2.2 Benefits of complaints handling in health care

Complaints-handling, irrespective of the sector or industry, can result in important benefits to organizations and customers. Early on, Gilly and Hansen (1985) highlighted the following benefits of complaints handling: *"increased customer satisfaction; greater brand/company loyalty; promotion of positive word-of-mouth marketing; and reduced risks of litigation"* (via Leighton and Bent, 1997). Similarly and more recently, Ang and Buttle (2006) summarized that *"a well-executed complaints-handling process is of strategic relevance because it can have a positive effect on customer retention (Fornell and Wernerfelt, 1987; Brown et al., 1996; Smith et al., 1999; Stauss and Seidel, 2004). Indeed, customers who complain and are well recovered can be more satisfied, and less likely to switch than customers who had no cause for complaint at all*

(TARP, 1979; Nyer, 2000)" (via Ang and Buttle, 2006). While Hughes and Karapetrovic (2006) concluded that benefits of complaints handling systems do not circumscribe to effectively resolving complaints and the benefits that derive therefrom, but also include improving of *"the complaints handling system itself or other organizational processes"* via *"changes to the maintenance and improvement"* components of the complaints handling system.

With regards to the health care sector, reported benefits include organizational learning and other quality improvements. For example, Jackson (1998) said that *"Complaints are clearly an opportunity to identify at board level areas in which quality initiatives or clinical audits should be undertaken. Executive monitoring of these complaints gives an independent measure of where to focus improvement activity for the executive. Trusts where executives respond to complaints and use the data generated to identify quality improvements are more likely to be highly rated by their customers (Le Pine, 1996)"* (via Jackson, 1998). In the same vein, George and Joseph (2009) said that *"complaints provide invaluable information for quality enhancement. Complaints should be considered as an opportunity for improvement and a culture of learning from mistakes should develop (Evans, 1998). The ultimate success in a complaints procedure lies in improvement of services"* (George and Joseph, 2009). Moreover, benefits of complaints handling can also help reduce bureaucracy and costs*: "A well-structured complaints system has advantage over the use of litigation in terms of ease of access, informality, speed and costs (Welsh Medical Officer for Complaints, 2007)"* (via George and Joseph, 2009).

A good summary of benefits is provided by The Australian Council for Safety and Quality in Health Care (2005) in their "Complaints Management Handbook for Health Care Services" which states that "good complaints management systems help:

> *"- improve the safety and quality of the service, by providing information about the experiences of consumers and carers;*
>
> *- restore the trust and confidence of a consumer or carer;*
>
> *- save management time by the quick and simple resolution of complaints, avoiding escalation;*
>
> *- promote a culture of reporting and accountability;*
>
> *- prevent wasteful practices and reduce the costs, such as insurance;*
>
> *- create a more satisfactory working environment for clinicians and staff; and*
>
> *- enhance the reputation of the service and prevent negative comments or publicity"* (ACSQHC, 2005).

Notwithstanding the reported benefits of complaints handling, literature abounds on the challenges that make complaints handling in health care a difficult endeavor. Such is the topic of the next subsection.

2.2.2.3 Challenges of complaints handling in health care

The challenges of complaints handling in health care appear to be hard to surmount. In 2001, *"a national evaluation of the NHS complaints procedure showed that the public thought the process was not sufficiently independent, was applied inconsistently and took too long (YHEC, 2001)"* via CHAI (2007). A few years earlier, Seelos and Adamson, (1994) described the limitations of the complaints handling system in the NHS around the mid of the 1990s, highlighting the focus on *"avoiding liability rather than providing appropriate care for patients"* and it being distinguished as a system *"of secrecy and fault finding within which professionals are considered to be 'innocent until proven guilty' by a complaining patient or relative."* A blame-oriented culture seemed widespread: *"while the complaints handling procedure focuses on attributing blame to individuals, the medical profession blames any failures on the apparent lack of resources"* (Seelos and Adamson, 1994).

McCrindle and Jones (1998) summarized issues with complaints resolution in the NHS before the implementation of new complaints handling procedures as suggested by the report titled "Being Heard" (DoH, 1994), as follows: *"The limitations of the complaints procedure prior to 1 April 1996 have been well documented (NAHAT, 1993; Nettleton and Harding, 1994; CCCTF, 1995), and include charges of unwieldiness, unnecessary diversification because of "formal" and "informal" procedures, and an emphasis on trivialising or deflecting the complaint (Longley, 1993a; 1993b)"* (McCrindle and Jones , 1998).

More recently and at a different setting, Hsieh *et al.,* (2005) examined a Taiwanese hospital and through document review and interviews came to the conclusion that *"complaint handlers were not sufficiently empowered, information sharing was limited within the organization, communication among professional staff and with management was inadequate, the physical safety of workers had been threatened, and improvements could not be sustained. Moreover, it became apparent that the case study hospital generally responded to patient complaints in a reactive and defensive manner"* (Hsieh *et al.*, 2005).

Other reported challenges of complaints handling have included: lack of awareness of, and accessibility to, the complaint handling process (Seelos and Adamson, 1994; McCrindle and Jones, 1998); lack of fairness of investigation (Beaupert *et al.*, 2014; George and Joseph, 2009; Kent, 2008; Seelos and Adamson, 1994); and deficient information collection and analysis (Cowan and Anthony, 2008; George and Joseph, 2009; Hsieh *et al.,* 2005; Seelos and Adamson, 1994).

Challenges of complaints handling are not unique to health care. For example, without restricting findings to any one sector or industry, Zairi (2000) identified that organizations that "face big challenges in customer complaints handling" have the following characteristics:

> *"- Suffer from a lack of systematic approach to complaints handling.*
>
> *- Do not recognise the importance of customer complaints at a strategic level.*
>
> *- Are ill-equipped in terms of systems and processes for logging in complaints, processing them, etc.*
>
> *- Are not proficient with measurement and in particular in non-financial areas such as customer satisfaction and complaints.*
>
> *- Have adverse cultures and too much of 'blame and reprimand' practices.*
>
> *- Have not embraced the concept of quality management and its related concepts"* (Zairi, 2000).

In the face of such discouraging conditions, tools that help organizations mitigate the challenges identified above continue to be needed. Next, a review of tools used to assess (and improve) complaints handling systems is presented.

2.2.2.4 Assessment of complaint handling systems

There is abundant literature on government sponsored reviews of health care-specific complaints handling procedures in the UK (e.g., CHAI, 2007, DoH, 1994; Wallace and Mulcahy, 1999; YHEC, 2001) with the latest one being by Clwyd and Hart (2013). Government sponsored reviews have usually examined national or local complaints handling procedures so as to identify shortcomings and propose recommendations. The reader is referred to Clwyd and Hart (2013) for a comprehensive description of historical findings and recommendations, including their own on the latest state of the NHS Hospitals Complaints System.

Other means of assessing complaints handling systems have included audits, such as those by Zairi (2000), Brenanan and Douglas (2002), Hughes and Karapetrovic (2006), Fernandez *et al.*

(2010); and Ang and Buttle's (2012) first empirical study on ISO 10002-conformant processes and organisational outcomes by means of self-assessments.

Zairi (2000) proposed an audit *tool "to assist with the process of developing a culture which is not averse to the idea of receiving, accepting and handling complaints,"* by means of *"[drawing] attention to the need for having processes and procedures in place, reliance on facts and quality information and a commitment for continuous improvement through problem solving, target setting and gap analysis"* (Zairi, 2000). The audit is based on *"the work of Blazey (1997)*". Even though Zairi's (2000) audit is based on best practices from MBNQA winners, details about the use of the audit tool (whose presentation is limited to an appendix) are not provided, for example, who determines the "degree of importance" of each criterion: the auditee, the auditor or both (since it could be argued that each party has valid reasons to identify the importance of each item in the criteria)? Does the "importance" represent current or desired importance, and should importance be sought to be improved (as with "degree of effectiveness") or not necessarily? A person having to use the 'audit tool' would also wonder what evidence should be collected in order to assess the effectiveness; or why compliance to procedures is not assessed prior to effectiveness. Lastly, the sixteen criteria of the 'audit tool' provide broad guidance of certain aspects of how to handle complaints in an organization, but little about how a complaints handling system could be established, implemented, maintained, and improved; the latter elements being examples of interest to organizations that may not have even a rudimentary complaints handling process or system in place.

Brennan and Douglas (2002) examined one component of the complaints handling system, namely, the complaints information leaflet used to inform customers about the complaints handling process in place across a sample of Scottish council's offices. The authors assessed "each leaflet […] against 12 points of good practice developed from both Central Government's guidelines and the new British Standard guidelines." Their study was limited to the leaflets and did not examine any other system elements.

Hughes and Karapetrovic (2006) followed the audit practice as per ISO 19011 (2002) along with guidance from ISO 10002 (2014) as audit criteria to assess the complaints handling system of a Canadian Electrical Utility. They examined procedures and complaint records to draw conclusions and provide recommendations.

A few years later, Fernandez *et al.*, (2010) provided an update on their study of how ISO 10002 (2014) could be used in a Canadian health care organization that handles province-wide feedback (e.g., complaints and commendations). The authors followed the IUMSS (ISO, 2008) methodology for gap analysis along guidance from ISO 10002 (2014) to assess the then-existing procedures and provided recommendations to close gaps. To date, there are still gaps on the literature reporting on the use of the IUMSS methodology (ISO, 2008a) with ISO 10002, and other AUG MSSs. Such gaps represent an opportunity and motivation for this study.

Ang and Buttle (2012), in the first empirical study on the use of ISO 10002 in organizations, used data collected by LP (a "collaborating commercial organization") for the purpose of benchmarking via self-assessments numerous organization's complaints handling processes. In addition to examining conformance of organization's processes to ISO 10002, the study included "organizational outcomes." In the Appendix to their paper, Ang and Buttle (2012) provide the "complaints handling process measures" and "organisational outcome measures" used in the self-assessments. Limitations of the study relate to the use of self-reported data, small sample sizes, and the lack of a theoretical model. Nevertheless, the originality and relevance of the study are undeniable.

From the literature review, it is apparent that there remains a significant gap regarding the use of AUG MSSs, especially ISO 10002 for complaints handling in health care. Furthermore, gaps also exist on literature describing the use of the IUMSS methodology in general, and with regards to ISO 10002 (an example of AUG MSS) in particular. Next, a review on the use of ISO 10002 for handling complaints is presented.

2.2.3 ISO 10002 for complaints handling

ISO 10002, Guidelines for complaints handling in organizations first came out in 2004 as part of a triad of customer satisfaction standards together with *ISO 10001, Guidelines for codes of conduct for organizations* (ISO, 2007a) and *ISO 10003, Guidelines for dispute resolution external to organizations* (ISO, 2007b) (Dee *et al.*, 2004). A fourth accompanying standard came out a few years later, *ISO 10004, Guidelines for monitoring and measuring [of customer satisfaction]* (ISO, 2012). The standard on complaints handling, ISO 10002, has been revised recently, and a second edition been published (ISO, 2014). The revision was minor, but a noticeable change from the first to the second edition was the removal of the statement declaring

that ISO 10002 "was not intended for certification of contractual purposes" (ISO, 2004a). Such deletion could likely aim to foster adoption through internal motivation (e.g., organizations seeking certification) and external factors (consultants and registrars adding an option to their certification capabilities thus promoting use-of and registrability-to complaints handling with their clients).

In the academic literature, there are only a handful of studies on the use of ISO 10002 in organizations, yet they span a variety of sectors: for example, at a Canadian Electric Utility (Hughes and Karapetrovic, 2006), in engineering courses at a University (Honarkhah 2010; Karapetrovic, 2010), by an organization dedicated to railway administration (Simon and Douglas, 2013), in Spanish spa organizations (Simon et al., 2015), and in integrated health care (Khan and Karapetrovic, 2014 and 2015).

It has been pointed out before, and is still evident, that academic literature on the use of ISO 10002 is very limited (Ang and Buttle, 2012; Khan and Karapetrovic, 2014). Bennett and Savani (2011) also reflected on the lack of use of standards for complaints handling: *"why so few of the organizations that do have systems choose to model them on pre-existing standards (such as ISO 10002)?"* Notwithstanding the limited use reported in the literature, evidence indicates that it could be beneficial to use the guidance from ISO 10002 for managing complaints (Hughes and Karapetrovic, 2006; Ang and Buttle 2006 and 2012) and feedback (Karapetrovic, 2010).

ISO 10002 (2014) provides *"guidance for the design and implementation of an effective and efficient complaints-handling process for all types of commercial or non-commercial activities, including those related to electronic commerce."* As per the standard, potential benefits of using ISO 10002 (2014) can include:

> *"- provid[ing] a complainant with access to an open and responsive complaints-handling process,*
>
> *- enhanc[ing] the ability of the organization to resolve complaints in a consistent, systematic, and responsive manner, to the satisfaction of the complainant and the organization,*
>
> *- enhanc[ing] the ability of an organization to identify trends and eliminate causes of complaints, and improve the organization's operations,*
>
> *- help[ing] an organization create a customer-focused approach to resolving complaints, and encourage personnel to improve their skills in working with customers, and*
>
> *- provid[ing] a basis for continual review and analysis of the complaints-handling process, the resolution of complaints, and process improvements made"* (ISO, 2014, p. vi).

Notwithstanding the limited number of academic research on the use of ISO 10002 by organizations, it is worthwhile to recapitulate their findings:

- Hughes and Karapetrovic (2006) identified that the *"biggest benefits […] can be realized from changes to maintenance and improvement of the [complaints handling system, including] aggregate complaint reports [, ….] customer satisfaction surveys and audits of the complaints handling system."*
- Ang and Buttle (2006) concluded that *"excellence at customer retention is positively and significantly associated with the presence of documented complaints-handling processes."*
- Later on, Ang and Buttle's (2012) empirical study concluded that *"organisations that implement ISO 10002-conformant complaints-handling processes do enjoy beneficial marketing-related outcomes, particularly in terms of enhanced levels of customer advocacy, higher levels of customer satisfaction, and improvement to customer-facing processes."*

In addition to the primordial purpose of ISO 10002, which is complaints handling, Khan and Karapetrovic (2014 and 2015) used the guidance to develop a feedback handling system (FHS) at a Canadian hospital. Although they did not implement the FHS, its usefulness and feasibility were validated. The authors concluded that principles of integrated health care such as "patient centeredness" and "continuum of care" can be implemented and maintained, respectively, by using ISO 10002 together with ISO 10004.

One component suggested by ISO 10002 is "8.5 Auditing of the complaints-handling process", which refers to the regular examination of the complaints handling process in order to asses:

"- process conformity to complaints handling procedures; and

- process suitability to achieve complaints handling objectives" (ISO, 2014).

The next subsection addresses the topic of audits in general, with a focus on audits that examine interdepartmental processes, an example of which could be a complaints handling process.

2.3 Audits

2.3.1 Overview

Although several authors define audits differently (refer to Table I of Karapetrovic and Willborn, 2001; and Table 2.1 of Ni, 2004, for two illustrative comparisons of audit definitions), a suitable alternative is offered by ISO 19011, as a *"systematic, independent and documented process for obtaining audit evidence and evaluating it objectively to determine the extent to which the audit criteria are fulfilled"* (ISO, 2011b). Audits usually follow the same fundamental sequence, even if described slightly differently in the literature. For example, ISO 19011 identifies the following six stages of the audit process: *"Initiating the audit, Preparing the audit, Conducting the audit activities, Preparing and distributing the audit report, Completing the audit, and Conducting audit follow up"* (2011b). Russell (2005), however, organized the audit process in four main stages, namely: Audit Preparation and Planning, Audit Performance, Audit Reporting, and Audit Follow up and Closure. Irrespective of the number of stages, the fundamental activities are the same.

Audits are enabled by the use of different tools, the most common of which include flowcharts or flow diagrams (Arter, 2003), and checklists (Russell, 2005). A flowchart allows *"charting the process steps"* (Arter, 2003); while checklists provide *"notes and instructions about specific things and specific areas, with specific questions to ask and specific techniques to use during an audit"* (Russell, 2005). Other audit tools may include guidelines, i.e., *"additional documented instructions [...] usually prepared in a statement format"*; log sheets, which allow the auditor to make notes on *"what they have observed and with whom they have talked"* (Russell, 2005); and tree diagrams, which can be used to show *"process elements and controls"* (Arter, 2003).

Audits, more specifically "internal audits", are a common component of Management System Standards (MSSs), as illustrated by ISO 9001 (2015c), ISO 14001 (2015a), and ISO 10002 (2014), to name a few. The prevalence of an auditing component in MSSs is further evidenced by the existence of section "9. Internal Audit" in ISO's "High level structure, identical core text, common terms and core definitions" or simply "HLS" (ISO/IEC, 2015), the latter guidance developed with the aim of providing a common structure for the development of new, and eventual revision of existing, MSSs. Thus, it seems more likely than not, that future MSSs will

continue to include an internal auditing component that requires organizations to assess their MSs for conformity and effectiveness (i.e., the two audit objectives identified in ISO/IEC, 2015).

In addition to conformity and effectiveness; different authors provide comparable (i.e., similar in name or meaning) or complementary audit objectives, as exemplified by ISO 10002 (2014); ISO 19011 (2011b); HLS (ISO/IEC, 2015); Russell (2003, 2005); Arter (2003); and Bautista-Smith (2012). Table 2 shows the audit objectives different sources have identified and in relation to what (e.g., criteria, guiding questions, or goals).

Table 2 - Audit Objectives Comparison

Objective	ISO 10002 (2014)	ISO 19011 (2011b)	"HLS" (ISO/IEC, 2015)	Russell (2005)	Russell (2003)	Arter (2003)	Bautista-Smith (2012)
Conformity	~ to procedures	~ with contractual requirements	~ to the organization's own requirements ~ to requirements of the MSS				
Suitability	~ to objectives					- Ability of controls to accomplish the task in an efficient manner. - Do they have the breadth and depth to get the organization to get from A to B? - Are they the right set of rules?	
Improvement		~ of Management System (MS) ~ of performance of MS					
Effectiveness		Management System ~	MS is effectively implemented and maintained			- Does it work as designed? - Is it technically correct? - Does it communicate in a meaningful way to the end user? - Is it accessible?	
Adequacy				Sufficient for a specified requirement			
Compliance				Requirements are met (contracts, specifications or regulation)		- Conformance to a set of rules - Compliance is more comprehensive and includes conformity (p.7)	
Risks					To identify probable failures		
Optimization					Efficient use of resources to achieve objectives [Efficiency]		
Value adding							- Remove waste - Improvement opportunities

Regardless of naming variations, it is apparent from Table 2 that four clearly distinct objectives can be identified, namely:

- Compliance (or Conformity)
- Effectiveness (or Suitability, Adequacy)
- Risks
- Improvement (or Optimization, Increased Efficiency, Value Adding)

In addition to audits that examine management systems, also referred to as 'system audits', there also exist 'product audits', which examine a product against requirements; and 'process audits', which examine *"an operation or method against predetermined instructions or standards, to measure conformance to these standards and the effectiveness of the instructions"* (Russell, 2005).

Both types of operations, namely processes and systems, may contain points at which personnel from different departments interact with each other, in order to achieve the relevant objectives. Those points of interaction, which could also be referred to as 'interfaces', could be considered as critical since information is crossing departmental boundaries and important communications will be flowing back and forth. An audit that would allow the examination of 'interfaces' would be highly desirable for a process or system that relies on interactions for a successful performance. In order to better understand the state of the art involving 'interface audits', an exhaustive literature review was conducted on the topic of 'interface audits' and similarly-named audits; of which the method and results are presented in the next subsection.

2.3.2 Interface audits

The examination of literature began with the term 'interface audit' as a result of having personnel from the case study organization (CSO) state that interfaces with other departments were the points where they had most problems when executing their main process. Interfaces, thus, became the target which would be desirable to examine and improve; and the resulting term, 'interface audit' was used to kick-start the literature search. A preliminary search was performed (see A1 in Figure 2) in order to assess the existence of material related to interface audits and gain a quick understanding of the term. Then, further literature examination took place by looking at synonymic terms (B in Figure 2) of 'interface audit' such as 'link audit', 'boundary audit' , in addition to searching boundary-audit related terms (C) like 'interdepartmental audit',

'interdepartmental process audit', and 'interaction audit'. Subsequently, an exhaustive search (A2) using the term 'interface audit' was conducted, followed by a search of newly found terms of clinical audit variations (D) such as 'multidisciplinary audit' and 'multiprofessional audit'.

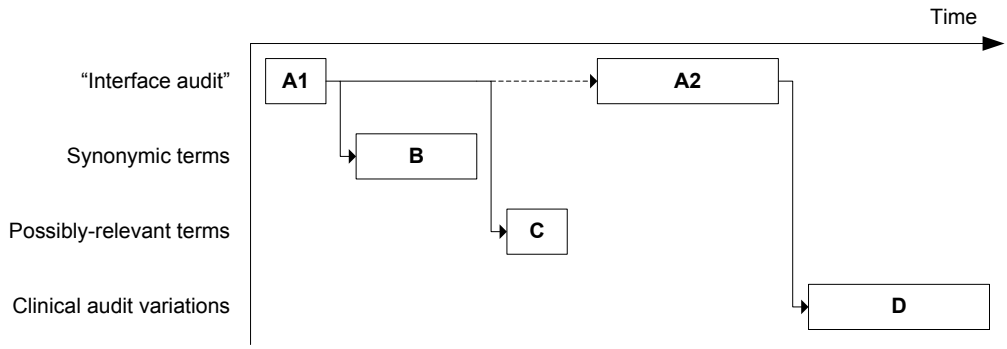


Figure 2 - Literature review on "interface audit" across time

On the one hand, the use of synonymic terms allowed a wide examination of literature that used expressions related to 'interfaces'. This part of the search served mainly as an excluding screen, i.e., at the end of the search there was reasonable confidence that other than 'interface audits' there were no relevant-to-research approaches utilizing synonymic names. On the other hand, the inclusion of 'clinical audit variations' uncovered during the 'interface audit' literature search enabled an in-depth examination, albeit time-consuming, of the evolution of a subset of medical audits in the UK during the 1990s and 2000s.

2.3.2.1 Method

Seven online databases (Emerald Insight, Google Scholar, Scopus, Web of Science, ABI Inform Global, Business Source Complete, and PubMed) were utilized to search for the following terms:

1. Main term and clinical audit variations: 'interface audit', 'multidisciplinary audit', 'multiprofessional audit', 'multipractice audit', 'interpractice audit';
2. Synonymic terms: 'alliance audit', 'bond audit', 'boundary audit', 'border audit', 'coalition audit', 'connection audit', 'frontier audit', 'link audit', 'node audit';
3. Possibly relevant terms: 'interdepartmental process audit', 'interdepartmental audit', and 'interaction audit'.

2.3.2.2 Results

The results of the literature review have been arranged by audit topic in order of relevance: starting with 'interface audits and other clinical audit variations', followed by 'synonymic terms', ending with 'possibly relevant terms'.

2.3.2.2.1 Interface audit and other clinical audit variations

The origin of the term 'interface audit' can be traced to the UK's health care sector in the early 1990s as a way to examine the flow of patients from primary care, which includes general practice and community services, to secondary care, which includes hospitals, and back. Interface audit is *"an audit that involves both general practitioners (GPs) and hospital doctors [; and] may audit care given to patients who attend either or both settings, or examine the quality of communications between hospital and general practice (GP)"* (Baker, 1994). Eccles *et al,.* (1996) went on to observe that *"the primary-secondary care interface is a concept rather than a physical structure; it is composed of the multiple potential points of contact between the two sectors (there is only a limited amount of face to face contact between healthcare professionals from the two sectors; by contrast, patients often cross backwards and forwards across the interface between the two sectors as a result of referral to, and discharge from, secondary care)."* Additionally, Baker (1994) recognized that the interface audit should be performed *"by professionals from both primary and secondary care working together as a team to improve quality"* suggesting that such collaboration would reduce the probability of failure that may result from not involving one of the parties.

Though the scope and collaborative effort of the interface audit were early defined, little was suggested regarding the 'how' to do it: Humphrey and Berrow (1993) recognized the lack of prescription regarding clinical audits in general: *"the original guidelines deliberately left room for local interpretation, on the assumption that approaches would differ from place to place and evolve as experience was gained."* Not even 20 years later was it possible for the author to find a summary that would describe the method or methods employed by the interface audit. Thus, the literature search served as a means to gather and analyze such information.

Table 3 contains a summary of interface audits that were identified during the literature review. The information in the table, as categorized by the author, was used to synthesize findings and identify the usual methods of the interface audit.

Table 3 - Summary of interface audits

	Audit step / Source	Patient sample selection	Reach out to care providers to request participation in study (and info)	METHODS				Data analysis	Post-audit actions		Re-audit
				Examination of patient record and/or practitioner notes	Questionnaires to care providers	Involving patients: Questionnaires to patients	Involving patients: Interviews of patients		Feed-back of results to practitoners	Other actions	
1	Burrow and Rimmer (1997)	**YES**	**YES**	**YES**	NO	NO	NO	**YES**	**YES**	**YES: meeting to review results for discussion and recommendations**	NO
2	Round et al. (1997)	**YES**	**YES**	**YES**	NO	**YES**	**YES**	**YES**	NO	NO	NO
3	Hall and Fairney (1998)	**YES**	NO	NO	**YES**	**YES**	NO	**YES**	**YES**	**YES: meetings, process and infrastructure changes**	**YES (Planned)**
4	Hook et al. (1999)	**YES**	**YES**	NO	NO	**YES**	NO	**YES**	**YES**	**YES**	**YES**
5	Wilkinson et al. (2000)	**YES**	NO	**YES**	NO	NO	NO	**YES**	NO	**YES: formulation of recommendations**	**YES**
6	Kumwenda et al. (2000)	**YES**	NO	**YES**	NO	NO	NO	**YES**	**YES**	**YES: Process changes**	NO
7	Iqbal et al. (2001)	NO	NO	NO	**YES**	NO	NO	**YES**	**YES**	**YES: meetings, policy change and implementation**	NO
8	Watson et al. (2001)	**YES**	NO	**YES**	NO	NO	NO	**YES**	NO	NO	NO
9	Buckley and Sharrad (2003)	**YES**	**YES**	NO	**YES**	NO	NO	**YES**	**YES**	**YES: development and dissemination of guidelines**	**YES**
10	Unger et al. (2004)	**YES**	NO	**YES**	NO	NO	NO	**YES**	**YES**	**YES: Process changes**	NO
11	Swallow et al. (2005)	**YES**	NO	**YES: Referral letters**	NO	NO	NO	**YES**	NO	NO	NO
12	Dunkley et al. (2006)	**YES**	**YES**	**YES**	NO	NO	NO	**YES**	**YES**	**YES: sent reminders of recommendations and laminated guidelines**	**YES**
13	Morrison et al. (2007)	**YES**	NO	**YES**	NO	**YES**	NO	**YES**	NO	NO	NO
14	Narayanan et al. (2008)	**YES**	NO	**YES**	NO	NO	NO	**YES**	NO	NO	NO
15	Parker and Somasunderam (2010)	**YES**	**YES**	**YES**	**YES**	NO	NO	**YES**	NO	**YES: Planned actions**	**YES (Planned)**
Total "YES"		**14**	**6**	**11**	**4**	**4**	**1**	**15**	**8**	**10**	**6**

Green color used to highlight studies reportedly closing the audit cycle (i.e., re-auditing, even if it is stated as 'planned')

Yellow color used to highlight studies reportedly feeding results back to practitioners, but not re-auditing.

Listed chronologically, Table 3 contains 15 sources that report ‘interface audits’. It can be seen that the interface audit usually started with the selection of a sample of patients whose management by primary and secondary practitioners would be examined; then, the care practitioners overseeing those patients were contacted to request notes or other records. Sometimes practitioners were approached first, and patient sample selection occurred later. Next, the audit team examined available records (including paper and computer-based electronic records, doctor notes, or referral letters). In addition, some audits included the use of

questionnaires to gather practitioners' knowledge of diseases and treatment or opinions regarding facilities and their services (Hall and Fairney, 1998; Iqbal, 2001), patient medication awareness and maintenance of records (Parker and Somasunderam, 2010), or satisfaction with care processes (Buckley and Sharrad, 2003). Furthermore, some audits used questionnaires to gather patients' perception and satisfaction (Hall and Fairney, 1998; Hook *et al.,* 1999; Morrison *et al.,* 2007; and Round *et al.,* 1997).

One instance was found where patients were interviewed when the use of questionnaires was not possible (Round *et al.,* 1997), but this seems to be a rare exception. Then, the data was analyzed and conclusions drawn. Usually the conclusions would be fed-back to the practitioners, followed by other post-audit actions, such as meetings, response planning, and documentation and process changes. Then, reaudit would take place to verify that changes took place. Interestingly, Khunti *et al.,* (1999a), when examining multipractice audits discovered that audit groups failed to follow up, i.e., to re-audit, in 39.6% (19/48) of the audits in their sample, which seems to match the number of 'full-cycle audits' as a percent of the total (6/15 or 40%) in the present study.

Table 3 uses two color codes: green and yellow. Green is used to highlight studies that report closing the audit cycle, i.e., re-auditing, while yellow is used for studies that have some post-audit actions but do not report re-auditing. Also, at the bottom, the total number of 'YES' for each method is presented, to give an idea of the prevalence of certain methods against the others.

From the analysis above, the following conclusions regarding interface audit can be drawn:

1. The interface audit relies strongly on identifying a sample of patients and using that sample to assess care management, practitioner-related aspects (i.e. awareness, knowledge, satisfaction), and patient satisfaction.
2. The most common source of audit evidence (11/15) is patient records (whether paper- or computer-based), and they are frequently used as the sole method of data collection (8/11), whereas on occasions questionnaires would also be utilized (3/11).
3. Interestingly, where patient records are not employed (4/15), questionnaires are used for data collection.

4. Interviewing patients is the least common method, with the only reported instance (Round *et al.,* 1997) using interviews to verify questionnaire responses and as a back-up method for when elderly patients were unable to fill out questionnaires.
5. Some audits (5/15) failed to state what actions (if any) were taken after the audit.
6. Similarly, only a minority of studies (6/15) reported the performance or the planning of re-audits to assess change, thus completing the "audit cycle" as defined by Baker (1994).

An update of the literature on 'interface audit' in 2016, identified two additional hits: the first hit corresponded to the use of the term 'interface audit' in a book on clinical audits, i.e., Ashmore et *al.'s* (2011), succinctly describing the interface audit and providing a few examples, but no further details. The second hit was Quaife *et al.*'s (2012), who performed a prospective interface audit to assess their department's adherence to NICE guideline CG92, and to *"identify key learning points for future practice."* However, the details provided by Quaife et *al.*, (2012) on the audit were insufficient to be included in Table 3.

2.3.2.2.1.1 Other clinical audit variations

During the examination of an article (namely, Humphrey and Berrow, 1995) in the 'interface audit' literature review, a variety of distinctively-named clinical audits was identified: i.e., "multidisciplinary-, multiprofessional- , multipractice- , and interpractice audits". Most of these audits were performed in the UK, and usually examined care management by reviewing patient records or using questionnaires, similarly to the interface audit. The variations and their relevant aspects are presented below.

The term 'multidisciplinary audit' is usually used to refer to a clinical audit with assorted occupational categories within the audit group or within the auditees (including questionnaire respondents). Examples of the former include audit teams comprised by *"independent assessors, ward sisters and a senior physiotherapist"* (Clapham *et al.,* 1995), and audit groups consisting of *"a mix of specialties: surgery, medicine, accident and emergency, nephrology, respiratory medicine, obstetrics and gynaecology, orthopaedics, rheumatology and rehabilitation, elderly care and general psychiatry"* (Cheater et *al.,* 2005). Examples of multiple occupational categories within auditees include Silkroski *et al.*'s (1998) interviews with *"interdisciplinary staff [...] involved in the enteral delivery process [such as] nurses, pharmacists, dietitian, and*

materials management staff", and Shroff *et al.*'s (2004) use of questionnaires to gather surgeons', anaesthetists' and midwives' impressions after performing operations.

Sometimes, the use of the term 'multidisciplinary audit' is more liberally employed and is usually the result of having a multidisciplinary component within the audit such as the audit criteria or the work documents. For example, Johnson (2004) uses the term to acknowledge that the team who developed guidelines that were used as audit criteria included *"staff from the [accident and emergency- A&E], radiology and neurosurgical departments."* Similarly, Schelenz *et al.,* (2009) use the term to refer to the multi-specialty content of the questionnaire employed *"involving [questions from] key specialties [such as:] microbiology, histopathology, radiology and specialist clinical units, to measure the quality of care provided for patients with invasive fungal infections."*

The term 'multiprofessional audit' is also used when audit teams are composed of members from different professions, emphasizing educationally-varied groups such as nursing, therapy professions, and physicians (Humphris and Littlejohns 1995; McKenna, 1995; and Robinson, 1996). Multiprofessional audits aim to draw from the diverse expertise of an assorted audit group when examining collected data (see Holdcroft *et al.,* 1995; Honings *et al.,* 2009 for a couple of examples.)

Conversely, the use of a distinctive label to denote clinical audits with multiple auditees was also found. For example, the term 'multipractice' is used to designate audits that examine care at several general practices (i.e., clinics) usually within a trust or district aiming to assess care within that administrative region (see for example Khunti *et al.,* 1999b; Siriwardena *et al.,* 2003). 'Multipractice audits' allow researchers to *"compare the performance of each participating [practice] against established evidence-based criteria"* (Stevenson *et al.,* 2001). Other studies, called 'interpractice audits', are similar to 'multipractice audits' in that the data is collected from many general practices, yet distinctive in that analysis includes comparing results between practices (i.e., Fahey and Peters 1997; Hooker *et al.,* 1999; and Mashru and Lant 1997).

The literature search also encompassed synonyms of the word 'interface' in order to search for audits that could be have been reportedly used to assess interdepartmental processes. The findings are presented next.

2.3.2.2.2 Synonymic terms

The following terms were researched: 'alliance audit', 'bond audit', 'boundary audit', 'border audit', 'coalition audit', 'connection audit', 'frontier audit', 'link audit', and 'node audit'. Although most of the terms produced hits (i.e., search results), the domain of application was usually unrelated to the domain of quality management or health care, as presented below.

The term 'alliance audit' was used by Spekman *et al.,* (1996) to refer to an assessment performed by managers on the strategic landscape surrounding an organization; while Connell *et al.,* (1998) used it when referring to a framework that could be used to plan and manage strategic alliances.

Wendelin's (2011) *"bond audit […] focuses on the product, capabilities, resources and actors of the relationship or network […, and aims to] analyze and measure all bonds and thus all of the parts that build the business relationship."* The bond audit method analyzes relationships in terms of the following types of 'bonds' or categories: technical, time, knowledge, social, legal, economic, geographical, cultural, ideological, psychological, and strategic. Even though the method is a comprehensive approach to evaluate a business relationship, it is considerably different than the proposed boundary audit in that the latter examines interactions between departments during the performance of a process, as opposed to rating the 'relationship'. Moreover, the boundary audit is a qualitative, comparative effort, whereas the bond audit is quantitative and categorical. In other words, the boundary audit examines a process, including activities and interdepartmental interactions in terms of compliance and effectiveness with regards to specific criteria, in addition to the identification of risks and improvement opportunities; whereas the bond audit aims to quantify (by means of Liker scale-based ratings), the business relationship in terms of the different types of 'bonds' or categories developed by Wendelin.

A search of the term 'boundary audit' did not match any results. However, a couple of results pointed to a term called "cross boundary audit" (Ramachandra and Bachamanda 2007 via Özkoçak and Tuna 2011), that *"assesses activities, which cut across departments or business units […;] transport and supply chain are such examples"* (Ramachandra and Bachamanda 2007, p. 11). A subsequent search of the term cross boundary audit failed to provide more details as to the specific method. From the information available, it can be understood that the cross boundary audit, classified as an "activities audit" is very similar to a process audit.

Notwithstanding the similarities in scope with the proposed boundary audit method, such as the examination of activities *"that cut across departments"*, the level of detail herein provided (including the conceptual framework, method description, and supporting tools) aims to offer clear and thorough guidance to practitioners and academics on the use of the boundary audit method.

The term 'border audit' had no direct matches, but helped to identify the term 'cross-border audit' which refers to audits of financial transactions (including financial audits and fiscal audits) occurring across states of the United States (Avi-Yonah, 2009), or India (Cnossen, 2013), or between countries, such as those belonging to the European Union (Cnossen 2008; Rottier and Veron 2010), to name a few examples. In other words, it appears that cross-border audits have a very different scope and focus than the proposed boundary audit (i.e., financial transactions, as opposed to interdepartmental business processes).

Other terms that yielded unrelated results included 'link audit', 'connection audit', 'node audit', 'coalition audit', and 'frontier audit'. After having examined synonymic terms, other 'possibly-relevant' terms were researched. The findings are presented next.

2.3.2.2.3 Possibly-relevant terms

A few search terms were constructed by utilizing words related to the distinctive aspects of the boundary audit, for example: 'interaction audit', 'interdepartmental process audit', and 'interdepartmental audit'. The results from the search are presented below.

The term 'interaction audit' was usually employed when referring to assessments of human-machine interactions (Cordero and Wagner, 2008), graphic-user-interfaces (Stahl and Williams, 2008), or even social media interactions such as "comments" and "likes" (Meyer, 2012). The only example of "interaction audit" that has relevance to the present research is the one mentioned by Mankuta *et al.,* (1999) when referring to the assessment of a "patient-physician interaction" during a physical examination aiming to *"determining the clinical skills of the observed physician [while interacting with a patient and includes the evaluation of] the process of acquisition of history, physical examination, medical assessment, and implementation of a medical plan."* Mankuta *et al.*'s (1999) article is also interesting because it mentions observation as a method employed, and because it relates to health care.

Even though there were no hits returned when using the search term 'interdepartmental process audit', numerous hits were found using the term 'interdepartmental audit'. The use of the latter is broad and has different meanings: from audits performed cooperatively between two departments, to audits performed reciprocally between similar (or completely dissimilar) departments, to audits aiming to compare departments (or benchmark) against other departments. The term 'interdepartmental audit' has been used to convey not only collaboration, but also reciprocity, or even comparative intent. Some authors utilize the term "interdepartmental audit" to describe audits with various types of reciprocity, for example:

- when one department audits another (i.e., when *"a quality control department audits production"* in Davis, 1991); or
- when audits are reciprocal between different departments within the same facility (i.e., "Biomedical" audits "2nd Floor", and "Biomedical" is in turn audited by "PICU" as summarized in Figure 2 of Loria and Prasad, 2007); or
- when a physics department of a hospital audits another hospital's physics department, and is then audited by *"either the host department or by another department in a cooperating audit group"* (Bonnet *et al.,* 1994).

Other authors use the term "interdepartmental audit" to refer to comparative studies or assessments; such as Heikkinen *et al.*'s (2006) comparative study of 18 hospitals' imaging programs; Ryan *et al.*'s (1998) *"comparative interdepartmental audit [….] to benchmark […] accident and emergency (A& E) departments"*; as well as those presented by Burton *et al.,* (2006); and Palmer *et al.,* (2011), to mention just a few.

The next subsection of the literature review starts with a summary of the work surrounding integrated managements systems and examines three significant aspects, namely models and methodologies for integration, and approaches for assessment of MSs.

2.4 Integrated Management Systems

The research on the Integration of Management Systems took off at the end of the 1990s (see for example Conti, 1999; Jonker and Klaver, 1998; Karapetrovic and Willborn, 1998a and 1998b; Seghezzi, 1998; Wilkinson and Dale, 1999 and 2001; and Wright, 2000). Since then, and in response to the continued proliferation of MSSs, researchers have studied theory and practice on the Integration of Management Systems (for example Asif *et al.*, 2009; Beckmerhagen *et al.*, 2003; Bernardo, 2014; Bernardo *et al.,* 2009; Douglas and Glen, 2000; Jonker and Karapetrovic, 2004; Karapetrovic, 2002 and 2003; Karapetrovic and Jonker, 2003; Karapetrovic *et al.,* 2006; and Zeng *et al.,* 2006). Significant events that highlight the relevance of the topic of Integrated Management Systems include the publishing of a handbook providing guidance on *The Integrated Use of Management System Standards* (IUMSS for short, by ISO, 2008a) and a special issue of *The TQM Journal* on "Integrated Management Systems" (Karapetrovic (Ed.), 2010), not to mention the country-specific efforts to provide guidance on integration, for example, via Bernardo (2014): AENOR (2005), AS/NZ (1999), BSI (2006), and DS (2005).

It has been argued that a comprehensive approach to achieve an Integrated Management System (IMS) should include both a model and a methodology (Jonker and Karapetrovic, 2004). Examples of early models for IMS (as per Karapetrovic and Jonker, 2003) include: *"Wilkinson and Dale's (2001) 'total quality model'; Karapetrovic and Willborn's (1998b) 'systems model'; Seghezzi's (1998) 'St. Gallen model'— also see Seghezzi & Schweickardt (2001)— as well as Conti's (1999) 'business model'"* (p. 454). Nevertheless, to better understand the state of the art regarding models for IMS, the focus of this research is on more recent models such as: Rocha *et al.*'s (2007) 'motor model'; López-Fresno's (2010) five-criteria model; Zeng *et al.*'s (2006) 'synergetic model'; Tarí and Molina-Azorín's (2010) use of the EFQM model; Asif and Searcy's (2014) Sustainable Development Management System (SDMS), Ferreira Rebelo *et al.*'s (2014 and 2016) IMS-QES and IMS-QESI, and lastly, a review of Karapetrovic and Willborn's (1998b) 'systems model', which has remained current across the last nearly two decades.

In addition, the following methodologies for IMS were also reviewed: Karapetrovic and Willborn's (1998a) sequence of integration; Wright's (2000) methodology based on the identification of MS 'keys'; Karapetrovic and Jonker's (2003) methodology based on the use of common MS elements, such as audits, business performance measurement, and business

excellence frameworks; Asif *et al.*'s (2009) "process-embedded design"; and lastly, the methodological guidance provided in the IUMSS handbook (ISO, 2008a)

After model and methodology had been applied and an Integrated Management System has resulted, assessment considerations could be explored. Just as with Management Systems (an Integrated Management System is a type of MS), assessment can be achieved in different ways, for example, through audits and self-assessments.

Next, relevant examples of models and methodologies for Integration of Management Systems are presented, followed by approaches towards the assessment of MS/IMS

2.4.1 A review of models for IMS

Rocha *et al.*'s (2007) "motor" model aims to enhance Management Systems *"so that they are more reflective of sustainable development [, with integration] considered from both a macro- and a micro- level perspective."* The model provides a framework to enable sustainable development in "day to day operations" through its integration into "mainstream business processes". As per the authors, the motor model can successfully accommodate changes and additional Management Systems.

López-Fresno (2010), based on empirical studies and literature review, presented a model possessing five "criteria": *"complexity-systemic approach", "processes", "culture – maturity", "flexibility",* and *"sustainability"*. Supporting the model, the author advocated for a customized methodology under the argument that *"a methodology to implement the IMS must be defined specifically for each organization."* The "criteria" of the methodology are: *"cellular implementation", "apoptosis criteria", "top management commitment",* and *"co-operative leadership."* In effect, the steps to implement the IMS consisted of: *"analysis of the current situation", "definition of the scope of integration", "interrelation of requirements", "identification of processes and interrelation matrix linking processes and requirements",* and *"design of the model: framework and modules"*.

Zeng *et al.*'s (2006) "synergetic model" for implementation of an IMS, consists of three levels: level 1 refers to *"strategic synergy"*, level 2 to *"organizational structural-resource-cultural synergy"* and level 3 to *"documentation synergy"*. The model is illustrated with examples of ISO 9001, ISO 14001 and OHSAS 18001, and the authors highlight the "similarities and

compatibilities" of the MSSs as enablers of the integration, highlighting for example, continuous improvement through the PDCA cycle.

Tarí and Molina-Azorín (2010) suggest the use of the EFQM model as a *"framework to develop an integrated management system"*. The EFQM model's five enablers (i.e., leadership, strategy, people, partnership and resources, and processes, products and services) can be used to structure components of Quality Management Systems and Environmental Management Systems. In addition, the four results of the EFQM model (i.e., customer results, people results, society results, and key results) can be used to analyse the performance of the integrated management system, or QEM.

Asif and Searcy (2014) argue that a comprehensive Sustainable Development Management System (SDMS) *"must contain at least three interrelated parts: underlying values and principles, system requirements, and evaluation/assessment to measure the performance and to drive continuous improvement."* The authors also state that *"the PDCA-based structure of the SDMS makes it possible to integrate it with other standards, including ISO 9001, ISO 14001, ISO 18001, and SIGMA sustainability guidelines"(*Asif and Searcy, 2014).

Another model that seeks benefits related to sustainability is presented by Ferreira Rebelo *et al.,* (2014), whose IMS-QES model was designed *"in the real environment of a Portuguese Organization"* with the help of employee interviews. Their model depicts "compatibility" of requirements from ISO 9001, 14001 and OHSAS 18001, as arranged following the steps of the PDCAI cycle (Plan, Do, Check, Act, Improve). The authors identify that requirements from quality, environment and safety can have different combinations of uniqueness or commonality, and five main components are proposed: (1) Integrated Management Policy and Objectives, (2) Organizational structure and resources, (3) Implementation and do the IMS-QES operational, (4) Monitoring of process and products, (5) Assessment, continuous improvement and innovation. More recently, the same authors presented a similar model, referred to as IMS-QESI that incorporates "research, development and innovation for the medium enterprise" (Ferreira Rebelo at al., 2016).

Lastly, the "system's view" model of Karapetrovic and Willborn (1998b) consists of the identification and use of fundamental components (i.e., objectives, processes, and resources) to

represent a *"unified whole"*, or system. The *"system's view"* model was used by the authors to structure MSS elements (e.g., Figure 4 and Figure 8 of Karapetrovic and Willborn, 1998b). The same authors (1998a) subsequently used the *"system's view"* model for the purpose of integration and referred to the result as a *"system of systems"*, exemplified by a Performance Management System (PMS) that concurrently incorporated Quality and Environmental Management Systems.

A common feature of several models for IMS is the use of the systems approach, examples of which include Karapetrovic and Willborn's (1998b) *"systems model"*, Rocha *et al.*'s (2007) *"motor model"*, and López-Fresno's (2010) five-criteria model. The utilization of a framework from a different discipline is exemplified in Rocha *et al.*'s (2007) use of an electrical motor to depict an IMS that "better reflects" sustainable development; and in Tarí and Molina-Azorín's (2010) use of the EFQM model (whose purpose is business excellence) to develop an integrated system for Quality and Environmental Management. Whereas the use of the Plan-Do-Check-Act (PDCA) cycle in IMS models is exemplified by Zeng *et al.'s* (2006) and Asif and Searcy's (2014).

A model for IMS represents the what, and a methodology represents the how. Karapetrovic and Jonker (2003) referred to one and the other as the ingredients (i.e., "what to integrate") and the recipe (i.e., "how to integrate"). Thus, the literature was also reviewed to identify methodologies employed for integration of management systems, of which the relevant findings are presented next.

2.4.2 A review of methodologies for IMS

The methodology proposed by Karapetrovic and Willborn (1998a) to describe the development of a Performance Management System (PMS), is based on the order of establishment (i.e., *"sequence of integration"*) of different management systems, e.g., first Quality Management System (QMS) and then Environmental Management System (EMS); or first EMS and then QMS; or the QMS and EMS simultaneously. Whereas sequential integration (i.e., first one MS and then another) relies on component *"add-on"* and their subsequent amalgamation, the third alternative, establishes an *"integrated and optimal [PMS]"* through shared components and function-specific modules.

The integration methodology presented by Wright (2000) suggests to have an initial MS in place (likely ISO 9001), and then to identify the *"keys"* of the additional MSSs, such as *"identification of environmental impacts"* for ISO 14001, and *"health and safety risk assessment"* for BS 8800 or OHSAS 18001. Wright (2000) proposes distinct sequences to achieve the *"key"* requirements, i.e., five steps to achieve the *"key"* of ISO 14001, and four steps to achieve the *"key"* of BS 8800 or OHSAS 18001. Then, the remaining of the systems clauses *"fall into place"* through merging and additions to the primordial MS, due to the shared *"basic disciplines"* and *"common structures"* of the MSSs (Wright, 2000).

The *"Process embedded design of integrated management systems (PEDIMS)"* presented by Asif *et al.,* (2009) take Hardjono *et al.'s* (1996) guiding principles of *"direction, consistency, coherence and feedback"* and apply them as strategies for vertical and horizontal *"IMS implementation"*. The authors further explore horizontal integration as represented by the principle of coherence in order *"to integrate the different requirements of individual management systems into one composite activity [together with the development of] integrated documentation"* (Asif *et al.*, 2009, p. 272). The four steps of the design of the process based IMS are: Design core processes, Process performance excellence or operational excellence, Integration in strategy and operations, and Business excellence. Then, the implementation of the PEDIMS, which follows the PDCA cycle, uses IMS drivers (e.g., *"regulatory, marketing, operational, ..."*)["Input"] that feed into IMS enablers (e.g., *"top management support, strategic planning, ..."*)["Plan"] to allow for IMS implementation ["Do"] that yields Results (e.g., *"operational improvement, cost savings, ..."*)["Check"].

Karapetrovic and Jonker (2003) provide a comprehensive look at how to achieve an integrated management system. They take care to offer both a model and a methodology. The model selected is the *"systems model"*, which allows *"harmonization"* of MSs through the systems model's main elements, namely: *"determination of goals", "planning and design", "acquisition and deployment of resources", "implementation and operation", and "evaluation and improvement"*. The supporting methodology, hinged on the principle of amalgamation as an enabler of IMS-derived benefits, advocates the use of *"one or more common MS elements"* to facilitate integration, examples of which include: *"audits, business performance measurement, or business excellence frameworks"* (p. 357).

Lastly, a handbook called "Integrated Use of Management Systems" (IUMSS) by ISO (2008a) provides in Chapter 3 a clear and comprehensive process to *"integrate the implementation of multiple MSS requirements."* The methodology consists of seven steps, of which the fundamental ones include (from ISO, 2008a, p. 65):

> *"3.4 Connect MSS requirements and the organization's MS*
>
> *3.4.1 Structure the Management System (MS)*
>
> *3.4.2 Structure Management System Standard (MSS) requirements*
>
> *3.4.3 Map MSS requirements against the MS*
>
> *3.5 Incorporate MSS requirements into the organization's MS*
>
> *3.5.1 Analyse gaps*
>
> *3.5.2 Close gaps*
>
> *3.5.3 Verify gaps."*

Methodologies for integration of Management Systems present a sequence of steps that can be followed to incorporate, with different levels of complexity, requirements from different standards into an Integrated Management System. After an IMS results from having used a model and methodology, assessment of such IMS becomes a need. The next subsection presents a literature review on MS assessment.

2.4.3 A review of approaches for MS assessment

Management Systems (MS), of which an Integrated Management System (IMS) is a sub-set, can be evaluated in several different manners; being compliance and effectiveness the most common objectives, and audit and self-assessment the most common methods. Karapetrovic and Willborn (2001) succinctly compared the two approaches, stating that *"audits measure the effectiveness and achieved improvement of an organization's […] system against requirements, while a self-assessment compares organizational performance with business excellence model (BEM) criteria."* The focus of this literature review subsection is on assessments due to two reasons: first, literature on audits, particularly interface audits, has already been covered in an earlier subsection; and second, the term assessment is preferred for the purpose of examination due to it being less prescriptive (when compared to audits which by definition imply the use of criteria and binary compliance assessments), when aiming to examine MS components relationships.

Benefits and challenges of self-assessments have been well known since a few years back (as exemplified by Conti, 1993; Karapetrovic and Willborn, 2001; and Van der Wiele *et al.,* 1997). Van der Wiele *et al.,* (1997) proposed that an organization can evolve from using ISO 9001 for quality assurance to achieving TQM by means of self-assessment against quality award models (also known as Business Excellence Models, BEM). Later on, Karapetrovic and Willborn (2001) compared quality audits (QA) and self-assessments (SA) and suggested their compatible use for performance evaluation. Challenges of self-assessment against BEMs include, per Conti (1993) as reported by Kaye and Dyason (1998): *"difficulty with measuring the link between internal improvements (enablers) and business results [...; and] problems interpreting the model [due to] the language used and lack of knowledge of participating managers about the company, particularly the ability to identify 'key processes'."* Balbaster Benavent *et al.,* (2005) recognized that the self-assessment process *"implies the investment of a substantial quantity of resources (material, economic, human, etc.) and it must be considered that not all firms are willing to devote the same amount to it";* while Reed *et al.,* (1996), also via Kaye and Dyason (1998), said that *"a certain stage of quality maturity is required before award frameworks and models can be used in a meaningful way."*

Reported research on MS assessment has included quantitative approaches, such as Pun and Hui's (2000) AHP-based assessment of Environmental Management Systems; and Brad's (2008) determination and use of value weights of ISO 9001 requirements for the purpose of assessing conformity of 'business systems'. Costella *et al.,* (2009) applied resilience engineering principles to auditing; and Davidson and Stern (2004) reported the use of numerical financial elements like Inventory and Return on Capital Employed, which together with non-financial aspects were used to identify the presence and effectiveness of a TQM program in organizations. Regarding the adapted use of a financial tool for assessing a MS, only one example was found, namely Migliore and Bratschum (1987) who proposed the use of a *"management system balance sheet (MSBS), [which is] a nonfinancial balance sheet that presents employee's evaluation of a firm's management system in terms of assets and liabilities."* It would appear that further exploration of the adaptation of financial tools for the purpose of MS evaluation could be beneficial, since financial tools are already used by organizations to represent financial results, hinting to the possibility that MS performance could also be assessed through the adapted use of financial tools.

In MS examinations, examples of criteria used by researchers have been varied and have also obeyed the ultimate purpose of each assessment; for example, the use of *"measurement criteria"* based on different *"inputs models"* such as OSHAS VPP, BSS 8800:1996, AIHA's OHSMS, and ISO 14001:1996 (Redinger and Levine, 1998) for OHSMS assessment; the use of criteria resulting from the integration of standards and business models, such as Pun *et al.*'s (1999) use of MBNQA/ISO 9001/ISO 14000 to enable the self-assessment of a QMS; the use of customized criteria, such as the *"continual improvement criteria"* based on ISO 9001 (Govender, 2012) to assess whether a Hygiene Management System *"supports continual improvement"*; or the use of non-standard/non-BEM guidance such as Fuller's (1999) reported use of the book "Successful Health and Safety Management" (Health and Safety Executive, 1997) to assess Health and Safety Management Systems. More recently, Kaneko and Munechika (2012) argued that due to the uniqueness of organizations, *"pre-established evaluation criteria"* fall short for the purpose of self-assessment, and therefore it is required to identify "*the competitive advantage factors that comprise a company's [Organizational Capability Profile, OCP]"* in order to *"design the evaluation criteria"* that can support the *"strategic self-assessment of [the] QMS."*

Related to the assessment of management systems, more recently, Bernardo (2014) proposed a model to *"empirically test the impact of the integration of MSs into innovation management performance"*, while Domingues *et al.,* (2016) proposed the *"Integrated Management Systems Maturity Model"* to *"compare between integrated management systems regarding their relative stage of evolution."*

The aspects presented above regarding assessment of MSs included difficulties, and quantitative approaches with an emphasis on those containing financial elements and assessment criteria. Next, the motivation for research is presented, followed by the research objectives.

2.5 Motivation for research

2.5.1 AUG MSS in health care

From the literature review, it is evident that complaints handling in health care remains challenged. In addition, the limited academic literature reporting on the use of ISO 10002 for complaints handling and feedback handling in health care also contribute as academic motivation for pursuing research. Similarly, lack of literature describing the use of the IUMSS methodology

with ISO 10002 (an example of AUG MSS), provides additional academic motivation. Lastly, practical motivation would exist were an organization wanted to assess their feedback handling system against the guidance from ISO 10002. Although Khan and Karapetrovic (2014, 2015) developed a FHS in a Canadian Hospital, it would still be interesting to explore how a centralized organization that handles province-wide feedback would benefit from using the guidance from ISO 10002 for complaints handling. Presumably, the activities at the centralized organization are different than those of a hospital, and involve different participants or stakeholders. Thus, the application of the AUG MSS would likely be different, and such exploration could be academically and practically beneficial.

2.5.2 Audit of an interdepartmental process

Even though extensive literature exists about quality audits and clinical audits, no evidence was found on the availability of methods for auditing interdepartmental processes or the examination of the 'interfaces' between departments. As such, the opportunity exists to research about a method that would examine interdepartmental processes with a focus on interfaces or interactions. Additionally practical motivation would derive from the need of an organization to establish a component for auditing of their complaints handling system that would also be capable to examine the interactions between departments.

2.5.3 IMS model, methodology and assessment approach

Even though researchers have proposed different models and methodologies for the integration of MSs, opportunities remain to explore different approaches, particularly those that could help to understand and assess MS components from a new perspective. Almost no research has been done regarding the use of financial tools for the integration and assessment of MSs. Therefore, the opportunity exists to examine how tools such as the Income Statement, Balance Sheet, and Ratio Analysis could be used for integration and assessment of MSs.

2.6 Research objectives

The research objectives of this dissertation are as follows:

1. To use the IUMSS methodology with an AUG MSS in a provincial healthcare system and to identify successive research questions. This will include:

    a. Using the IUMSS methodology with an augmenting standard for complaints handling

b. Augmenting the standardized system to also handle positive feedback

c. Identifying potential successive research questions

2. To develop a method for auditing interdepartmental processes. This will include:

a. The development of a conceptual framework (including supporting concepts).

b. The development or adaptation of supporting tools

c. The development or adaptation of the audit method

3. To test and adjust the auditing method. This will include:

a. The verification of the audit method using records

b. The validation of the audit method through interviews with experts

4. To explore how the Income Statement and Balance Sheet could be used for the integration of management systems (IMS); and how Ratio Analysis could be used to assess MS components. This will include:

a. The development or adaptation of a model and a methodology for IMS

b. The development of an assessment technique based on the components from 4a

c. The verification of the elements (4a, 4b) of the approach, using two MSSs

Achieving the objectives mentioned above would not only help to answer the question of *"how could an AUG MSS, such as ISO 10002, be used to handle feedback in health care?"*, but also *"how could an organization audit an interdepartmental process?"*, and *"how would integration and assessment of management systems be enhanced by using and adapting financial tools?"*

The next chapter presents the research methodology.

3 Research methodology

3.1 Introduction

This chapter presents the research methodology, starting with the general approach to the research, followed by an introduction of the Case Study Organization (CSO) and other relevant parties, alongside the three research components that comprise this dissertation. In addition, six research instruments are identified and described; with two elements of the research, namely interviews and records (i.e., closed complaints) being presented in greater detail due to their relevance. Lastly, the elements of the research are organized and presented as a system.

3.2 General approach to research

Yin (1994) has stated that "case studies are the preferred strategy when 'how' or 'why' questions are being posed, when the investigator has little control over events, and when the focus is on a contemporary phenomenon within some real-life context." In addition, case study is a frequent research method for management studies, including managerial processes (Yin, 2014). As such, the selection of case study as means of researching the use, auditing, and integration of Management Systems (MSs), seems appropriate. More so when Management System Standards (MSSs), thanks to new issuance or revision, could be considered as 'contemporary phenomena'. Supporting the claim of the adequacy of case study for MS-related research, there is ample evidence of it being a common method among researchers in the same field (e.g., Castka *et al.*, 2004; Hughes, 2004; Law, 2010; López-Fresno, 2010; Searcy, 2006; Shen and Walker, 2001; Walker, 2000).

Nevertheless, the case study method has certain limitations. Yin (2014) identified the following five "traditional prejudices" against the case study method: lack of rigor of case study research; confusion between cases used for research versus cases used for teaching; the inability to generalize from case study findings; that case study research requires an "unmanageable level of effort"; and that it lacks "comparative advantage in contrast to other research methods". Echoing similar challenges, Voss *et al.*, (2002) have said about case research that: "it is time consuming, it needs skilled interviewers, [and] care is needed in drawing generalisable conclusions from a limited set of cases and in ensuring rigorous research" (Voss *et al.*, 2002). The most relevant challenges to this research could be lack of rigor, generalizability, and level of effort. In order to

surmount the challenge of lack of rigor, Yin (2014) suggests tactics to ensure construct validity, external and internal validity, and reliability. The challenge of generalizability can be addressed by ensuring that findings from case studies are *"generalizable to theoretical propositions and not to population or universes"*, i.e., *"analytical generalization"* should be sought rather than *"statistical generalization"* (Yin, 2014). Regarding the level of effort required, Yin (2014) acknowledges that some case studies have taken long time in the past, but *"this is not necessarily the way case studies must be done in the future"*, and that such criticism often relates more to types of data collection such as ethnography or participant observation, than to the case study method (Yin, 2014). Later in this chapter, details are presented on how research instruments were used to ensure rigor through construct validity, reliability and external validity; as well as the theories upon which findings could be generalized.

Notwithstanding the potential challenges, strengths of case study research may include *"allowing understand[ing] of complex social phenomena"* (Yin, 2014); and that it may lead *"to new and creative insights, development of new theory, and have high validity with practitioners – the ultimate user of research"* (Voss *et al.*, 2002).

Next, the case study organization and other relevant parties are introduced.

3.3 Case Study Organization and other relevant parties

The Case Study Organization (CSO) is a department tasked with managing patient feedback at an organization that provides health care services in a Canadian province (referred to as Parent Organization of the CSO, or POCSO). The CSO is organized in three units that serve the population of the province based on their geographical location, namely: North, South, and Rural/Suburban. Across the three units, the CSO had between 30 and 35 operational staff (not including secretaries or assistants) in 2010 and served a population of about 2.5 million people. In the fiscal year 2010-2011, the CSO received around 7,200 concerns; whereas in the fiscal year 2014-2015, it received approximately 9,500 concerns. Evidently, the number of concerns received by the CSO grew during those five years.

The role of the CSO is to receive feedback from the patient or relative of a patient (hereto referred to collectively as "patient/family") and manage it in accordance to their type, for instance:

a) For compliments or suggestions; personnel from the CSO relay compliment or suggestion to manager of corresponding site or program (i.e., "Operations"); and encourage them to in turn pass on the compliment or suggestion to the appropriate front-line person (e.g., nurse or technician).

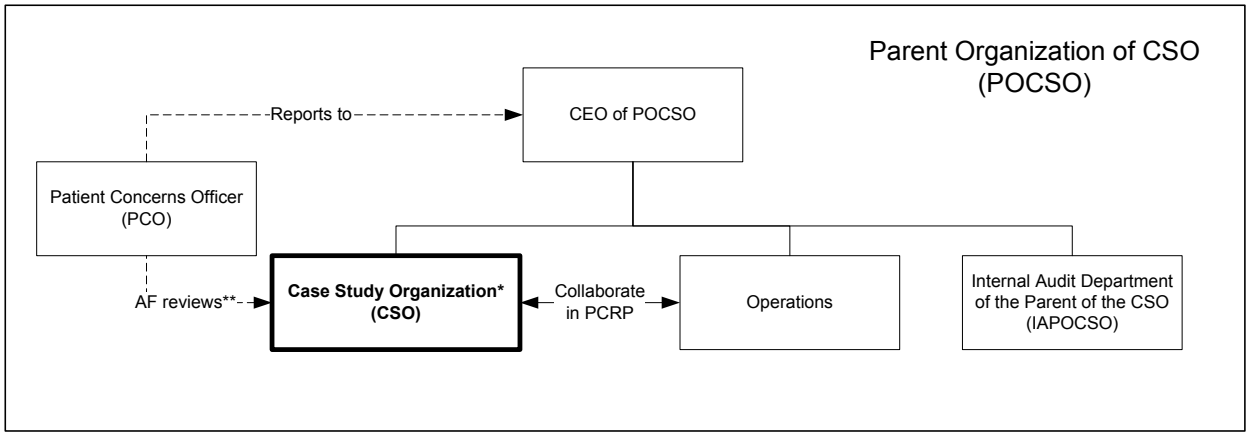
b) For "concerns" (term used internally by the CSO to refer to "complaints"); personnel from the CSO contact the manager of the corresponding site/program (i.e., "Operations") and request that they investigate the concern and provide a response that a member of the CSO can relay to the patient/family. Concern management by the CSO can require special treatment depending on the circumstances of the concern, for example, whether the concern comes from the Office of the CEO or the Minister of Health; or whether the concern involves a physician; or whether the patient is an elderly person; to mention a few. The process for managing patient concerns (i.e., complaints) is called Patient Concerns Resolution Process (PCRP), of which more details are provided in Chapter 4.

The first couple of years of this research project coincided with a major structural re-organization of the POCSO that involved the integration of separate health regions into one provincial health system. Initially, the predecessor of the CSO was a department solely in charge of managing patient/family feedback at one health region; but its scope grew post-integration to manage feedback across the province after merging with the feedback-handling departments of the other health regions. The emerging CSO reorganized in the three previously mentioned units, North, South, and Rural/Suburban, with offices at three different geographical locations.

3.3.1 Other relevant parties

Other relevant parties to this research, in addition to the CSO and its parent POCSO, include the Patient Concerns Officer (PCO), 'Operations' which is the term used to refer to programs or sites that provide health services to the public, and the Internal Audit Department of the POCSO (IAPOCSO), all of which are represented graphically in Figure 3, and subsequently described.

The PCO is mandated with performing administrative fairness reviews of the process followed for resolving a specific concern upon request by a dissatisfied patient/family. The PCO was appointed by the CEO and reported directly to them. Records of administrative reviews from the Office of the PCO were obtained and used during this research.



* CSO is a department in charge of handling patient feedback across the province
** AF reviews = Administrative Fairness reviews

Figure 3 - CSO and other relevant parties (simplified representation composed using information from interviews with CSO Directors and CSO, 2009a)

The term "Operations" is used internally by the CSO to refer to the operational units that provide health services to the population (e.g., programs or service areas). Personnel from the CSO serve as a point of contact between patient/family and personnel from Operations (usually referred to as "Operational Reviewer") during the PCRP.

The IAPOCSO is a department tasked with performing internal audits within the POCSO, most of them related to financial matters, although the department had started to get involved in clinical audits and process audits. One Director from IAPOCSO served as research participant and was interviewed for the purpose of validating the audit method, as presented in Chapter 7.

Against such a backdrop of organizational complexity and transformational change, the CSO seemed like an appropriate case unit on which to research the use of an AUG MSS, such as ISO 10002 for feedback handling, since the CSO consisted of different units that had previously followed their own processes and procedures for handling feedback but were suddenly in need to share a common approach. Similarly, due to the required interaction between personnel from the CSO and personnel from Operations during the Patient Concerns Resolution Process (PCRP), the opportunity arose to propose and test an audit method that would examine such interdepartmental interactions. Lastly, with the information and understanding built-up from having reviewed extensive documentation and records of the CSO, a model and methodology for IMS, and an approach for assessment of MSs, were proposed and tested using the data already

available. Figure 4 presents a graphic depiction of the three research components and subcomponents, their relationship to the research objectives, and to the corresponding chapter or section in the dissertation.

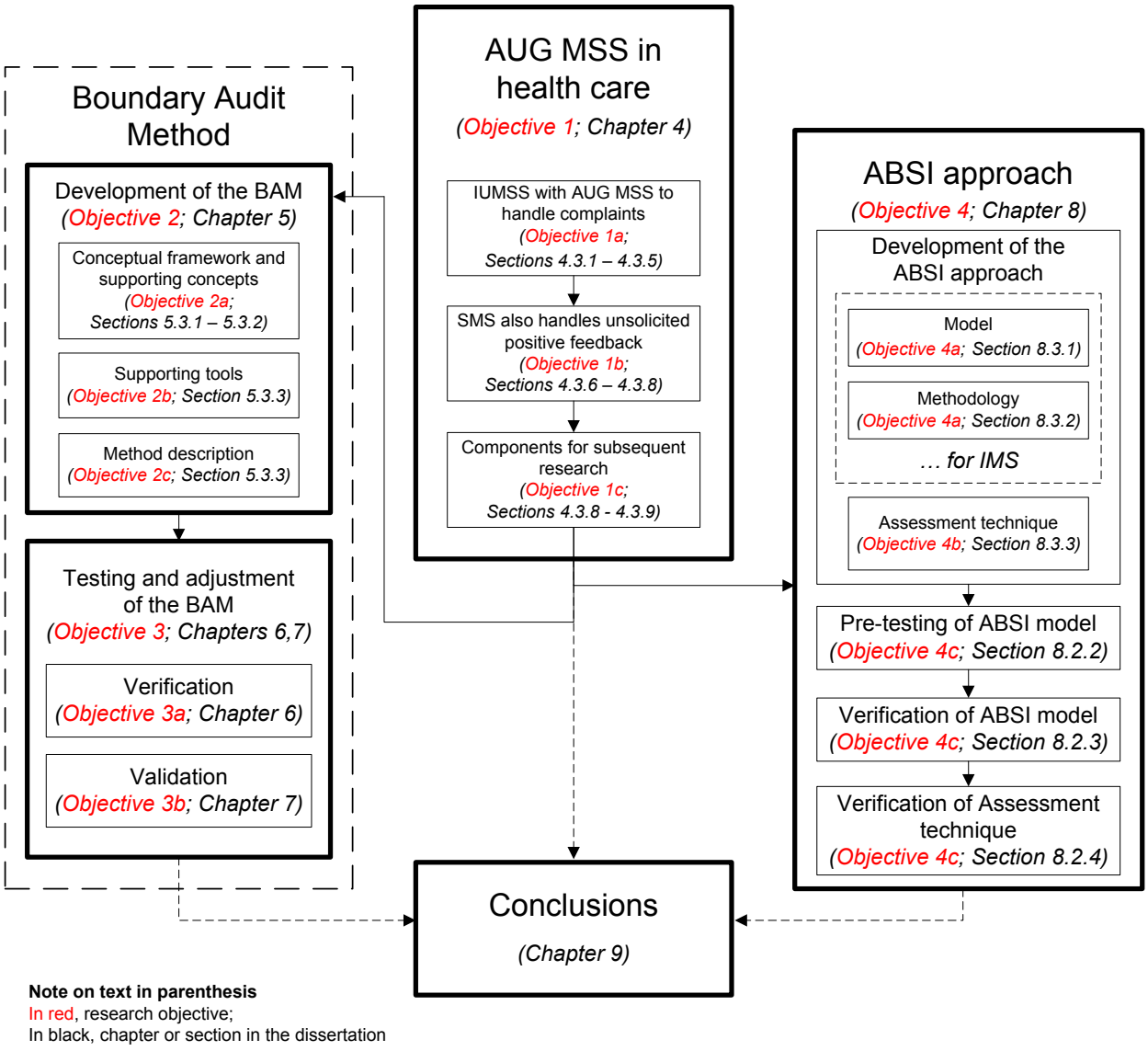


Figure 4 - Research components and subcomponents as they relate to the research objectives and the dissertation

Next, an overview of the methodology is provided for each of the three research components, namely Feedback handling, Boundary Audit, and ABSI approach

3.4 Augmenting MSS in health care

The first component of the research involved the use of an augmenting standard in health care, namely, ISO 10002 (2014) for handling feedback in the CSO. The sources of evidence included

semi-structured interviews with directors and review of CSO documentation. Documents examined included internal documentation as well as publicly available information, the latter collected from the POCSO's corporate website. The methodology, taken from the IUMSS handbook (ISO, 2008a), allowed to compare the CSO's complaints handling system against the guidance from ISO 10002 (2014) (i.e., 'gap analysis'). The approach sought to be exhaustive and used guidance from supporting clauses of ISO 10002 (2014) such as 3. Terms and definitions and 4. Principles, in addition to that from the main clauses (i.e., clauses 5 to 8), plus all-but-one of the annexes. After the gap analysis, recommendations were prepared and presented to management of the CSO. Then, the guidance of ISO 10002 (2014) was used to handle unsolicited positive feedback. Lastly, components for subsequent research were identified. A detailed discussion of the process and the results is presented in Chapter 4.

3.5 Boundary Audit Method

The second component of the research derived from the results of the first. One of the recommendations from the study of how ISO 10002 could be used for feedback handling at the CSO was to have regular audits of the CSO's complaints handling process. Furthermore, management of the CSO identified 'interfaces' with other departments (generally referred to as "Operations"), as an area of opportunity that would be helpful to examine during audits. After a literature review on 'interface audits' and similar terms yielded no relevant findings, it was decided to develop and test an audit method for examining interdepartmental processes with a focus on interfaces, also referred to as "interactions" throughout this research. Thus, the boundary audit method (BAM) was designed, verified, and validated. An overview of the components is provided in the next subsections, under the names "Development of the BAM", and "Testing and adjustment of the BAM", the latter of which contains information pertaining to verification and validation. Detailed descriptions of the methodology and results of each component are provided in Chapters 5, 6 and 7.

3.5.1 Development of the BAM

The BAM-development effort consisted of composing the conceptual framework, and designing the supporting concepts and supporting tools. The conceptual framework served to identify unique aspects of interdepartmental processes, such as interdepartmental interactions; and of an audit that would examine them, i.e., a "1.5 party audit", which could be read as either *first-and-*

a-half or *one-and-a-half party audit*. Similarly, supporting concepts that would enable unique aspects of the BAM, such as possible sequences for auditing multiple auditees, or level of collaboration between auditees, were proposed. Then, supporting tools such as templates and checklists were newly created or adapted from existing literature. Concurrently, the description of the method was composed in order to organize the stages of the BAM and explain how supporting concepts and tools were to be used at each stage. Details on the methodology and results of the BAM development are presented in Chapter 5.

3.5.2 Testing and adjustment of the BAM

Prior to testing the BAM, a request explaining the research objectives and methods was submitted to, and subsequently approved by, the Research Ethics Boards (REB). Then, the majority of the tools of the BAM, namely templates and checklists (excluding those that involved interviews) were verified using two samples of closed complaints, each provided by the CSO and the PCO. As a result of the verification, changes were identified, planned and implemented, thus yielding an updated version of the BAM

Then, arrangements were made to validate concepts and tools of the updated BAM. The first part of the validation process consisted of recruiting participants, preparing the validation material, and scheduling and meeting individually with the participants. During each meeting with a participant, the BAM was presented and the participant was asked to fill out a booklet containing questions regarding supporting concepts and tools, followed by an oral interview. After all interviews were completed the data was organized and analyzed; and changes were identified, planned and implemented, so as to produce the final version of the BAM. Details about the methodology and results of both verification and validation are provided in Chapters 6 and 7, respectively.

3.6 ABSI approach

The third research component, referred to as the Accounting-based Structuring and Integration of Management Systems (ABSI) approach, consists of a novel model and an adapted methodology to integrate management systems; plus an assessment technique to examine MS-component relationships. The ABSI approach was designed, pre-tested, and verified; stages which are briefly presented in the next subsections, and further detailed in Chapter 8.

3.6.1 Development of ABSI approach

Following Jonker and Karapetrovic's (2004) advice that a comprehensive approach to Integration of Management Systems (IMS) should include a model and a methodology; a model for structuring (and integrating when multiple) MSS requirements was developed, and a methodology adapted. The model was based on an abstraction of the line-items and interrelationships of an Income Statement (I/S) and a Balance Sheet (B/S), collectively called Financial Statements (FS)[1]; while the methodology was adapted from the IUMSS handbook (ISO, 2008a). One additional component completes the ABSI approach, namely an assessment technique that adapts ratio analysis for the purpose of assessing SMS-component relationships. For the model, different formats of FS from varied sources were examined in order to identify and select a pair. The selection of IUMSS (2008a) as a foundational methodology obeyed the availability of juxtaposition examples in the text of the handbook, due to the fact that juxtaposition between MSS requirements and FS line items is the fundamental step of the ABSI model. Lastly, the assessment technique originated from the extension of the analogy between FS elements and MSS requirements to the next level, namely ratio analysis.

3.6.2 Pre-testing and verification of the ABSI approach

Aiming to ensure that the ABSI model could be used with international standards structured under "the new format" (Tangen and Warris, 2012), the model was pre-tested by juxtaposing FS elements against the "High level structure and identical text" (or simply "HLS", ISO/IEC, 2015), and subsequently against the requirements from ISO 9001 (2015c), and ISO 14001 (2015a); the latter representing the actual requirements, as opposed to only the "High level structure" (ISO/IEC, 2015).

The verification of the ABSI model was performed by structuring and harmonizing (i.e. integrating) the guidance from ISO 10002 (2014) and ISO 10003 (2007). Such MSSs were selected because they represent AUG MSSs, they follow a structure that is different from the HLS (used during pre-testing), and because data from the CSO, which could be used together

[1] For convenience, the term Financial Statements (FS) is used throughout this dissertation to refer collectively to the Income Statement (I/S) and Balance Sheet (B/S); making a conscious decision to disregard the two other financial statements, namely the Statement of Cash Flows and the Statement of Shareholder's Equity, since the last two are not used in the research.

with ISO 10002, was available. Subsequent to structuring and harmonization of the MSSs guidance, the CSO's PCRP was mapped to the guidance from ISO 10002. Then, the Assessment technique was verified by using the juxtaposed PCRP components to adapt financial ratios, prepare assessment questions and explain how evidence to answer those questions could be collected. More details about the methodology and results pertaining to the ABSI approach, including design, pre-testing, and verification, are presented in Chapter 8.

The next subsection briefly mentions the Engineering Management (Eng M) tools that were used in this research.

3.7 Engineering Management tools used in this research

During this research, different Eng M tools were used, such as Management System Standards (MSS), the system's approach, gap analysis, flowcharts, process audits, checklists, financial statements, and ratio analysis. Figure 5 presents a Venn diagram illustrating the Eng M tools used in the different research components.

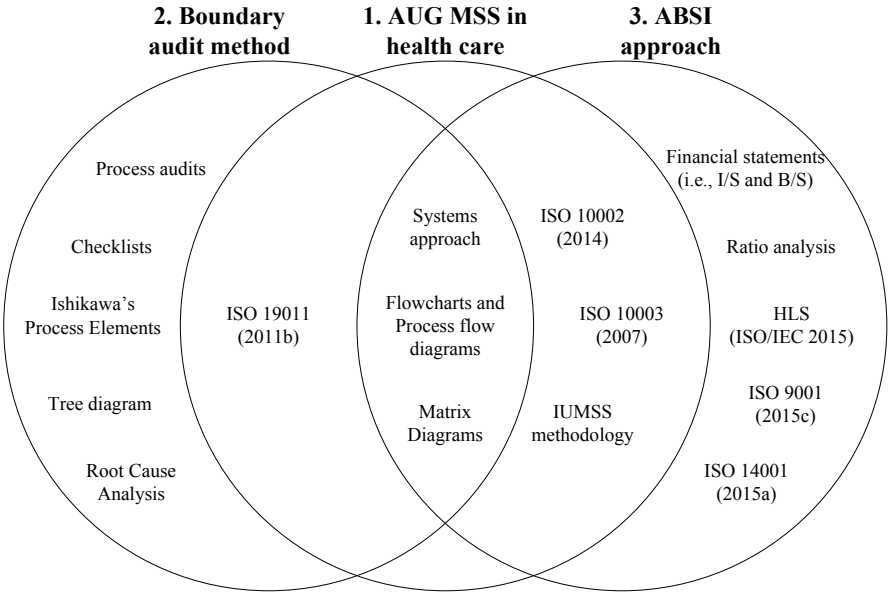


Figure 5 - Engineering Management tools used in this research

As illustrated above, the system's approach, along with flowcharts, process flow diagrams[2], and matrix diagrams were used in all three research components; whereas as ISO 10002 and ISO

[2] The term flowchart refers to sequences of boxes or other shapes interconnected by arrows, while the term process flow diagram refers to the tabular variation that allows to classify process steps by type, such as operation, inspection, transport, or delay, and to compute a summary by type, such as Freivald's (2009) and Russel's (2003)

10003 (customer satisfaction augmenting MSSs) and the IUMSS methodology were used in research components 1 and 3. Conversely, ISO 19011 (another AUG MSS) was used in research components 1 and 2. Process audits, checklist, Ishikawa's process elements, tree diagrams, and root cause analysis, were used only for research component 2; while financial statements, ratio analysis, the HLS (ISO/IEC, 2015), and ISO 9001 and ISO 14001 (the latter two examples of assimilating MSSs) were uniquely used in research component 3. The next subsection provides information about research instruments and how they were used within each research component.

3.8 Research instruments

Table 4, on the next page, presents summarized information about the research instruments (e.g., sources of evidence, case database, and chain of evidence) that were used during each of the three research components (i.e., 1. AUG MSS in health care, 2. Boundary Audit Method, and 3. ABSI approach). Also indicated for each research instrument is their relationship with 'empirical research quality tests' such as construct validity, external validity and reliability (Yin, 2014), which are described next:

- Construct validity refers to *"establishing correct operational measures for the concepts being studied"* (Yin, 2014), and can be ensured by using three techniques: *"use of multiple sources of evidence"*, *"to establish a chain of evidence",* and *"to have the draft report reviewed by key informants"* (Yin, 2014).
- Reliability pertains to *"demonstrating that the operations of a study – such as data collection procedures can be repeated, with the same results"* (Yin, 2014), and can be ensured by using multiple sources of evidence, by keeping a case database (Davis, 2010) and a chain of evidence, and by documenting procedures (Ward and Street, 2010; Yin, 2014).
- External validity relates to *"defining the domain to which a study's findings can be generalized"* (Yin, 2014).

Following Table 4, details about each research instrument are provided alongside select examples of their use within certain research components.

Table 4 - Research instruments per research component

Research instrument	Research component		
	1. AUG MSS in health care	**2. BAM**	**3. ABSI approach**
A. Sources of evidence 	- CSO documentation (processes, procedures) - CSO sample summary database records - Interviews with CSO directors	- CSO documentation (processes, procedures) - CSO and PCO sample full records (closed complaints) - Interviews with experts - Documents on administrative fairness	- CSO documentation (processes and procedures) - CSO and PCO sample full records (closed complaints)
B. Case database 	- Physical storage of CSO documentation. - Electronic storage of: case notes, emails, working documents and spreadsheets, status-update presentations, and reports.	- Physical storage of CSO documentation and records. - Electronic storage of: case notes, emails, working documents, status-update presentations, templates, checklists, training material, and reports.	- Physical storage of CSO documentation and records. - Electronic storage of: working documents and spreadsheets.
C. Chain of evidence 	Research protocol → CSO documentation → analysis → report → CSO feedback	Research protocol → CSO documentation and records → verification results → changes → interviews → validation results → changes → CSO feedback	Focus of AIMS research lab → good opportunity (interesting idea and data available) → CSO documentation → analysis → report
D. Review by key informants 	Meetings to review interim and final reports	Meetings to review interim and final reports; validation interviews	Discussions with expert (supervisor)
E. Documented procedures 	Candidacy report with plan; REB review request including information letter and consent form (parent study by supervisor); conference paper, final report	Candidacy report with plan; REB review request and amendments, including information letters and consent forms (by author); interim and final reports	ABSI approach pre-testing, verification, documentation of final ABSI model and ABA technique; draft journal paper
F. Broader theory upon which results can be generalized 	Benefits of using AUG MSSs in health care **Narrower scope of generalizability:** Use of ISO 10002 for feedback handling in a Canadian health care organization	Quality audits as drivers of improvement **Narrower scope of generalizability:** Method for auditing an interdepartmental complaints-handling process in a Canadian health care organization	Integration of Management Systems (models, methodologies and assessment-approaches) **Narrower scope of generalizability:** Integrated use of ISO 10002 and 10003 in a Canadian health care organization

Legend

 Research instrument helps to ensure construct validity (Yin, 2014; Yue, 2010)

 Research instrument helps to ensure reliability (Davis, 2010; Ward and Street, 2010; Yin, 2014)

 External validity through analytical generalization (Yin, 2014; Yue 2010)

3.8.1 Sources of evidence

Yin (2014) has argued that *"a major strength of case study data collection is the opportunity to use many different sources of evidence."* Using different sources of evidence can help *"at corroborating the same finding"* therefore making *"findings or conclusions much more convincing and accurate"* (Yin, 2014). The first row (after the headings) in Table 4, presents the different sources of evidence used in each research component. Amongst the benefits of using multiple sources of evidence was the facilitation of the exhaustive approach of the gap analysis performed within research component "1. AUG MSS in health care". For example, most of the clauses of ISO 10002(2014) were mapped against MS elements as documented in the CSO processes and procedures; however, some guidelines of ISO 10002 were mapped against elements available from other sources, e.g., "Annex B. Form for complainant" in ISO 10002 (2014) was compared against the CSO online feedback form (POCSO, 2009f), and information about the CSO's organizational structure and training provided were collected from the interviews with the CSO directors. Conversely, a challenge of having access to multiple sources of evidence resulted from process documentation being frequently updated along the research project, first due to the merging of different health regions, and later on, as a result of top management changes at the CSO. The challenge of frequently updated documentation was addressed by updating findings once using the updated documentation. The second research instrument is the case database, and is explained next.

3.8.2 "Case database"

In order to effectively manage the information from the different sources of evidence, a "case database" was set up and maintained. The "case database" allowed the author to store and organize the information collected from the sources of evidence, and contained both physical and digital elements. Examples of the former included hard copies of CSO documentation and records of closed complaints, while the latter included case notes, emails, and working documents. Working documents, spreadsheets, and slide presentations were kept in different electronic folders than those pertaining to the CSO sources of evidence. Maintaining a "case database" helps to ensure construct validity (Yin, 2014) and reliability (Davis, 2010).

The third research instrument is "chain of evidence", which is explained next.

3.8.3 "Chain of evidence"

As per Yin (2014), a "chain of evidence" (or "audit trail", to use the term preferred by Ward and Street, 2010) should allow an external observer *"to follow the derivation of any evidence from initial research questions to ultimate case study conclusions"*. The third row in Table 4 (not including the header) presents the chain connecting the different sources of evidence. Chains of evidence contribute to ensuring construct validity and reliability (Ward and Streeet, 2010; Yin, 2014). The next research instrument is "Review by key informants", and is presented below.

3.8.4 "Review by key informants"

Yin (2014) advocates having reports "reviewed by key informants", e.g., the participants that were interviewed, as a means to *"corroborate essential findings and evidence presented"* thus contributing to ensuring construct validity. Along this research, "reviews by key informants" took place at different points of the research. For example, for research component "1. AUG MSS in health care", recommendations from the gap analysis were presented to management of the CSO and feedback was recorded. For research component "2. BAM", interim reports were presented and discussed, and a final version of the BAM was presented and interviews performed for the purpose of validating the BAM. Lastly, for research component "3. ABSI approach", model and assessment technique were discussed with an expert in IMS. The next research instrument pertains to documented procedures, as explained next.

3.8.5 Documented procedures

Documenting procedures, just as using a case study database, is a practice that aims to ensure reliability of the research. For example, for research component one, procedures were determined and recorded in different documents such as the Candidacy report which contained a preliminary plan for the research work; and subsequently in the Research Ethics Board (REB) Review request, which contained more detailed information such as intended sources of evidence, procedures regarding participant recruitment, and storage of records. As part of the REB Review request, information letters and a consent forms were also prepared, and subsequently provided to participants during recruitment. The Ethics Approval Letter is provided in Appendix A. Methodological details were also recorded in a conference paper, as well as in reports, in order to document what was actually done.

The last research instrument relates to the generalizability of findings, and is explained next.

3.8.6 "Broader theory upon which results can be generalized"

External validity deals with *"whether a study's findings are generalizable beyond the immediate case study"* (Yin, 2014). The usual criticism is that case study findings are not generalizable (Voss *et al.*, 2002) due to the *"restriction of sample, be it context, time, or population characteristics that define the range restriction"* (Yue, 2010). Yin (2014) argues that generalizations from case studies correspond to the type of 'analytical generalization' as opposed to 'statistical generalization'. In "analytical generalization, the investigator is trying to generalize a particular set of results to some broader theory" (Yin, 1994); thus sample size is much less important than being able to understand "case findings in terms of the existing theory or literature" (Yue, 2010). As such, broader theories upon where findings related to the three components are presented in the last row (before the legend) of Table 4 and explained below.

For research component "1. AUG MSS in health care", the "broader theory upon which results can be generalized" is "Benefits of using AUG MSSs in health care", since as a result of using an AUG MSS, recommendations for improvement were provided, including to have regular audits of the complaints-handling process. More narrowly, findings could be generalized within the scope of the research, which refers to the "Use of ISO 10002 for handling feedback in a Canadian health care organization".

For research component "2. BAM", findings could be generalized upon the theory of "Quality audits as drivers of improvement", since the proposed BAM aims to improve an interdepartmental process by examining interactions in terms of compliance, effectiveness, risks and improvement opportunities. More narrowly, the findings are generalizable within the scope of the research as it relates to "Methods for auditing an interdepartmental complaints-handling process in a Canadian health care organization".

Lastly, for research component "3. ABSI approach", the generalization could be done within the theory of "Management Systems Integration - models, methodologies and assessment approaches", because such are the three comprising elements of the ABSI approach. Within a narrower scope, the generalization could refer to the "Integrated use of ISO 10002 and 10003 in a Canadian health care organization".

Next, information is provided about select components of the research.

3.8.7 Select components of the research

Two significant aspects of the research were the performance of interviews and the use of closed complaints. Interviews are considered important since they involved interaction with human subjects in order to collect data about the CSO and to validate the BAM; whereas closed complaints are deemed important since they contained very detailed information about the concern resolution process followed by personnel from the CSO. Interviews were performed for research components "1. AUG MSS in health care", and "2. BAM"; while records of closed complaints were mostly utilized for research component "2. BAM". Next, more details are provided about such select components.

3.8.7.1 Interviews

Two groups of interviews took place during the research, as shown in Table 5 along relevant elements such as the research component, participants, objective, process, resources, and dates.

Table 5 - Groups of interviews and relevant elements

	First group of interviews	**Second group of interviews**
R. Component	1. AUG MSS in health care	2. Boundary Audit Method
Participants	Two CSO Directors	Two CSO Directors One IAPOCSO Director
Objective	To gain better understanding of CSO and PCRP	To validate the Boundary Audit Method (BAM)
Process	1. Prepare interview questions 2. Recruit participants 2.1. Explain research 2.2. Obtain signed consent form 3. Schedule phone calls 4. Hold phone calls, and during each phone call: 4.1. Ask questions from questionnaire; 4.2. Ask follow up questions when unclear or interesting; 4.3. When in doubt, rephrase response to obtain confirmation or clarification 4.4. Write down responses and notes	1. Prepare BAM validation material, including interview questions 2. Test face validity of questions 3. Recruit participants 3.1. Explain research 3.2. Obtain signed consent form 3.3. Include new participant (expert in audits), amend ethics approval 4. Schedule individual meetings 5. Hold meetings, and during each meeting: 5.1. Present BAM 5.2. Ask participant to fill out booklet (electronically) 5.3. Ask oral questions from questionnaire; 5.4. Ask follow up questions when response unclear or interesting; 5.5. When in doubt, rephrase response to obtain confirmation or clarification 5.6. Write down responses and notes
Resources	Phone, participants' phone numbers, long distance code, questionnaire, computer to take notes	… for presentation: Meeting room; projector; lap top to run presentation and to take notes; electronic and hard copies of presentation and booklet … for interviews: Phone or teleconference room, participants' phone numbers or teleconference access code, interview questions, computer to take notes.
Dates when interviews took place	January 19, 2010 January 22, 2010	April 21, 2015 May 7, 2015 May 29, 2015

The first group of interviews was used to better understand the CSO and its Patient Concerns Resolution Process (PCRP) during research component "1. AUG MSS in health care"; while the

second group of interviews was used to validate the auditing method developed during research component "2. BAM".

3.8.7.1.1 First group of interviews

The first group of interviews, performed for research component "1. AUG MSS in health care", took place individually with two CSO Directors, and the purpose was to gain better understanding of the CSO and the PCRP. The process began by preparing the interview questions, which included questions about the CSO overall and questions seeking clarification about the PCRP document (the interview questions are available in Appendix B.1). Participants for the first group of interviews were recruited as explained below.

Through a meeting with top management of the CSO where the project plan, scope and requirements were presented, a group of potential participants was identified. The knowledge and opinion of top management was useful when identifying suitable personnel for the study because having participants that were knowledgeable about the CSO's processes was critical for the study. Management of the CSO was asked to request consent by the potential participants to share their contact information (i.e., name and email address) with the author, so that the author could approach them and ask them if they wanted to be a part of the study. The author exchanged emails with those that showed interest, described the study, provided electronic copies of the information letter and consent form, and asked for their participation. Participants who agreed, signed and returned the consent form.

After participants were recruited, phone call meetings were scheduled and held individually. Each phone call lasted approximately one hour. During each phone call, the author asked questions from the questionnaire, as well as follow-up questions when a prior response was unclear or interesting. When in doubt, the author rephrased responses, so as to obtain confirmation or clarification. The author used a laptop to type responses and make notes. The first group of interviews took place on January 19 and 22, 2010.

Information from the first group of interviews helped the author understand aspects of the CSO that were not available or clear enough in the documentation provided, such as type of training received by personnel, and the internal organizational structure of the three different units.

3.8.7.1.2 Second group of interviews

The second group of interviews, under the validation stage of the BAM, sought to collect opinions of the participants regarding the effectiveness of the BAM and its potential impact on the CSO were it to be adopted. Questions were prepared and tested for face validity with an experienced researcher. As for the participants, two out of the three were different than those from the first group of interviews, namely one of the CSO Directors and the Director from the Internal Audit [Department] of the Parent of the CSO (IAPOCSO). The IAPOCSO Director was invited to be part of the research as per a suggestion from the two CSO Directors, who considered that the expertise in auditing of an IAPOCSO Director could be useful for the research. In order to allow for the inclusion of a participant from a department other than the CSO, an amendment was submitted to the REB and subsequently approved. The IAPOCSO participant was recruited by conveying an invitation to the study, and if interested, he/she was told to contact the author directly, who then provided an explanation of the research, an information letter and a consent form. Upon agreeing to be part of the study, the participant from IAPOCSO signed and returned the consent form to the author.

Once all participants were recruited, meetings were scheduled and held individually with each participant: two were held by phone, and one by teleconference. In each call or teleconference, questions from the questionnaire were asked (which is available in Appendix B.2), as well as follow-up questions. When in doubt, the author rephrased responses in order to clarify the understanding. The author typed down responses and made notes using a computer.

Data from the interviews was analyzed in order to plan and implement changes to the BAM. More details about the BAM validation are presented in Chapter 7; while the next subsection presents details about the use of closed complaints in relation to the verification of the BAM.

3.8.7.2 Closed complaints

Closed complaints, simply called ‘records’ throughout this dissertation, were used during research component “2. BAM” for the purpose of verifying the proposed auditing method. REB approval was obtained to use closed complaints to verify the audit method. Closed complaints were obtained from two sources, the CSO and the PCO. Table 6 presents the two groups of records used and their relevant aspects, such as source, number of records provided by the

source, number of records used, the format of the records, and the level of detail of the information in the records.

Table 6 - Groups of records and relevant elements

	First group of records	Second group of records
Source	PCO	CSO
Records provided	Five	Twenty-three
Records used	Five	Six
Format	PCO review file, which includes: - PCO review letters and emails - PCO review timeline - Original file of concern resolution process (PCRP) as performed by the CSO and corresponding emails and letters.	Print out of electronic database records of the PCRP
Level of detail	High	Low
De-identified	Yes	Yes
Purpose	Verification of tools of the BAM, and preparation of illustrating examples	Verification of concepts, tools, and their sequential use within the BAM.

Records of closed complaints were requested from the PCO and CSO in order to verify the Boundary Audit Method. The request asked for de-identified records, in other words, to have removed from the record, the names or other identifying information of the patient/family.

3.8.7.2.1 First group of records

The first group of closed complaints, which were provided by the PCO, contained five records of PCO reviews. Each record was comprised of an original Patient Concern Resolution Process (PCRP) file, plus the PCO review of administrative fairness, which would usually contain copies of the letters sent to the patient/family acknowledging the start of the PCO review and a summary of concerns; emails between PCO staff and staff from the CSO or Operations; and a response letter containing the findings of the review. The level of detail of the information contained in the PCO records was considered higher than that existing in the records from the CSO, the latter of which were limited to print-outs of database records of closed complaints, but with no additional enclosures such as letters or emails.

Each PCO record was assigned a unique identifying number and was subdivided into two components coded “A” and “B”. Component “A” of each PCO record consisted of the PCO review of administrative fairness; while component “B” represented the records of the original PCRP carried out by the CSO (i.e., the concern resolution which the PCO review of

administrative fairness would have examined). Records used for verification of the BAM were limited to the B-components of the PCO records, i.e., the halves related to the information regarding the PCRP, as opposed to about the review of administrative fairness. All available records from the PCO were used for the purpose of verifying tools of the BAM (namely checklists and templates); one of which was further used to prepare examples to illustrate the description of the stages and steps of BAM. The records from the PCO helped to identify changes to the tools of the BAM, and to subsequently plan and implement those changes. More details about the first step of the verification of the BAM are provided in section 6.2.1

3.8.7.2.2 Second group of records

The second group of complaints was provided by the CSO and, even though more numerous, they contained less details than those from the PCO. In total, twenty three closed complaints were received from the CSO, spanning the four primary categories defined and used by the POCSO and CSO, and organized as shown in Table 7.

Table 7 - Second group of complaints per primary category

Number of records	Primary category	Category Description
3	Access	"Feedback related to resources to obtain health care" (POCSO, 2014)
13	Delivery of care	"Feedback related to the provision of attention to a patient's health requirements by direct care staff and/or support services" (POCSO, 2014)
4	Environment	"Feedback related to [POCSO] service location (includes sites, facilities, ambulance, etc.)" (POCSO, 2014)
3	Finance	"Feedback related to financial operations of [POCSO]" (POCSO, 2014)
23	**Total**	

Out of the twenty three available, six complaints from the CSO were used to verify the BAM tools and their sequential use, as opposed to verifying tools individually as was done with the records from the PCO. The data from the records by the CSO helped to identify, plan and implement changes to the method. More details about the second stage of the BAM verification are provided in section 6.2.2.

3.9 Research as a system

The different elements of this research could be organized as a system and its immediate environment, as depicted in Figure 6.

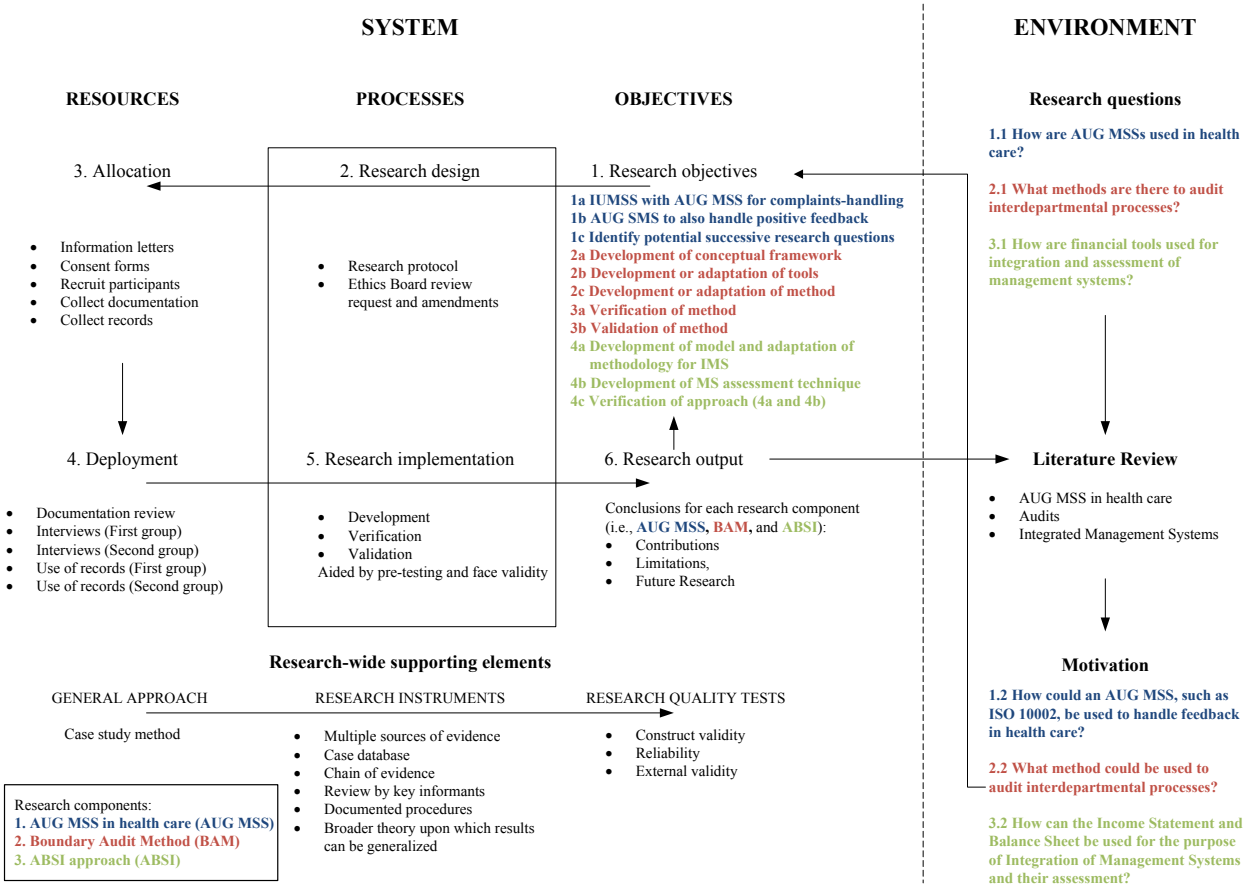


Figure 6 - Graphic representation of research as a system (adapted from Karapetrovic and Willborn, 1998b)

At the right-most side of the figure, under the label "Environment" and from the top, three research questions represent the initiation of this research, namely:

1. How are AUG MSSs used in health care?
2. What methods are there to audit interdepartmental processes? and
3. How are financial tools used for integration and assessment of management systems?

Each research question relates to one of the three main research components included in the system (color coded and identified at the bottom left of the graphic). The research questions connect to "Literature Review" and its three elements, "Feedback handling", "Audits", and "Integrated Management Systems", each of which represents the corresponding findings from the literature as available in Chapter 2 of this dissertation. From the literature review opportunities for research were identified, thus becoming the academic motivation, in addition to the practical motivation offered by the CSO and their interest in using an AUG MSS, such as

ISO 10002, for feedback handling and in having a method for auditing interdepartmental processes. Such motivation connects with the "System" by means of clearly stated research objectives.

Eleven research objectives (1a to 4c, color coded in the graphic) allowed the design of the research protocol and the REB Review request, which helped plan the acquisition of relevant resources such as documentation, records, and participants; the latter by means of information letters and consent forms. Then, the resources were employed to allow for document review, interviews and the use of records. The research implementation consisted of using the information from documents, interviews and records for the development, verification, and validation of the research components aided by pre-testing and face-validity where applicable. For each research component, outputs such as contributions, limitations and future research were identified. Research outputs could be compared to the original research objectives, and even disseminated back to the environment by means of scholarly publications.

Represented at the bottom of Figure 6, research-wide supporting elements relate to the underlying research methodology, including the use of the Case Study Method as a general approach; and of research instruments such as multiple sources of evidence, and a "case database", to ensure construct validity, external validity, and reliability (i.e., the *"empirical quality tests"*, as per Yin, 2014). Next, a summary of the contents of the chapter is provided.

3.10 Summary

This chapter described how the case study method was used as a general approach to research, as well as introduced the CSO, other relevant parties, and the three research components that comprise this dissertation. In addition, research instruments were identified and described alongside their connection with the empirical research quality tests such as construct validity, reliability and external validity, which were also explained. Then, two components of the research, namely interviews and closed complaints, were presented in greater detail due to their relevance to this research. Lastly, the elements of the research were organized and presented as a system and its immediate environment. The next chapter presents the methods and results of the first research component, titled "Use of an AUG MSS in a provincial health care organization".

4 Use of an AUG MSS in a provincial health care organization

4.1 Introduction

From the literature review, it is evident that complaints handling in health care remains challenged (as mentioned in subsection 2.2.2.3), and that limited academic literature is available reporting on the use of augmentative (AUG) Management System Standards (MSSs) (as mentioned in the introduction to subsection 2.2). Therefore, it would seem opportune to research the use of ISO 10002, an AUG MSS, for feedback handling in health care. In addition to such academic motivation, practical motivation also existed as a result of an organization's (i.e., the CSO's) desire to have their feedback handling system assessed against the guidance from ISO 10002 (2014). Adding to the opportunity for research, the use of the IUMSS methodology (ISO, 2008a) with an AUG MSS was also lacking in the literature. Lastly, the study of the use of an AUG MSS (i.e., ISO 10002) in a province-wide health care organization using the IUMSS methodology also sought to identify components for subsequent research.

This chapter presents the methods and results pertaining to the study of how an AUG MSS (i.e., ISO 10002:2014) could be used by a provincial health care organization (i.e., the CSO) for handling feedback; as well as the components that were identified for subsequent research. The next subsection briefly describes the methodology used, as adapted from the IUMSS handbook (ISO, 2008a), while the subsequent subsection presents the results, ending with a summary. In keeping with the format of the dissertation conclusions are provided in Chapter 9.

4.2 Method

Although the scope of ISO 10002 (2014) relates to complaints-handling (i.e., negative-type feedback), its guidance could also be used for managing positive- and neutral-type of feedback such as commendations and suggestions. This chapter reports on the methods and results of a study on how ISO 10002 - Guidelines for complaints handling in organizations (ISO, 2014) could be used by a provincial health care organization, namely the CSO, for handling unsolicited feedback. The approach consisted of first standardizing the management of complaints, and then augmenting such standardized system to accommodate the management of commendations. In addition, as a result of the recommendations presented to the CSO after the application of the IUMSS methodology, components for subsequent research were also identified. The data for this

study was collected from CSO's documents, records and interviews with CSO's directors. The steps of the method, adapted from the IUMSS handbook (ISO, 2008a), are graphically depicted on the left-hand-side flowchart of Figure 7, and described thereafter; while the right hand side presents the subsections of the dissertation that report the results of each step or group of steps.

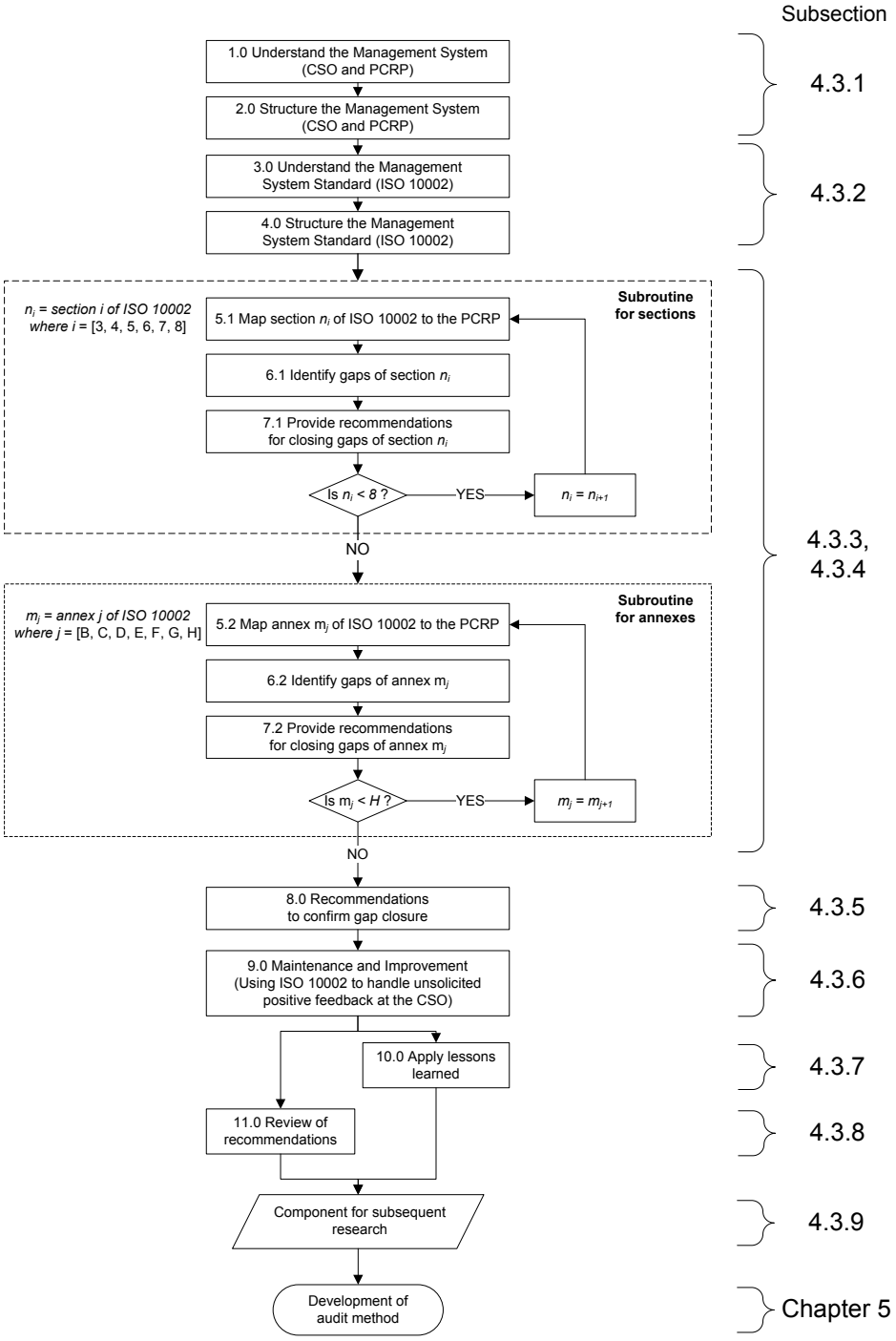


Figure 7 - Flowchart of the study steps, adapted from IUMSS (ISO, 2008a, p. 65)

The IUMSS methodology was selected because:

1. The IUMSS handbook was newly published when this research started. To date, only Law (2010) reports the use of the IUMSS methodology to "integrate the requirements of UNE 166002:2006 and EARTO:2000 into the existing ISO 9001-based QMS within a CSO". No articles were found describing the use of IUMSS with AUG MSS such as ISO 10002, or in health care.
2. The IUMSS methodology is comprehensive, logical, and well documented (i.e., the handbook has thorough explanations and examples, in addition to a CD with case studies).
3. The IUMS methodology is able to provide as an output, components for subsequent research.

Step 1. *Understanding the MS* was comprised of an analysis of the different components of the CSO and its PCRP, including objectives, resources, processes, and stakeholders. Then, those components were structured graphically following the systems approach in step 2. *Structuring the MS,* so as to identify the interrelationships between the components of the PCRP.

Next, in step 3. *Understanding the MSS*, the text of ISO 10002 (2014) was reviewed in order to comprehend its content, while step 4. *Structuring the MSS* allowed to identify the interrelationships of the different components described in the standard with the help of a graphic representation.

Step 5. *Mapping the MSS to the MS* allowed to recognize how the PCRP addressed the guidelines of ISO 10002 (2014). This was done by using a two-column table to list on one side the guidelines of the standard, and on the other the components of the PCRP that addressed each guideline. In addition to the table, justifications were provided detailing how each guideline was being met by the PCRP (an example of such table and justification is provided in Appendix C.3). Then, step 6. *Identify and analyze gaps* allowed to recognize which guidelines of the standard were not being addressed by the PCRP and to also identify common themes of certain gaps.

Step 7. *Recommendations for closing gaps* consisted of providing recommendations along with suggested approaches that could be implemented to fill the identified gaps, while step 8. *Verifying gap closure* was used to present a method which could be used after gap closure to ensure that the resulting PCRP would be fully compliant with ISO 10002. Step 9. *Using ISO 10002 to handle unsolicited positive feedback at the CSO*, allowed to suggest an approach to

manage commendations and suggestions using the guidance of ISO 10002. Step 10. *Applying lessons learned* explored how other international standards could be used by the CSO for further benefit. Step 11. *Review of recommendations* consisted of meeting with management of the CSO to review the recommendations, examining an updated version of the CSO document to assess whether recommendations had been addressed, and identifying subsequent components for research. Next, the results of the above-mentioned steps are given, some of them grouped for easier and more convenient presentation.

4.3 Results

4.3.1 Understanding and structuring the Management System

The first step consisted of researching and understanding the different components of the CSO and its Patient Concerns Resolution Process (PCPR), for example, its objectives, resources, processes and stakeholders. In order to do so, several documents provided by the CSO were examined, including:

- Patient Concerns Resolution Process (PCRP) document (CSO, 2009a)
- CSO Annual Activity Report, April 1, 2007 – March 31, 2008 (CSO, 2008a)
- Sample Electronic Database report (CSO, 2007b)
- Concerns Intake & Data Team File Processes (CSO, 2007a)
- Quality improvement definitions (CSO, 2009c)
- Concerns, level definitions (CSO, 2008b)

In addition to the documents by and about the CSO, documents from the Parent of the CSO (POCSO) that contained information about the POCSO's goals and objectives related to patient feedback, including the PCRP, were also consulted, such as:

- POCSO Annual Report, April 1 2008 – March 31 2009 (POCSO, 2009a)
- POCSO Strategic Direction, 2009-2012 (POCSO, 2009i)
- Information in the POCSO's website about Patient Concerns and Feedback (POCSO, 2009c, d, e, f, g, h)

An effort was made to learn about the POCSO because even though the PCRP is managed by the CSO, it is a process that involves programs and sites of the POCSO. Since learning the specifics

of all the programs and sites was not feasible, the author sought instead to understand certain overarching system elements of the POCSO (i.e., objectives and targets).

The documents from the CSO were provided by personnel from the CSO and were considered internal documentation; while the rest were publicly available from the POCSO website. In addition, interviews with directors of the CSO were conducted in late January 2010 to gather further details regarding the CSO, and the PCRP and its components. The full list of consulted documents is available in Appendix C.7.

The following components of the MS, namely the PCRP, were examined:

1. Principles
2. Goals and objectives
3. Service, market and customers
4. Stakeholders
5. Organizational structure and resources
6. Processes

Even though the original methodology from the IUMSS (2008a) does not explicitly include Principles as part of step 1, both the MS (i.e., the PCRP) and the MSS (i.e., ISO 10002) contained their own set of principles in their respective documentation, therefore, principles were also reviewed.

- The PCRP contained the following nine principles: *"Timely, Collaborative, Seamless/Coordinated, Accessible, Confidential, Fair/Transparent, Resolution close to the source, Standardized process/flexible interpretation, and Responsive"* (CSO, 2009a, p. 5)
- The goals and objectives of the PCRP included *"To invite the public to express concerns regarding their health care experience or service provided by [POCSO]"* and *"To provide an easily accessible and systematic approach for managing concerns related to health care services"* (CSO, 2009a, p. 8).
- The services provided by the CSO included managing concerns (via the PCRP) and commendations. The customers were represented by patients, and their family members, who receive health care services in a Canadian province. The stakeholders included patients, complainants, service providers, organizations representing either patients or professionals, and the [Provincial] Ombudsman.

- The CSO was organized geographically in 3 units: North, South, and Rural/Suburban. Main roles included the Patient Concerns Executive Director (PCED) at the top, and for each geographical unit one Patient Concerns Director (PCDir) overseeing teams of Patient Feedback Intake Coordinators (PFICs) and Patient Concerns Consultants (PCCs). Additionally, one Patient Concerns Officer, at arm's length of the CSO and who reported directly to the CEO of POCSO, performed administrative fairness reviews of concerns at the request of unsatisfied complainants.
- The main process of the CSO, i.e., the PCRP, consisted of seven distinct sub-processes, namely *"Intake", "Investigation", "Determination", "Action", "Communication", "Documentation",* and *"Resolution of a concern"* (CSO, 2009a, pp.8-9).
- In addition to the PCRP, the CSO had supporting processes such as "Process for addressing concerns regarding physician's practice", or "Process for urgent notification of an emerging issue." The descriptions of the PCRP components are available in Appendix A.

The PCRP components above were then organized in step 2. *Structure the MS*, following the systems approach so as to identify their interrelationships. Figure 8 presents a customized process flow diagram that depicts the PCRP and its components.

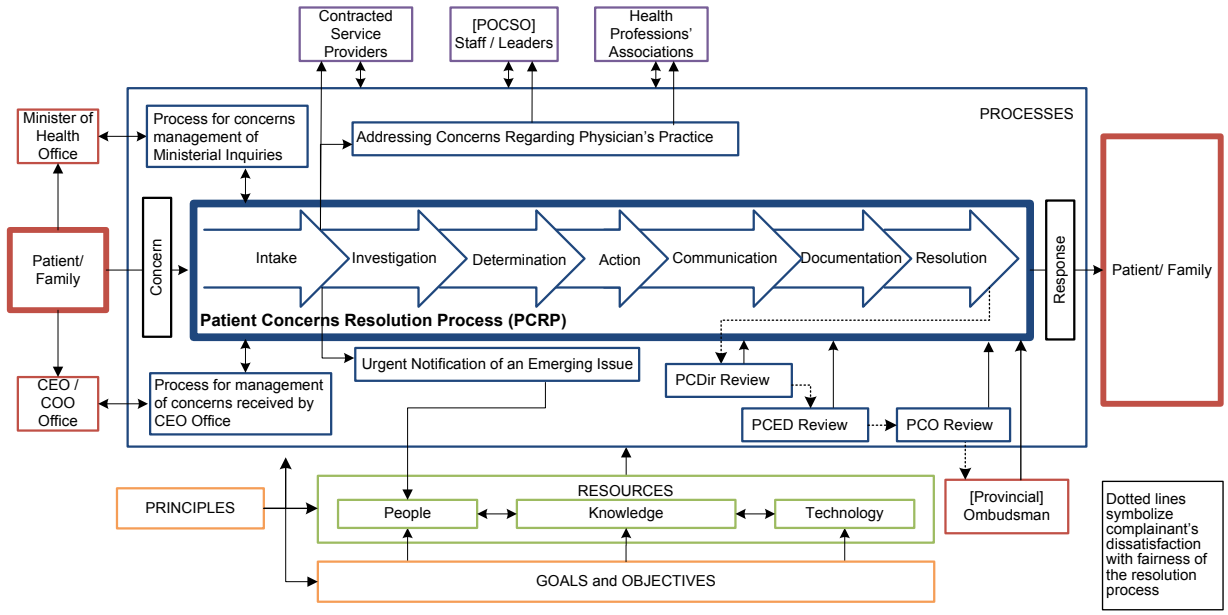


Figure 8 - Graphic representation of the PCRP (built using data from CSO, 2009a)

A customized process flow diagram was used, as opposed to a flowchart, aiming to show all the elements of the PCRP as a system (i.e., as per the systems approach), including its interrelated

processes, objectives, resources, and stakeholders (which would likely have been more difficult using a traditional flowchart).

Figure 8 shows the Patient Concerns Resolution Process as the main process, and begins when a patient/family brings a concern forward. The activities of the PCRP are Intake, Investigation, Determination, Action, Communication, Documentation and Resolution. The outcome after Resolution is a response to the patient/family. The PCRP, depending on the circumstances of the concern, can interact with the one or more of the seven supporting processes (e.g., process for addressing concerns regarding physician's practice). The set of processes (largest blue rectangle) is fed by the Resources (such as People, i.e. PFICs, PCCs, PCDirs, and PCED; Knowledge, such as de-escalation techniques, telephone tactics and communication skills; and Technology like the electronic database, telephone and email) as well as the Principles of the PCRP. At the bottom of the diagram, the Goals and Objectives support the whole operation. The next section presents the results related to understanding and structuring the Management System Standard (MSS)..

4.3.2 Understanding and structuring the Management System Standard

The MSS, namely ISO 10002 (2014), provides "guidance for the design and implementation of an effective and efficient complaints-handling process" (ISO 10002, 2014, p. vi). The standard is comprised of 8 clauses and 8 annexes; however, only clauses 3 to 8 and annexes B to H were utilized in this study, as presented in Table 8.

Table 8 - Clauses and annexes of ISO 10002 (2014) mapped onto the CSO's PCRP

Clauses	Annexes
3. Terms and Definitions	B – Form for complainant
4. Guiding principles	C – Objectivity
5. Complaints-handling framework	D – Complaint follow-up form
6. Planning and design	E – Responses
7. Operation of the complaints-handling process	F – Escalation flowchart
8. Maintenance and improvement	G – Continual monitoring
	H – Audit

Annex A – Guidance for small businesses was not considered since neither the CSO nor the POCSO were small businesses.

The decision to use the annexes, which are of informative nature, was two-fold:

- to achieve at the end of the study a thoroughly-compliant PCRP, and
- to maximize the benefits to the CSO and its PCRP by following as much of the available guidance as possible

The next step was to structure the contents of the MSS (i.e., clauses and annexes), so as to identify the MSS component interrelationships.

The structuring of the MSS followed a trial-and-error approach. The author first attempted to structure the standard using a flowchart, but the initial attempt for a high level of detail was a detriment to the clarity and understandability of the resulting graphic representation. Then, the author attempted to structure the standard using a tabular approach (as available in Appendix C.2) to represent inputs and outputs to and from subclauses. After the table was considered to successfully represent detailed relationships between clauses, a simplified graphic representation was built of the interrelationships between clauses and appendices of the standard, as shown in Figure 9 below.

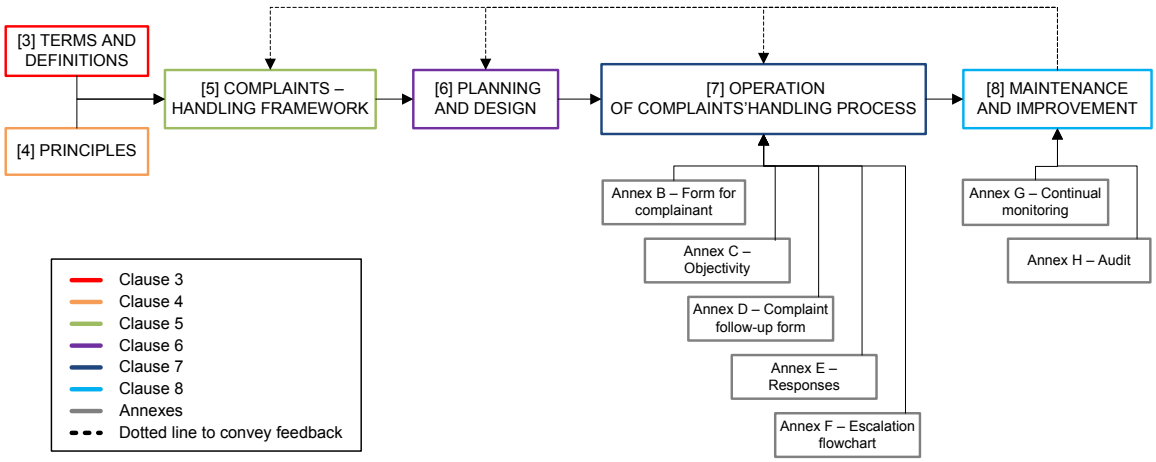


Figure 9 - Graphic representation of ISO 10002 interrelationships

As depicted in Figure 9, clauses *3. Terms and definitions* and *4. Guiding Principles* are inputs to clause *5. Complaints handling framework*; because the principles (e.g., *4.2 Visibility*, *4.3 Accessibility*, *4.4 Responsiveness*, *4.5 Objectivity*) help define the elements contained in clause 5, such as *5.1 Commitment*, *5.2 Policy*, and *5.3 Responsibility and Authority*. In turn, these elements are inputs to clause *6. Planning and design*, since the former shape the *6.2 Objectives*,

6.3 Activities and *6.4 Resources* of the complaints handling process; the latter of which are inputs to clause *7. Operation of complaints-handling process* and its constituting sub-components (e.g., *7.1 Communication*, *7.2 Receipt of complaint*, and *7.3 Tracking of complaint*). Additionally, the contents of *Annexes B* to *F* are inputs to clause 7 since they provide specific guidance for the operation of the complaints handling process, for example, *Annex B* suggests the type of information to be gathered from the complainant, while *Annex C* provides recommendations to have an objective process. Outputs of clause 7 feed into clause *8. Maintenance and improvement*, the latter of which suggests components for monitoring and improving the complaints handling process. *Annex G* and *Annex H* are also inputs to clause 8, since they contain guidance pertaining to monitoring and auditing (sub-components mentioned in clause 8). Lastly, results produced by the maintenance and improvement components (i.e., from clause 8) feed back into clauses 5, 6, and 7, since the results of management reviews and audits can affect the objectives, responsibilities, commitment, and operation of the complaints handling (CH) process (all clauses of ISO 10002, 2014).

After the PCRP and ISO 10002 had been understood and structured, the next step was to compare them side by side, and identify which guidelines of the standard were being met by the then-current PCRP. The next subsection describes and illustrates such comparison.

4.3.3 Mapping the standard to the system and identification and analysis of gaps

Steps five and six involved mapping the MSS to the MS (i.e., ISO 10002 to the CSO's PCRP), and identifying and analyzing gaps, respectively. These two steps allowed to identify which guidelines of the MSS were already met by then-existing processes, resources and objectives of the CSO's PCRP, and which were not.

The IUMSS handbook (ISO, 2008a) describes two approaches for mapping, namely "the matrix approach" and "the overlaying approach". The former approach (i.e., the matrix approach) was chosen to map ISO 10002 to the PCRP due to the copious amounts of information available regarding the PCRP and the desire to do a "thorough job" by means of:

- Providing 'mapping' information at a low level (i.e., sub-sub-clause), for example, by identifying per table row, the components from the PCRP that corresponded to a given sub-sub-clause,

- Providing explanations below the tables to justify the correspondence between sub-sub-clauses from ISO 10002 and PCRP components, thus allowing to justify correspondence at a very low level, including letters or bullet points,
- Being able to quote relevant fragments from the standard and from the PCRP document, or interviews with directors, so as to support the explanations and justifications.

For the three reasons above, the overlaying approach (i.e., where sub-clause numbers are placed inside the boxes of the flowcharts describing the Management System) was considered to be inadequate for the level of detail and thoroughness-of-justifications sought. For example, the graphic representation describing the PCRP (i.e., Figure 8) offered little room for overlaying sub-clause numbers, since it contained numerous boxes with text inside and in close proximity to others boxes. Similarly, juxtaposition of low-level elements such as letters or bullet points from the MSS was also impractical.

The majority of the guidance from ISO 10002 (2014) was addressed by elements of the CSO's PCRP. For example, the CSO's documentation detailed definitions, principles (related to clauses 3 and 4 of ISO 10002, respectively), as well as information regarding objectives, activities and resources (related to clause 5). Details on the complaints handling process, namely the PCRP (related to clause 7), were also found in the available documentation and from the interviews with directors. However, some aspects related to clause 8. Maintenance and improvement were found lacking, such as no evidence of the performance of audits of the PCRP (sub-clause 8.5), the lack of documentation regarding management review's inputs, and outputs (sub-clause 8.6), and of aspects related to continual improvement (sub-clause 8.7) like *"identifying and applying best practices in CH […], encouraging innovation in CH development, and recognizing exemplary CH behavior"* (ISO, 2014). Table 9 presents examples of the most significant gaps for each of the clauses and annexes of ISO 10002 (2014) used in this study (with full tables depicting the gap analysis results available in Appendix C.4).

Table 9 - Examples of most significant gaps

	ISO 10002 (2014)	Examples of most significant gaps in CSO's PCRP
CLAUSES	3. Terms and definitions	None
	4. Guiding Principles	Principle 10. Continual improvement had no match
	5. Complaints-handling framework	None
	6. Planning and design	Lack of measurable objectives and the frequency in which they should be established as per sub-clause 6.2.
	7. Operation of complaints-handling process	- Some of the information required in sub-clause 7.1 Communication of ISO 10002 was not provided to patients and families: for instance, the time periods associated with various stages of the process, the complainant's options for remedy, and how to obtain feedback on the status of the complaint. - Information on how to require a fairness review to external parties was inconsistent
	8. Maintenance and improvement	- Sub-clause 8.5 required audits to be performed regularly, but the available information showed no evidence of audits of the PCRP being performed. - Sub-sub-clause 8.6.1 required top management "to assess opportunities for improvement and the need for changes to the complaints-handling process and products offered" (ISO 10002, 2014, p. 9), however, these responsibilities were not documented in the CSO's PCRP document (CSO, 2009a). - Sub-sub-clause 8.7 suggested activities for continual improvement, many of which appeared not to be followed by the CSO
ANNEXES	B. Form for complainant	None
	C. Objectivity	Regarding section C.5 Objectivity monitoring of ISO 10002, the 'Resolution of a concern' activity (CSO, 2009a, p. 9) gathered and documented the level of satisfaction with the review process of every complaint that is received, however, it did not yet explicitly collect information on the objectivity with which the process was performed.
	D. Complaint follow up form	The following elements of the Complaint assessment section of ISO 10002: severity, complexity, and impact of complaint, need for immediate action, availability of immediate action, and likelihood of compensation (ISO 10002, 2014, p. 17), were not being addressed by the then-current electronic database (CSO, 2007a).
	E. Responses	The PCRP document (CSO, 2009a) did not provide a list of the responses (such as the one in section E.1 of the standard) that could be provided to the complainant.
	F. Escalation flowchart	None
	G. Continual monitoring	- Most of the proposed 'performance-monitoring criteria' in subsection G.3.2 were not yet used in the PCRP [e.g., letters *a* to *l* and *o*], yet they could benefit the CSO, and should be considered. - No evidence of use of monitoring data such as the alternatives presented under section G.3.3, [i.e., *b, c, e, f, g*] which should be considered by the CSO.
	H. Audit	No evidence was found of performance of audits of the CSO's PCRP

Thanks to the logical progression of the IUMSS methodology and the thoroughness of the approach followed in the research (e.g., including the first attempt at flowcharting the MSS, and the comprehensive justifications prepared during the mapping and gap identification), common themes of gaps were recognized. Table 10 presents examples of common themes amongst gaps related to different sub-clauses or appendices' subsections.

Table 10 - Examples of gaps grouped by their common themes

Sub-clause of ISO 10002 (2014)	Gap (abbreviated)	Common theme
8.5 "The organization should regularly perform or provide for audits…."	No audit	Audit
Annex H – Audit [detailed guidance]	No audit	
6.2 Planning and design – objectives: top management should ensure that […] objectives are set at regular intervals as detailed performance criteria.	Lack of measurable objectives and the frequency in which they should be established	Top management responsibility / Performance monitoring
Annex G.3.2 – Performance monitoring criteria [e.g., letters *a* to *l* and *o*],	Numerous performance criteria suggested by standard not used by CSO	Performance monitoring
Annex G.3.3 –Monitoring data [e.g., *b, c, e, f, g*]	Numerous monitoring data suggested by standard not used by CSO	
4.10 Continuous improvement	No continual improvement principle	Continuous improvement
8.6.1 top management should "assess opportunities for improvement and the need for changes to the complaints-handling process and products offered"	Lack of management responsibility related to improvement	
8.7 Continual improvement: "…explor[ing], identify[ing] and apply[ing] best practices in complaints handling, foster[ing] a customer-focused approach within the organization, encourage[ing] innovation in complaints-handling development, and recognize[ing] exemplary complaints-handling behaviour."	Lack of certain activities for continual improvement	
8.6.2 inputs to management review	Lack of definition of inputs to management review process	Management review
8.6.3 outputs from management review	Lack of definition of outputs from management review process	

Identifying common themes of gaps, allowed to follow an integrative approach to providing recommendations, for example, by combining in one recommendation that "the CSO include a principle called 'continuous improvement' [and] make it an objective of the CSO" which would

allow the CSO to close the gaps related to the guidance from sub-clauses 4.10 and 8.7. Another benefit of addressing recommendations thematically was to help the CSO address the gaps comprehensively and systematically. The next subsection presents the approach followed when preparing the recommendations, followed by a list of the recommendations and suggested approaches to their implementation.

4.3.4 Recommendations for closing the gaps

Recommendations to close the gaps related mostly to the documentation of then-existing aspects of the PCRP, and to the implementation of certain components. The method for preparing recommendations and their corresponding suggested approach to implementation included the following considerations:

- Recommendations for gap closure were based on common themes when applicable, and by taking into account the knowledge gathered from interviews with CSO Directors about the PCRP and the CSO (i.e., when an undocumented component existed in the PCRP as per the data from the interviews, documentation was recommended, as opposed to development from scratch).
- The author's knowledge of the CSO and of topics related to quality management and quality assurance (QM/QA) influenced not only the provision of recommendations but also the suggested approach to implementation, aiming to increase the probability of success of recommendation implementation. For example, since the researcher was aware that the CSO's early draft of the PCRP was based on a provincial framework drafted in 2007, the researcher suggested that including a principle related to Continuous Improvement would not only help comply with ISO 10002, but also with the principle of the provincial framework called "Quality improvements & Continuous learning".
- QM/QA tools were continuously considered when suggesting approaches for implementation of recommendations, as evidenced by the suggestion to use control charts (a component of statistical quality control) to track across time variables such as: "number of complaints received", "complaints received at the point at which they were made", and other examples of monitoring data (related to annex subsection G.3.3).
- Recommendations were prepared with a goal to overcome inherent limitations of the CSO'S PCRP, and seek instead to benefit from the underlying intent of the standard's guidance by

attempting to follow the underlying purpose of the guidance within the limitations of the CSO. For example, since the PCRP can be intricate and time-to-resolution is a function of the complexity of the concern and the collaboration of other stakeholders (including Operations and even the complainant), the CSO has opted to not commit publicly to timelines for resolution (related to sub-clause *7.1 Communication*), therefore what was suggested was to instead commit to maintaining timely communication with the complainant through the resolution process. Similarly with 'options for remedy available' (also related to sub-clause *7.1 Communication*), which the CSO is unable to communicate publicly due to the risk of abuse; the CSO could instead seek to document their most frequent responses for the purpose of subsequent analysis and training of personnel.

- It was also sought to avoid extra work for the CSO, for example, by suggesting to monitor objectivity (recommendations related to *C.5 Objective monitoring*) as part of the to-be-implemented regular audit of the PCRP.

Next, recommendations are presented, followed by the corresponding suggested approach for their implementation.

4.3.4.1 Recommendation one, pertaining to "Continual improvement"

Recommendation one was *"To include a principle called 'Continual improvement' and make it an objective of the CSO, and to document responsibilities of the PCED of the CSO regarding maintenance and improvement of the complaints handling process."* The CSO had shown interest in improving their process for complaints handling (as evidenced by the continuous evolution of the PCRP documentation, and the participation of management of the CSO in this research); thus, a move to add a principle called "Continuous improvement", and documentation of corresponding objectives and responsibilities should officialise what they had been doing in recent years. In addition, the provincial framework for patient concern resolution, which served as a guidance to document the PCRP in its early stages, contains as a principle called "Quality improvements & Continuous learning". Therefore, following the recommendation would help the PCRP be aligned not only with ISO 10002, but also in line with the provincial framework for patient concerns resolution.

4.3.4.2 Recommendation two, pertaining to "timelines and options for remedy"

Recommendation two was *"To provide information through online media on the timelines associated to the resolution process, as well as on the different options for remedy available to the complainant."*

The CSO is unable to provide timelines and "options for remedy available" due to the limitations of the PCRP. On one hand, the timeline for resolution will depend on, among other factors, the complexity of the concern, the level of collaboration from the operational reviewer, and even the level of collaboration from the complainant. On the other hand, disclosing potential options for remedy could expose the PCRP to abuse by frivolous complainants. Nevertheless, the CSO could attempt to provide information to patients and complainants explaining how during the PCRP, staff from the CSO will provide timely updates to complainants. Similarly, even though the CSO may not be able to provide "different options for remedy available to the complainant" due to the risk of having complainants abuse the system, the CSO could try to provide possible options for remedy on a case-by-case basis (i.e., after the concern is initially reviewed and discussed with the complainant). Such an approach would aim to uphold the intent of the standard, i.e., to provide information to the complainant on what to expect regarding time to resolution and possible remedies, while recognizing inherent process limitations and mitigating risk of abuse of the PCRP.

4.3.4.3 Recommendation three, pertaining to "Audit"

Recommendation three was *"To include a regular audit of the PCRP."*

The CSO could develop an audit that would allow it to examine its PCRP against documented procedures, standards such as ISO 10002, and to assess the PCRP's effectiveness, risks, and good practices. It would be advisable that such an audit would focus on the collaborative aspects (i.e., interfaces between departments) of the process, since the timeliness of resolution depends so heavily on such an aspect; and speed of response is one example of a patient expectation and likely a determinant of complainant satisfaction, as described in NAHAT (1993) and CCTF (1995) via McCrindle and Jones (1998), and in Clwyd and Hart (2013).

4.3.4.4 Recommendation four, pertaining to "Objectivity"

Recommendation four was *"To document aspects pertaining to objectivity (i.e., impartiality, confidentiality, monitoring of objectivity)."*

Perhaps due to the fact that personnel from the CSO do not themselves perform the investigation of a complaint, not many details about objectivity were available in the PCRP documentation. The CSO together with Operations could develop a short but meaningful checklist with questions to ensure objectivity such as: "Is there any superior-subordinate relationship between investigator and the person complained against?" or "How can independence be ensured during the investigation?" or "How will confidentiality be maintained by the investigator?" Such a checklist would aim to ensure that *"investigations [related to complaints about personnel] are done independently"* (related to C.1); and that *"confidentiality is ensured during complaints against personnel"* (C.4). Similarly, the CSO could monitor objectivity (related to C.5) not only through random reviews or surveys, but also as part of the regular audit of the PCRP (seeking to reduce extra work while also making the audit more value-adding).

4.3.4.5 Recommendation five, regarding "Complaint follow up"

Recommendation five was *"To align the electronic database with Annex D. Complaint follow up regarding: (a) 'assessing severity, complexity and impact', (b) 'need for immediate action', (c) 'availability of immediate action', (d) 'likelihood of compensation', and (e) whether a remedy is requested by the complainant."*

The above additions to an electronic database could be considered as 'straight forward'. What is more important is the "how" to do each of those elements, for example: "how to assess severity, complexity and impact", "how to assess if there is need for immediate action", "how to determine if there is availability of immediate action", or "how to determine the likelihood of compensation".

To assess *"severity, complexity, and impact"*, risk assessment tools could be helpful, such as a checklist that helps identify:

- the severity of the complaint (e.g., how bad is it for the complainant?, is he/she in physical pain as a result?);
- situations that are likely to involve several parties during resolution (i.e., complexity); or
- situations that if handled poorly could negatively affect the organization or the complainant (i.e., impact).

In addition, *"need for immediate action"* could be determined by means of a 'probability and impact matrix' to help prioritize risks (ANSI/PMI, 2008) and identify those that need to be acted upon. *"Availability of immediate action"* would be a result of identifying whether the needed action can be performed, who needs to do it, and how soon.

Regarding *"likelihood of compensation"*, even though the *"Complaint follow-up form"* (Annex D of ISO 10002) provides as answers yes/no, the term *"likelihood"* is not so much a binary option as maybe a variable that could be represented with Likert-type scale, e.g., 1 – extremely unlikely, 2 – unlikely, 3 – neutral, 4 – likely, 5 – extremely likely (Vagias, 2006). Thus, the PFIC or PCC could rate from 1 to 5 the likelihood of compensation using his/her judgment, or any available guideline.

4.3.4.6 Recommendation six, pertaining to "Responses"

Recommendation six was *"To document the most frequent responses of the PCRP."*

Even though, as mentioned earlier, the conditions of the PCRP make it difficult to commit to strict timelines for resolution, or being able to offer "options for remedy available", the PCRP could document their most frequent responses, and even gather statistics about frequency per type of response. With such data, the CSO could:

- Identify the responses that are most (and least) frequent,
- Be able to use the information to train personnel on the range of responses that the CSO is able to provide, for example: which responses are preferred, which need management approval, and which are to be discouraged,
- Be able to assess the data and try to find correlations between 'response provided' and 'complainant satisfaction with response'.

The above recommendation and suggested approach to implementation aim to overcome the limitation that the PCRP is unable to provide in the communication material details about remedy available (which may include responses), while still working internally to document the frequency of different types of responses and make the most out of such a rich dataset.

4.3.4.7 Recommendation seven, pertaining to "Monitoring"

Recommendation seven was: "*To document the existing process for monitoring the PCRP, and to consider using the performance monitoring criteria and monitoring data from Annex G.*"

Monitoring the PCRP using some or all of the "performance criteria" provided in G.3.2 of ISO 10002 (2014) could be achieved by following a 'level of maturity' approach, similar to those available in Business Excellence Models (BEMs). For example, the CSO may start by ensuring that "complaints-handling policy and objectives [have] been established, maintained and made appropriately available" then, the CSO may seek to assess if and how have the policy and objectives evolved through time; then, the CSO could compare their policy and objectives against "best in class", effectively using the criteria as a means to benchmark the CSO against best in class organizations.

Regarding "monitoring data", the CSO could first be sure to put in place the resources and processes for effective and reliable data collection. The CSO could attempt one or more of the following approaches:

- The CSO could first work towards defining which data to collect and then establish the mechanisms (resources and processes) for doing so.
- The CSO could also explore the reporting capabilities of their existing database and identify new reporting modes or metrics similar to the "monitoring data" provided in G.3.3;
- The CSO could apply "data mining" tools and techniques to extract data from their existing database, and subsequently analyze it with respect to the 'monitoring data' from G.3.3
- The CSO could make use of quality control tools such as control charts (e.g., to track across time *"complaints received"* and *"complaints resolved at the point at which they were made"* to name just a few); as well as A3 templates to document improvements (Sobek and Smalley, 2011) including *"improvements in procedures due to complaints"*.

Following the recommendations, a way to verify their implementation was suggested, as explained in the next subsection.

4.3.5 Verify gap closure

The recommendations provided aimed to close the gaps encountered after the mapping of the MSS to the MS (i.e., ISO 10002 to the CSO's PCRP). In order to verify that the gaps were

closed, an internal audit could be performed (e.g., by employing the guidance in ISO 19011, 2011). By reviewing updated PCRP documentation, and using as audit criteria the recommendations provided in the previous pages, an internal audit could be performed to verify that the gaps were closed. According to Arter (1994), audits should be useful: *they "must be performed and presented in a meaningful fashion [...,] results must be in management's terms and appeal their interest."*

The results of the audit would ascertain whether the recommendations were followed or not, in which case corrective actions should be taken. Assuming that the recommendations were implemented, it could be expected to have an ISO 10002-compliant Patient Concerns Resolution Process. Figure 10 presents the expected PCRP after the implementation of recommendations. Not only new components would have been added to the existing processes, for example, the documentation of objectives and personnel responsibilities (from recommendations related to clauses 6 and 8), but also new processes, such as "performance monitoring", "maintenance and improvement", and "auditing", as they relate to the common themes identified in the gap analysis and the provision of recommendations.

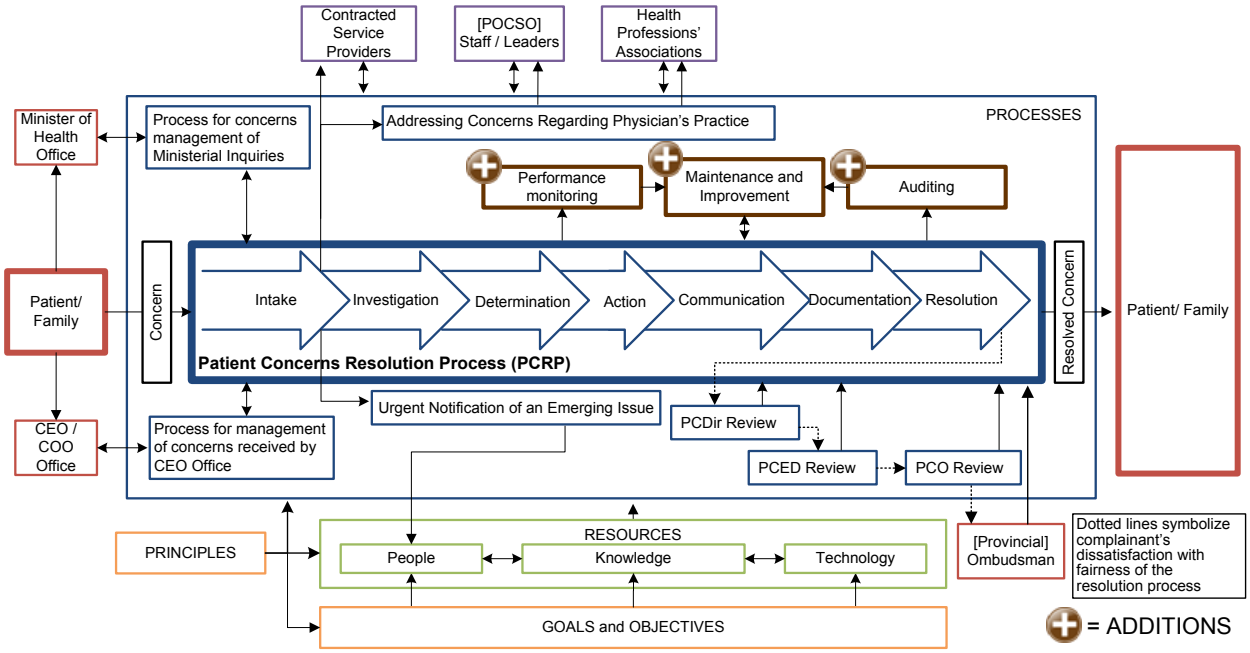


Figure 10 - Graphic representation of ISO 10002-compliant PCRP (new processes identified with 'plus's symbol)

In the figure above, the box labeled "Performance monitoring" represents a process that would gather data and evaluate the performance of the PCRP, for example, complaints received, and complaints acknowledged within agreed time; while the box labeled "Auditing" represents the

regular audits that would verify the conformity of the PCRP with a set of criteria, e.g., "the extent to which procedures are being followed [and] the ability of the PCRP to achieve objectives" (ISO 10002, 2014, p. 25). The outputs of these two processes are used by the process represented by the box labeled "Maintenance and Improvement" to feed back into the PCRP and perform corrective actions when needed.

With an ISO 10002-compliant PCRP in place, the standardization of the CSO's positive-feedback-handling was then attempted, which is the topic of the next subsection.

4.3.6 Using ISO 10002 to handle unsolicited positive feedback at the CSO

After the CSO would have implemented the aforementioned recommendations and an audit would have been used to verify gap closure, it could be said that the PCRP would comply with the guidance from ISO 10002 (2014). The CSO could also then benefit from applying the guidance from ISO 10002 to manage commendations and suggestions, which could be considered as positive- and neutral- types of feedback, respectively, but are collectively referred to as 'positive feedback' for convenience.

Due to the fact that the process for managing commendations shares not only resources (e.g., equipment such as phone, email, and database), and personnel (as exemplified by how PFIC's also receive commendations), but also certain sub-steps of the PCRP (namely "intake", "documentation", and "communication"), the CSO's process for managing commendations could be standardized by expanding the scope of the supporting elements of the standardized PCRP (i.e., framework, planning, and design, and maintenance and improvement), and of select core-related sub-processes, such as "intake", "documentation", and "communication". Details about the process for managing commendations are available in Appendix C.6.

The approach followed could be compared with the 'sequence of integration' approach proposed by Karapetrovic and Willborn (1998a) where they identify how management systems can be established one after another, where the latter could be implemented via 'add-ons' onto the former's existing structure. A similar approach was followed to standardize the management of commendations and suggestions at the CSO.

Interpreting the guidance of ISO 10002 for the purpose of managing commendations was very straight forward. Since the standardized PCRP was deemed to have all the components of ISO 10002 in place, only an expansion of scope was needed for certain components.

Even though they shared resources and infrastructure, the process for managing commendations at the CSO was different from the process for managing concerns (i.e., PCRP). For example, commendations offered by the Patient/Family to the CSO, would be forwarded by the CSO to the corresponding POCSO staff/leaders (i.e., Operations); whereas for concerns, the flow would start with Patient/Family submitting a concern to the CSO, who would manage the concern and request Operations to investigate the concern, who would communicate the results of the investigation back to the CSO, who would in turn provide a response to the Patient/Family. In other words, the flow of commendations was unidirectional (i.e., from Patient/Family to Operations, as shown in Figure 11); whereas the flow of concerns was circular (i.e., from Patient/Family to CSO to Operations, who respond back to the CSO who communicate the response to the Patient/Family; as shown in Figure 10). Similarly, the process for managing commendations was significantly shorter: for example, there were no Investigation, Determination, Action and Resolution activities, as in the PCRP. The commendations-handling process was comprised of Intake, Documentation and Communication activities, as shown in Figure 11.

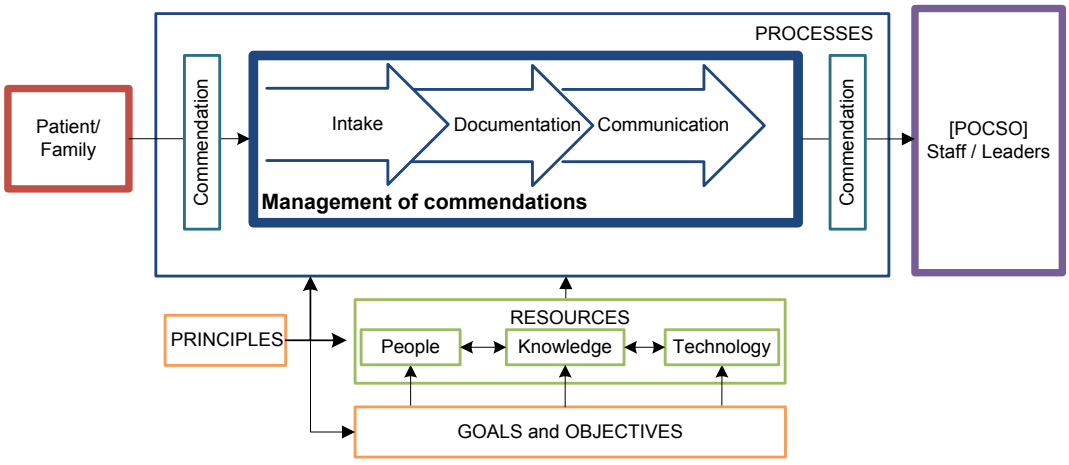


Figure 11 - Process for managing commendations (pre-standardization) at the CSO

Nevertheless, the system in place for managing concerns at the CSO, namely the PCRP, provided a good infrastructure to handle commendations in addition to concerns. For example, personnel and resources were already in place to collect the feedback, as well as to disseminate it

as needed (i.e., to share it with POCSO staff, i.e., Operations). Standardizing the PCRP, i.e., by following the guidance from ISO 10002, for handling concerns would likely have a beneficial impact in the managing of commendations, since the same resources would be used to handle commendations. However, certain additions to the CSO could be considered so as to ensure that the management of commendations was as thorough as the management of complaints or concerns. Thus, by adapting the guidance from ISO 10002 to handle commendations at the CSO, a few recommendations were made:

1. To define the term '*suggestions*' in the CSO documentation (CSO, 2009a, p. 33) (from adapting guidance from section *3. Terms and definitions* of ISO 10002). *'Suggestions'* can be considered as *'neutral'* feedback, while *'commendations'* as *'positive'* feedback (as per Van Doorn *et al.*, 2010 via Nasr *et al.*, 2014).
2. To add to the principle Continual Improvement in the PCRP documentation a statement acknowledging that improvement based on commendations would also be promoted by the commendations-management process of the CSO (from adapting sub-clause *4.10 [Principle of] Continual improvement* of ISO 10002)
3. To include the management of commendations in the feedback handling policy of the CSO (CSO, 2009a p. 8) (from adapting sub-clause *5.2 Policy* of ISO 10002).
4. To include a description of the process for managing commendations in the website (POCSO, 2009e), so that patients and family are aware of such a process (from adapting sub-clause *7.1 Communication* of ISO 10002).
5. To establish and/or document then-existing objectives and activities for handling commendations (from adapting sub-clauses *6.2 Objectives*, and *6.3 Activities* of ISO 10002). Some questions that could be used to determine such information could be:
    a. Why are commendations gathered? (i.e., what are the objectives?)
    b. How are commendations collected/acknowledged/recorded/communicated to staff? (i.e., what are the activities that comprise the process for managing commendations?)
    c. What is done with the information gathered from commendations leading to patient satisfaction? (i.e., how is information acted upon?)
    d. What is being done with the information gathered from commendations leading to continual improvement of both the commendations-handling process and the

provision of health care services? (i.e., how is continual improvement operationalized?)

6. To document the role that personnel (other than PFICs) play in managing commendations, for example: preparing annual reports, performing management review and continual improvement based on commendations (related to sub-clause *5.3 Responsibility and authority*, and clause *8. Maintenance and improvement* of ISO 10002).
7. To document the monitoring process of managing commendations, along with the relevant performance-monitoring criteria (adapted guidance of *Annex G* of ISO 10002).
8. To include the process of managing commendations in the audits of the CSO (related to sub-clause 8.5 and *Annex H* of ISO 10002).

As can be seen, most of recommendations above relate to documentation, since there was little documented information about commendation-management in the consulted documents of the CSO and POCSO.

The implementation of the recommendations above could be then verified by an internal audit, after which, the process for managing commendations would likely include supporting components such as: Performance Monitoring, Maintenance and Improvement, and Auditing. The ISO 10002-based commendations-management process could be represented as depicted in Figure 12.

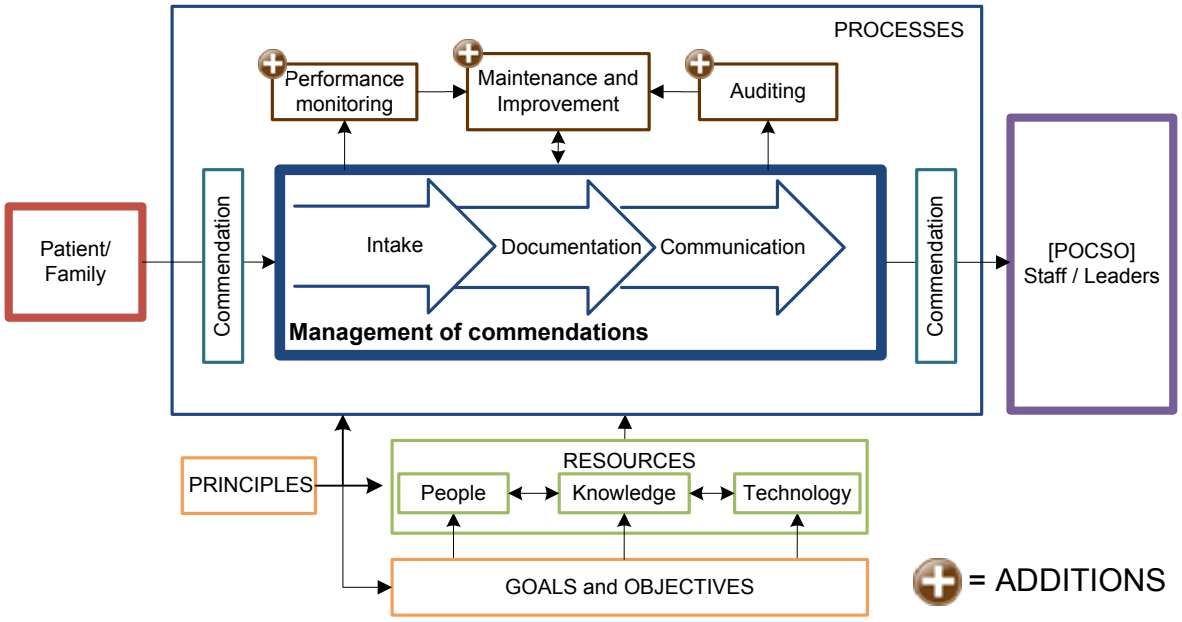


Figure 12 - Process for managing commendations (post-standardization) at the CSO

The process for managing commendations, which used the same resources and some sub-steps of the PCRP (namely Intake, Documentation and Communication), benefited from a standardized the PCRP that solely required:

- documenting details about commendation-management components, for example, those mentioned in recommendations 1, 3, 4, 5, and 6 in the previous two pages.
- expanding the scope of the recently added components to the standardized PCRP, such as those related to recommendations 2, 7, and 8 in the previous two pages.

By documenting the then-current process for managing commendations and augmenting it with the ISO 10002 recommended components and processes, it was sought to enhance not only process performance, but also customer (i.e., patient) satisfaction through continual improvement. The next section, called Applying lessons learned, explores how the utilization of other Management Systems Standards could benefit the CSO.

4.3.7 Applying lessons learned

Aiming to improve its operations, the CSO could consider International Standards such as:

- ISO 9001:2015 could be used by the CSO to enhance customer satisfaction by making sure that the customer requirements (e.g., those of patients and their families) and statutory and regulatory requirements (e.g., provincial regulation) are met by their feedback handling services (ISO 9001, 2015c, p. 1). Moving to implement the requirements from ISO 9001 in a 10002-based system (such as would be the case for the CSO's PCRP) could require less effort than doing it from scratch, since the text of ISO 10002 acknowledges compatibility with ISO 9001 (ISO, 2014, p. 6), aspect reinforced in the literature (e.g., Hughes and Karapetrovic, 2006).
- ISO 10003:2007 could be used by the CSO to further document, and likely enhance, the linkage of the PCRP with the *[Provincial] Ombudsman external review of administrative fairness of a [POCSO] complaint* (CSO, 2009a, p. 27). ISO 10003 *"provides guidance for organizations to plan, design, develop, operate, maintain and improve effective and efficient external dispute resolution for product-related complaints"* (ISO, 2007b, p. vi). A *"broader and integrated framework for enhanced customer satisfaction"* could be established by using

guidance from ISO 10003 in a system compliant with ISO 10002 (ISO, 2007b, p. vii); as also documented in the literature (e.g., Dee *et al.*, 2004; Karapetrovic, 2010).

- ISO 10004:2012 *"provides guidance to the organization on establishing effective processes for monitoring and measuring customer satisfaction"* (ISO, 2012, p. v). The CSO could strengthen their processes for monitoring and measuring customer satisfaction and move from the limited tracking of "satisfaction with outcome" and "satisfaction with process", to a richer set of customer satisfaction data (taking purpose, objectives, scope, frequency, and resources in consideration, ISO, 2012, pp. 4-5). ISO 10004 in conjunction with ISO 10002 (and ISO 10003) could conform a *"broader and integrated framework for enhance customer satisfaction"* (ISO, 2012, pp. v-vi).
- ISO 19011:2011 is an international standard that "provides guidance on auditing management systems, including the principles of auditing, managing an audit programme and conducting management system audits, as well as guidance on the evaluation of competence of individuals involved in the audit process, including the person managing the audit programme, auditors and audit teams" (ISO, 2011b, p. 1). Notwithstanding the number or types of MSSs in place at the CSO, guidance from ISO 19011:2011 could be used to audit conformance and effectiveness of the implemented MSSs.

The priorities of the CSO may dictate which MSSs are subsequently implemented, and in which order. Consideration of MSSs for implementation should be in support of the CSO's objectives regarding managing patient feedback, as well as in support of POCSO's ultimate goal to provide "safe, effective and patient-focused health care services" (POCSO, 2009a, p. 5).

4.3.8 Review of recommendations

Recommendations for gap closure were presented to management of the CSO during a meeting. The author presented each of the recommendations and received feedback from management of the CSO whether the recommendation was appropriate, or whether there was a component in the PCRP that would address the related gap but was missed by the author's gap analysis. The purpose of the verification was two-fold, to present results of the study to management of the CSO, and to receive feedback on the recommendations that were presented.

Management of the CSO pointed the author towards an updated document of the PCRP (CSO, 2010) that was reviewed to identify whether any recommendation was addressed in the updated

document. The author used the updated PCRP document (CSO, 2010) and compared the recommendations against it to assess whether any of the recommendations were addressed in the updated PCRP document. The updated document (CSO, 2010) did not address any of the recommendations. The decision to compare the recommendations against the updated documentation was based on the conviction that what in the gap analysis had been considered as 'matched' (i.e., where a component from the PCRP addressed guidance from ISO 10002 (2014)), would still be a match in the new documentation. What would be pending to examine in the 2010 version of the PCRP document were the recommendations (and related gaps) that were found in the earlier document (CSO, 2009a). After reviewing the new documentation (CSO, 2010), the recommendations were considered still relevant.

In addition, the author pointed to a few select components that would be of academic interest to develop further. Management of the CSO agreed with most of the recommendations and expressed interest in having some recommended components developed by the author, thus providing 'practical motivation' for such developments. The components selected for further study were the following:

- "Method for assessing severity, complexity and impact of complaints"
- "Auditing of the complaints handling process" (sub-clause 8.5)
- "Management review of the complaints-handling process (sub-clause 8.6)
- "Continual improvement" (sub-clause 8.7)
- "Method for analyzing and identifying 'systematic, recurring and single incident problems and trends'" (sub-clause 8.2)

4.3.9 Component for subsequent research

When discussing the recommendations to close gaps (i.e., as presented in subsection 4.3.4), management of the CSO and the author agreed that the component "audit" was of practical and academic interest. The practical interest derived from the intention of the CSO to be in compliance with ISO 10002, as well as to have a rigorous way to assess the PCRP, including its interfaces with other departments. Similarly, the academic interest derived from the fact that there was little literature available on audits of interdepartmental processes, therefore providing an opportunity for research, and that the author was affiliated with the AIMS Lab, which specializes in Auditing and Integration of Management Systems. The method and results

pertaining to the development, verification and validation of an audit method for examining interdepartmental processes are presented in Chapters 5, 6 and 7, respectively.

4.4 Summary

This chapter presented a study of how an AUG MSS (i.e., ISO 10002:2014) could be used by a provincial health care organization (i.e., the CSO) for handling feedback, as well as the components that were identified for subsequent research. Documents and interviews with CSO personnel provided the data for the study; while the methodology was taken from the IUMSS handbook (ISO, 2008a). The methodology (related to research objective 1a) consisted of eleven steps that allowed to understand and structure the CSO's PCRP (i.e., MS) as well as ISO 10002:2014 (i.e., MSS) so as to map the latter onto the former in order to identify and analyze gaps, for which common themes were also identified. Then, recommendations were provided to close the gaps, including suggested approaches to implementing the recommendations; and an internal audit was suggested to verify gap closure. Subsequently, the standardized PCRP was augmented to also manage commendations (related to research objective 1b), which resulted in a series of recommendations to the CSO, mainly related to documenting details about commendations-management, and about expanding the scope of certain core components of the standardized PCRP (such as performance monitoring, maintenance and improvement, and auditing). Then, additional international standards (such as ISO 9001, ISO 10003, ISO 10004, and ISO 19011) were suggested as possibly being of interest to the CSO aiming to enhance its effectiveness and efficiency. Lastly, recommendations from the study were reviewed with management of the CSO and components for subsequent research were identified (i.e., auditing) (related to research objective 1c). Next, Chapter 5 presents the development of an interdepartmental process audit.

5 Development of Boundary Audit Method

5.1 Introduction

One of the recommendations of the first research component, namely, "Use of an AUG MSS in a provincial health care organization", was *"To include a regular audit of the PCRP"*. Management of the CSO was not only receptive of such a recommendation, but they also shared that an area of opportunity in the PCRP was the "interfaces with other departments". A subsequent review of the literature failed to identify audit methods specifically used to examine interdepartmental processes, thus yielding the opportunity to develop such a method. This chapter reports on the methodology and results related to the development of an audit method for examining an interdepartmental process, sub-structured as follows (i.e., for both sections 'method' and 'results'):

1. Development of the conceptual framework (including supporting concepts)
2. Adaptation of audit method (including the adaptation of existing, or creation of new, supporting tools)

5.2 Method

The methodology used to develop an audit method to examine an interdepartmental process is illustrated in Figure 13, and explained next.

5.2.1 Study and understanding of quality audits

The first step in the development of the audit method involved the study and understanding of the different types of audits, including system, process, and product audits. Different resources (e.g., Arter 2003; Arter *et al.*, 2013; ISO 19011, 2011b; and Russell 2003, 2005;) were consulted to identify which type of audit could be used as the foundation based on which interdepartmental assessment capabilities would be developed.

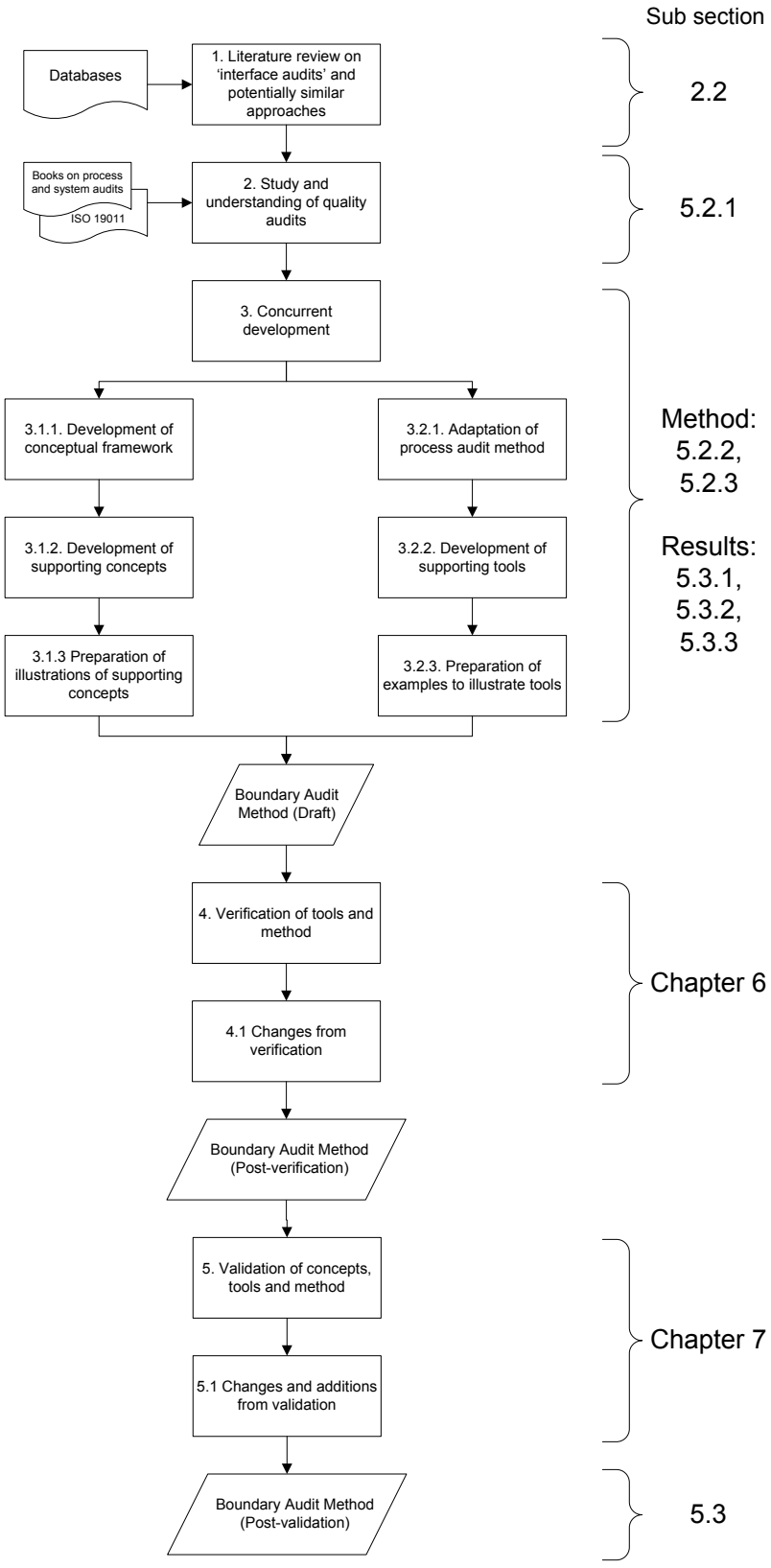


Figure 13 - Flowchart of the BAM development steps

The ‘process audit’ was selected as the underlying method, and its stages and steps were flowcharted to represent the auditing of an interdepartmental process. While the flowcharting took place, process audit steps involving different departments were identified, so as to recognize audit steps that would have to be documented in detail. For example, process steps such as ‘opening meeting’, ‘observation’, ‘interviews’, ‘reporting’, and ‘responding’, where different auditees could be accessed and where inter-auditee collaboration could exist, were documented for the purpose of this research. Challenging aspects involving access to, or collaboration amongst, multiple departments were identified and addressed by means of the development of supporting concepts or supporting tools. Next, details are provided regarding the development of the conceptual framework, including the development and illustration of supporting concepts.

5.2.2 Development of conceptual framework

A conceptual framework was developed to provide context to, and to accommodate, the elements that would support the interdepartmental process audit. For example, general characteristics of the interdepartmental process and the related audit were identified and documented, yielding a ‘conceptual framework’ that contained the following subsections:

- The boundary audit
    - Interdepartmental processes: challenges and opportunities
    - The boundary audit as an internal audit
    - A 1.5-party audit?
    - Boundary audit workload
    - Aspects of the boundary audit
- Determination of audit objectives, criteria, team, and methods
- Submethods for preparing questions from criteria
    - Identifying, organizing, and harmonizing criteria from available documentation
    - Using criteria to prepare questions to assess interactions and process output
    - Transferring questions to checklists

A summary of the ‘conceptual framework’ is provided in subsection 5.3.1

5.2.2.1 Development of supporting concepts

In parallel to the development of the ‘conceptual framework’, and more directly related with the performance of the audit (as opposed to its general context), ‘supporting concepts’ were

developed, aiming to enable the effective performance of an audit of an interdepartmental process.

From the flowcharted audit process, points where access to two or more departments, or collaboration amongst auditees was likely, were identified and documented, to explain how such access and collaboration could be performed. Thus, the following 'supporting concepts' of the interdepartmental process audit were developed:

- Process ownership
- Activities and interactions
- Interaction assessment
- Access and collaboration
- Concurrent and sequential approach

The result of the development effort regarding 'supporting concepts' is provided in subsection 5.3.2, while the method for adapting the process audit is described next.

5.2.3 Adaptation of process audit method

Concurrently with the development of the 'conceptual framework' and 'supporting concepts', the adaptation of the process audit method to examine an interdepartmental process was documented.

The four stages and components of the audit method were taken from Russell (2005), while sub-methods and techniques (such as observation and interviews; and the use of process elements as guide to the examination) were taken from Arter (2003). For the steps of the process audit that would involve multiple departments (i.e., auditees), detailed descriptions were composed to explain such multi-auditee involvement. For example, details were provided regarding how activities within the stages of planning, performance, reporting and closure could be performed jointly or separately for and by the auditees (i.e., departments) involved. Moreover, the sub-methods (i.e., observation and interviews) and tools (i.e., templates) of the process audit were expressly adapted or created for examining interdepartmental interactions. Process steps were developed to describe how interactions were to be identified and examined, how the boundary (i.e., interdepartmental relationship) could be assessed, and how audit findings could be

collaboratively reported and acted upon (i.e., by using the IdPFD, the Checklists, the AFST, the Finding Sheets, and the Response plans, respectively).

In addition to the details pertaining to the method, 'supporting tools' were significantly adapted or newly created to aid the performance of the interdepartmental process audit. The motivation for developing new, or significantly adapting existing, tools was:

- "To examine interactions between departments and the resulting process output", and
- "To identify the need for, and to encourage, interdepartmental collaboration during reporting and follow up"

Table 11 below presents the tools that were significantly adapted (of which details on the 'extent of the adaptation' are presented in Table 12), and those that were newly created.

Table 11 - Supporting tools significantly adapted or newly created

Supporting tools that were significantly adapted	Supporting tools what were newly created
Interdepartmental Process Flow Diagram (IdPFD)	Objective Mapping Template (OMT)
Observe Process Result Checklist (OPRC)	Audit Finding Summary Template (AFST)
Observe Process (Interactions) Checklist (OPIC)	Advancement Action Plan (AAP)
Interview Personnel (Interactions) Checklist (IPIC)	
Finding Sheets (Opportunities/Strengths) (FS (O/S))	

For the tools above, details about the adaptation or design were documented, as well as details regarding their use, including illustrating examples.

5.2.3.1 Adaptation of supporting tools

Diverse tools are available to support the performance of conventional process audits. Therefore, along with the adaptation of the method steps for the examination of an interdepartmental process, relevant tools had to be adapted to better serve the intended goal of allowing the examination of an interdepartmental process. Table 12 below presents a summary of the tools that were adapted and the extent of the adaptation.

Table 12 - Summary of supporting tools that were significantly adapted and the extent of the adaptation

Supporting tools significantly adapted	Extent of adaptation
Interdepartmental Process Flow Diagram (IdPFD) Adapted from Freivalds' (2009, p. 37) "Flow process chart"	• Added the ability to identify multiple departments involved in a process, and to identify which departments are involved at each process step (i.e., interaction) • Added symbol (i.e., hexagon) to allow the identification of process 'interactions'
Observe Process Result Checklist (OPRC) Adapted from Arter et al.'s (2013, p. 150) "Free form audit checklist", using Ishikawa's (1986) "Process Elements"	• Pre-validation, the OPRC was modified to examine the process output by using Reframed Process Elements (RPEs), but RPEs were dropped from the method as a result of the validation. • OPRC allows to examine the process output with regards to compliance, effectiveness, risks, and opportunities.
Observe Process (Interactions) Checklist (OPIC) Adapted from Arter et al.'s (2013, p. 150) "Free form audit checklist", using Ishikawa's (1986) "Process Elements"	• Modified to specifically examine interactions via observation, with regards to four audit objectives: compliance, effectiveness, risks, and improvement opportunities by using guiding questions for each of the six process elements (i.e., PEEMMM) • Designed to accommodate custom questions or to use default questions
Interview Personnel (Interactions) Checklist (IPIC) Adapted from Arter et al.'s (2013, p. 150) "Free form audit checklist", using Ishikawa's (1986) "Process Elements"	• Modified to specifically examine interactions through interviews with personnel, with regards to four audit objectives: compliance, effectiveness, risks, and improvement opportunities by asking questions pertaining to each of the six process elements (i.e., PEEMMM) • Designed to accommodate custom questions or to use default questions
Finding Sheets (Opportunities/Strengths) (FS (O/S)) Adapted from Arter et al.'s (2013, p. 159) "Finding Sheet", using Kaplan and Norton's (1996) "Balanced Scorecard Categories"	• Designed to allow the documentation of both kinds of 'positive type' findings, i.e., strengths and opportunities • Designed to allow the identification of the 'location' of a finding, i.e., a given department, or the 'boundary' between departments. • Designed to encourage the implementation of recommendations by requiring the identification of potential benefits (and their categorization as per the Balanced Scorecard categories) and the beneficiaries.

In addition to adapting existing tools, there were some tools that were newly created, each with a different specific purpose, but all in relation to the overarching goal of allowing the auditing of an interdepartmental process

5.2.3.2 Development of supporting tools

While documenting the description of the adapted audit method, opportunities were identified to propose tools that would facilitate the objective of examining an interdepartmental process. For example, audits can assess process effectiveness (or suitability or adequacy) in meeting relevant objectives (Arter, 2003; ISO, 2014; Russell, 2005); but there could be occasions where objectives from different stakeholders (i.e., departments, the parent organization, and even the customer) may be in potential conflict. Aiming to address such possibility, a tool was developed to document and categorize relevant objectives, i.e., the Objective Mapping Template. Similarly, the adapted process audit method established that audit findings ought to be presented to management of the auditee in an exit meeting (e.g., ISO, 2011b, p. 22; Russell, 2005, p. 106), but no specification was provided as to how to do so, which prompted the creation of the Audit Finding Summary Template to succinctly and visually present findings. Lastly, even though documentation abounds regarding corrective and preventive action plans (in response to negative-type findings, such as non-conformances or risks, respectively), an opportunity existed to develop a response plan for positive-type findings such as strengths and opportunities, namely the Advancement Action Plan. Table 13 presents a summary of newly created tools and the corresponding rationale.

Table 13 - Newly created supporting tools and rationale

Supporting tools newly created	**Rationale (purpose) for creating the tool**
Objective Mapping Template (OMT)	To enable auditors to identify relevant objectives during the audit planning stage in order to identify audit criteria against to which assess process effectiveness
Audit Finding Summary Template (AFST)	To allow classification and organization of audit findings to facilitate presenting of results
Advancement Action Plan (AAP)	To allow the auditee(s) to plan a response that will build on a strength or make the most of an opportunity, aiming to improve the interdepartmental process.

Examples of the utilization of the tools are illustrated through the description of the method available in full in Appendix D.2; while the tool templates are available in Appendix D.3.

Once the audit method for examining an interdepartmental process was in preliminary form, it was verified and subsequently validated. Next, summaries of the methods used for verification and validation are presented.

5.2.4 Verification

The verification of the Boundary Audit Method sought to assess the effectiveness of the BAM in achieving design objectives, i.e., in assessing an interdepartmental process. The verification of the BAM consisted of two stages: verification of select tools (i.e., those that were significantly adapted or newly created), and verification of select method steps (i.e., steps that reflected original contributions). Records from the CSO and PCO (i.e., closed complaints) served as the data used to verify the tools and the select method steps. After each verification sub-routine, i.e., verification of tools, and verification of select method steps; needed changes were identified, planned and implemented. Details about the verification methodology and results are presented in Chapter 6.

5.2.5 Validation

After the select tools and method steps had been verified using records of closed complaints, and deemed changes were implemented; the Boundary Audit Method was then validated. The validation aimed to determine if the proposed method and tools met customer requirements; and was performed through individual meetings and interviews with research participants. The information collected was aggregated, analyzed, and conclusions were drawn. Needed changes were identified, planned and implemented. Details about the validation methodology and results are presented in Chapter 7.

Figure 14 presents a Venn diagram depicting the BAM steps and components that were examined during verification and validation (including during both). It was sought to examine as many components as possible during both Verification and Validation, but certain components could only be examined during the Validation since they could not be verified using records of closed complaints, but rather through interviews with personnel, e.g., “Concurrent and sequential approach”, “Interview personnel (interactions)”, and “Verification and implementation of response plans (AAP)”.

After the verification and validation had taken place, the BAM was deemed to be in its final state. The following subsection presents the conceptual framework and supporting concepts, followed by the method description and supporting tools.

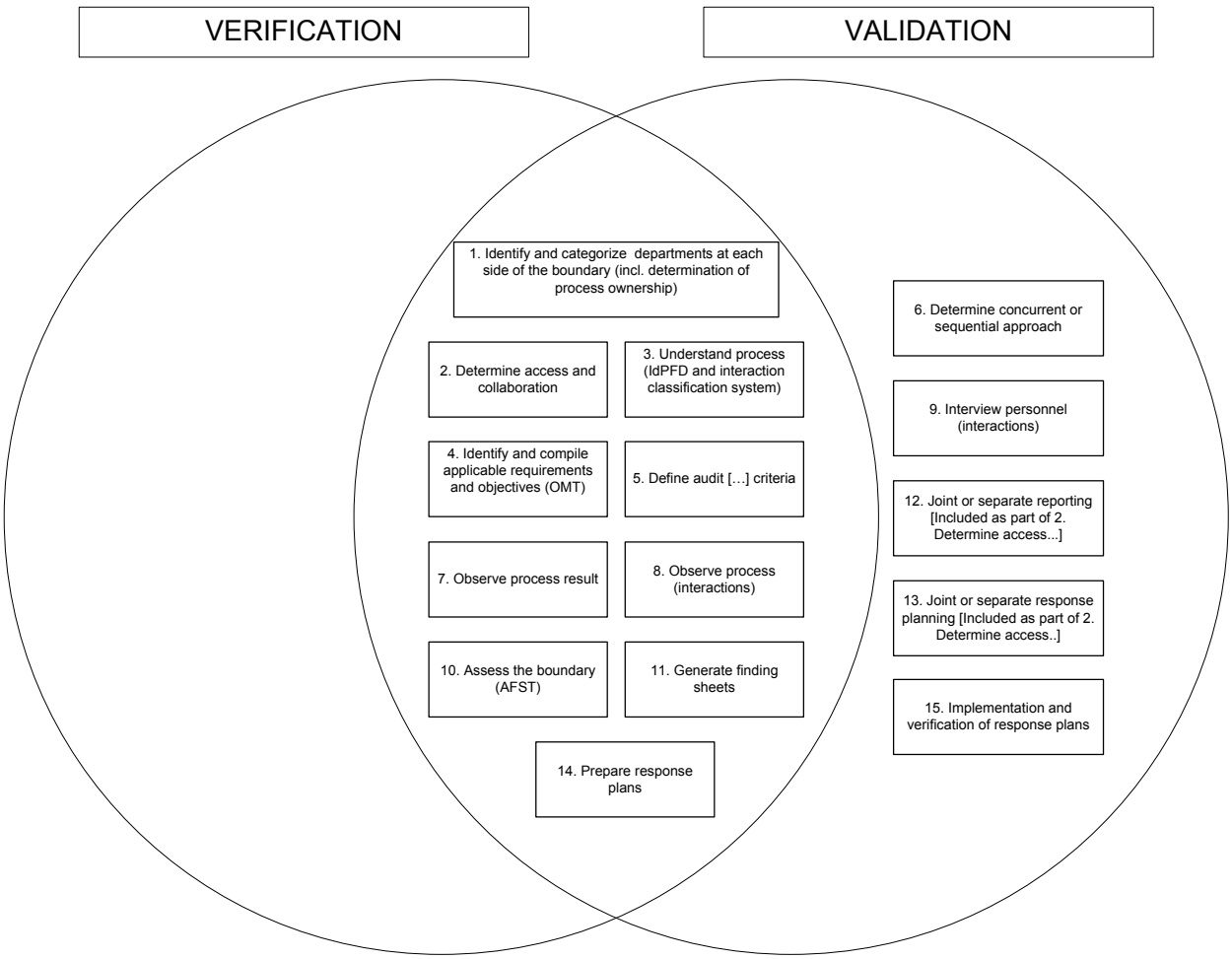


Figure 14 - Venn diagram depicting BAM components examined in the Verification and Validation

5.3 Results

This section presents the components deemed as original contributions of the Boundary Audit Method, including conceptual framework and supporting concepts; as well as the method description and supporting tools. The focus on the original contributions means that certain interim steps of the BAM (which even if essential are not original) are not included in this chapter. Nevertheless, the reader can find the complete final version of the BAM in Appendix D.2. Similarly, initially proposed components that were rejected either during the verification or validation stages are available in Appendix D.4. Lastly, the results presented correspond to the final version of the BAM, i.e., post-validation.

Figure 15 depicts the components that represent original contributions of the BAM, i.e., the conceptual framework, and the supporting concepts and tools that enable the auditing of an

interdepartmental process (the actual method, with methodological contributions highlighted, is available in Figure 16). After the graphic, each supporting concept and tool is briefly presented, with detailed explanations and examples available in the appendices.

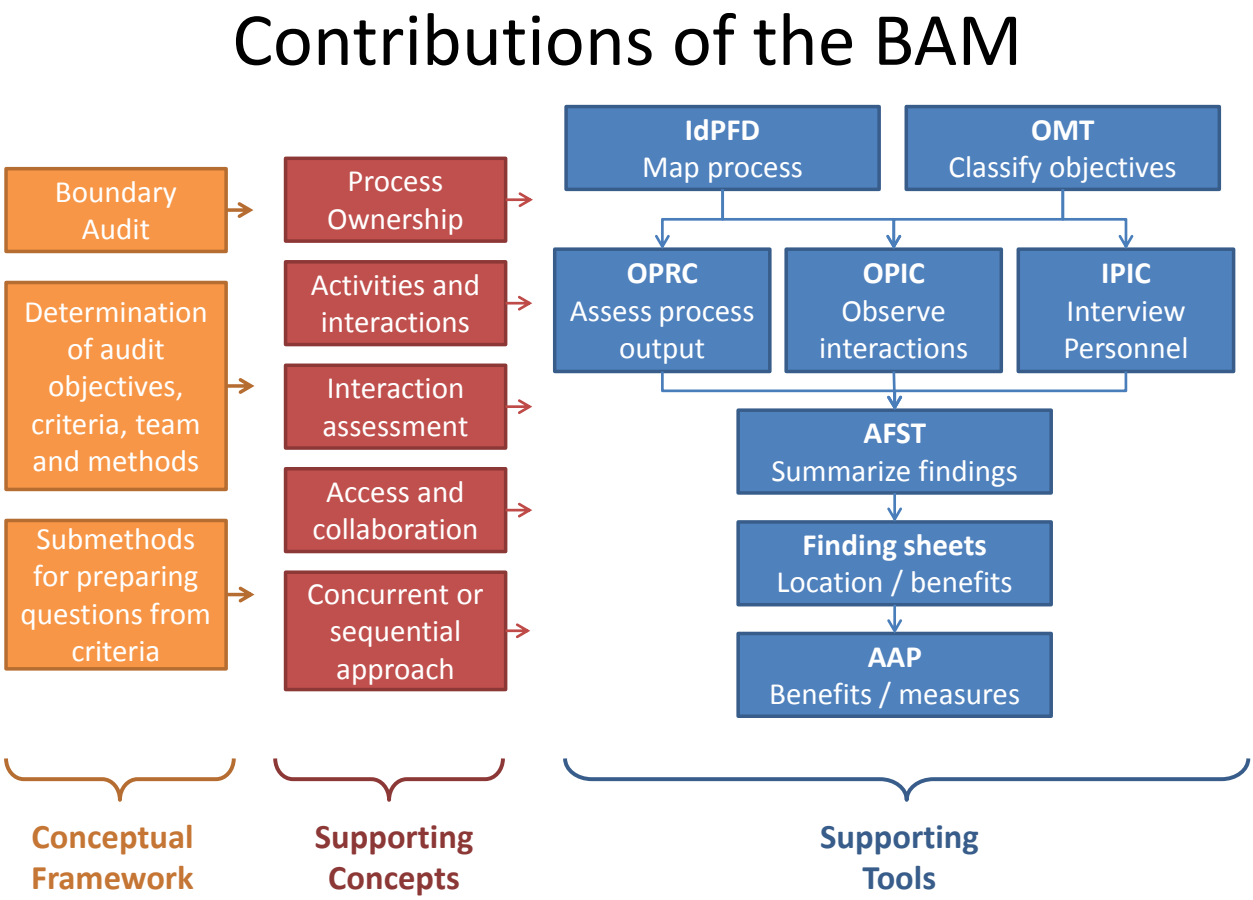


Figure 15 - Components representing original contributions of the BAM

5.3.1 Conceptual framework

5.3.1.1 Boundary Audit

The Boundary Audit, conceived as part of a larger system audit, allows the examination of an interdepartmental process (i.e., performed between two or more departments). Interdepartmental processes present unique challenges such as the fact that the effectiveness of the process can be greatly influenced by the performance of members from different departments, over whom the department with the greatest interest in the process may have little or no control.

The boundary audit, due to its scope and objectives, could be considered as an internal audit. Since the scope of the boundary audit includes a process that is performed between two or more

departments of an organization, the boundary audit is very likely to be initiated either by one of the departments, or mandated by senior management of the organization. In addition, since the boundary audit includes as objectives (apart from compliance and effectiveness), the identification of risks and improvement opportunities (elements which are of more interest to the involved departments and to the organization than to a customer or an external registrar), it is again likely to be triggered as a result of an internal request, thus strengthening the argument that the boundary audit can be categorized as 'internal'.

The boundary audit goes beyond being a first party audit due to the fact that it involves an interdepartmental process, therefore having more than one auditee (i.e., two or more departments sharing boundaries), one of which can be considered as a customer to the others (refer to subsection 5.3.2.1 Process ownership for more details on this interpretation). If a first-party audit is performed by an organization on itself, and a second-party audit is performed by a customer on a supplier, what would a (theoretically) one-and-a-half party audit look like? A case could be made that an internally-initiated audit of an interdepartmental process falls between a first-party audit and a second-party audit. In other words, the interdepartmental process audit will have a department auditing itself and one or more internal suppliers at the same time. The designation chosen to describe this peculiarity is "1.5-party audit" (i.e., *one-and-a-half-party audit*).

The boundary audit is a comprehensive method that examines the interactions between members from different departments during a process, as well as the process output. The methods used by the boundary audit to collect audit evidence include observation and interviews. The boundary audit is supported by tools that have been significantly adapted or newly created for the purpose of assessing an interdepartmental process.

The boundary audit requires more work than traditional audits because it is likely to involve accessing more than one department. The work load will be greater for both the audit team, as well as the auditees. The former may need to access more than one department during the audit performance, while the latter may need to collaboratively address certain audit findings. Combinatorial formulas can be used to identify the number of boundaries between departments in a given process.

5.3.1.2 Determination of audit objectives, scope, criteria, team and methods

When designing the boundary audit, fundamental components had to be determined, such as audit objectives, criteria, team, and methods. Next, such results are presented.

To determine the audit objectives, an examination of traditional audit objectives was performed, and is available in Table 2 - Audit Objectives Comparison in Chapter 2. From such an analysis, the following audit objectives were selected due to their complementary and comprehensive scope: Compliance, Effectiveness, Risks, and Improvement Opportunities.

The boundary audit closely examines interactions and process output of an interdepartmental process. The scope of the audit could grow progressively not only in terms of objectives, but of the number of interactions that are assessed. Similarly, interim reviews of audit progress could be included as part of the boundary audit when the scope has grown too large or complex (as suggested during the BAM Validation by Participant 2).

The boundary audit can be performed by competent auditors with knowledge of the applicable management system, including the relevant interdepartmental process, and other pertinent knowledge and skills (as per ISO 19011, 2011b). The principle of "independence" would require an auditor to "be independent from the operating manager of the function being audited" (ISO, 2011b, p.4). In other words, the auditor should not have a working relationship with the operating managers of the departments on either side of the boundary. The auditors would be selected by the audit team leader, which in turn would be appointed by the audit client. The audit client (i.e., the person requesting the audit) could be senior management of the organization, management of the department considered to be the process owner, or a joint committee with representatives of the departments involved (e.g., the process owner and the process partner).

Due to the nature of the interdepartmental process that will be examined during the boundary audit, a strategy that would facilitate its examination was favored. Product tracing, defined as *"following the chronological progress of something as it is processed"* is an audit strategy (Russell, 2005 p. 80 improving on Arter's, 2003 definition on p.71), supported by methods to collect information such as "observation and interviews" (ISO, 2011b, p.21). Observation, in turn, sub-divides into observing the process result, and observing the activities and interactions

that make up the process. Similarly, interviews take place in which the auditors ask questions that focus on the activities and interactions in order to gather information on the process.

In order to guide observation and interviews, the Process Elements used by Ishikawa in his Cause-Effect diagram (1986) and later expanded by Russell (2003, 2005) were selected. The process elements provide a framework to group 'things' affecting a process, and consist of: People, Equipment, Environment, Materials, Measures, and Methods (PEEMMM) (Arter, 2003; Russell, 2003).

5.3.1.3 Sub-methods for preparing questions from criteria

The criteria to be used in the boundary audit were determined to be:

- Process requirements and objectives
- Interaction criteria
- Process output requirements and objectives

Sub-methods were developed for identifying, organizing, and harmonizing audit criteria for interactions; for preparing probing questions, and for transferring questions to checklists (as available in Appendix D.1.1). Next, the supporting concepts are discussed.

5.3.2 Supporting concepts

In addition to the conceptual framework of the boundary audit (i.e., a description of the unique aspects of the audit; determinations regarding objectives, criteria, team, and methods; and the sub-methods for preparing questions from criteria), the following concepts were developed to support the actual performance of the audit: process ownership, defining activities and interactions, interaction assessment, access and collaboration, and concurrent or sequential approach.

5.3.2.1 Process ownership

An interdepartmental process is defined as a process performed by two or more departments. "Process ownership" is a term used to represent the greater interest of a department in the success of the process and it is a consequence of organizational structure. Process ownership can be determined by identifying the department officially responsible for the process, or if no

official responsibility assigned, the department that performs the majority of the process workload.

Identifying process ownership is important because the process owner could be considered as an internal customer of the interdepartmental process, since it has a greater interest in the success of the process. Identifying relevant departmental objectives (aided by the Objective Mapping Template) and assessing if the interactions of a process and the process output meet such objectives are strengths of the boundary audit. The process owner could also be a 'champion' that encourages and enables the boundary audit; and that can get buy-in from process partners to be part of the audit and to collaborate during and after the audit. Limitations of identifying process ownership could include perceived favoritism, prejudiced or biased analysis, alienation, or lack of trust in audit conclusions. It is important that auditors recognize the above risks, and try act to mitigate them. More details about process ownership, how it can be determined, and benefits and limitations are provided in Appendix D.1.2.

5.3.2.2 Activities and interactions

For the purpose of the boundary audit, interdepartmental processes are said to be mainly comprised of activities and interactions. On the one hand, the term *"activity"*, which ISO 9000 (2005) defines as *"an operation performed to transform inputs into outputs"* (p. 11) is more broadly used in the BAM to refer to operations and even communications between members of the same department. On the other hand, the term "interaction" is used to identify occasions in which members from different departments (broadly speaking, because even a customer could be considered as a "department") interact with one another. Therefore, the use of the term "interaction" conveys interdepartmental scope.

5.3.2.3 Interaction assessment

Interactions between members of different departments represent potential points of process failure due to reasons such as different reporting structures or organizational cultures, competing departmental objectives, or black-box syndrome (i.e., members of one department know little or nothing of what happens at the other department pertaining to the interdepartmental process). The boundary audit addresses the challenge of assessing interactions in the following way:

1. Interactions are identified by means of the IdPFD.
2. Interactions are examined through observation (including examining records such as emails, minutes, and memos, that occur between members of different departments), and by interviewing the people involved in the interactions.
3. Information on interactions can be assessed and even cross-examined when personnel from two or more departments have been interviewed about a given interaction.

Compliance of process interactions would be assessed by observing the interactions, interviewing personnel about the interactions, and assessing whether the interactions meet the documented criteria (i.e., requirements). Effectiveness of process interactions refers to the ability of the interactions to meet relevant objectives (e.g., interaction objectives, as well as objectives of the overall process). By identifying risks (or threats), and improvement opportunities, the boundary audit could recognize what may happen at the process in the future, both favorable and unfavorable. Risks are traditionally considered as negative, while improvement opportunities are deemed to be positive.

5.3.2.4 Access and collaboration

During the boundary audit, consideration should be given to the number of departments that will be audited and accessible to the auditors. Similarly important is to determine the level of collaboration expected amongst departments during the audit. The work of the auditor and audit team will be influenced by the number of departments that will be accessible, and by the expected level of inter-auditee collaboration during reporting and follow-up. Appendix D.1.3 provides a detailed description of different levels of collaboration between departments, as well as potential drawbacks and mitigation strategies of "combined-reporting", "combined-responding", and overall challenges of an interdepartmental process audit.

5.3.2.5 Concurrent and sequential approach

For occasions when access to more than one department is possible, it is important to determine the sequence that will be followed by the audit team for accessing the different departments: i.e., concurrently or sequentially. A "concurrent" approach refers to performing activities such as 'opening meeting', 'product tracing', and 'closing meeting' for all departments at the same time, or as closely in time as possible. Conversely, a "sequential" approach refers to the performance of the activities first for one department, and then for another. Deciding on what approach to

follow could be a result of specific conditions, such as whether the departments are located close to each other, the time the interdepartmental process takes to be performed, amongst others. More details about the possible approaches are provided in Appendix D.1.4. Next, the Boundary Audit Method and its supporting tools are presented, with an emphasis on the original contributions.

5.3.3 Method description and supporting tools

The Boundary Audit builds on the traditional process audit to examine an interdepartmental process through a focus on interactions. The complete BAM (as available in Appendix D.2) examines not only the process output and process interactions, but also activities performed by members of the same department (since activities can also influence the performance of an interdepartmental process); however, this subsection will refer mostly to interactions and interdepartmental (i.e., inter-auditee) collaboration as they represent the majority of the academic contributions.

The Boundary Audit is comprised of four main stages (as adapted from Russell, 2005): planning, performance, reporting, and closure. Figure 16 presents a summary of BAM steps vertically aligned by stage, with red squares framing, and arrows pointing to, the contributions of the method; which are explained next.

5.3.3.1 Audit Planning

The first stage of the BAM deals with approach-specific elements, such as identifying the departments involved, the level of collaboration expected throughout the auditing process, as well as conventional auditing-planning steps like requesting and reviewing documents, defining audit objectives, scope, team, audit plan, and preparing working documents (such as templates and checklists).

5.3.3.1.1 Identify process, process ownership, departmental access and collaboration.

A process that is performed amongst members of different departments can be examined using the Boundary Audit. Firstly, the process owner is identified, as well as the process partners. Guidance is provided in Appendix D.1.2 on how to determine process ownership, its benefits and limitations. In addition, the accessibility and collaboration between the departments to be audited (i.e., the auditees) is determined, so that the audit leader can identify the extent of the audit (i.e.,

whether one or more departments will be accessed; and the extent of expected inter-auditee collaboration during reporting and responding), to better understand and plan the expected workload. Then, process documentation is requested and obtained; and audit objectives, scope, criteria, team, and plan are prepared.

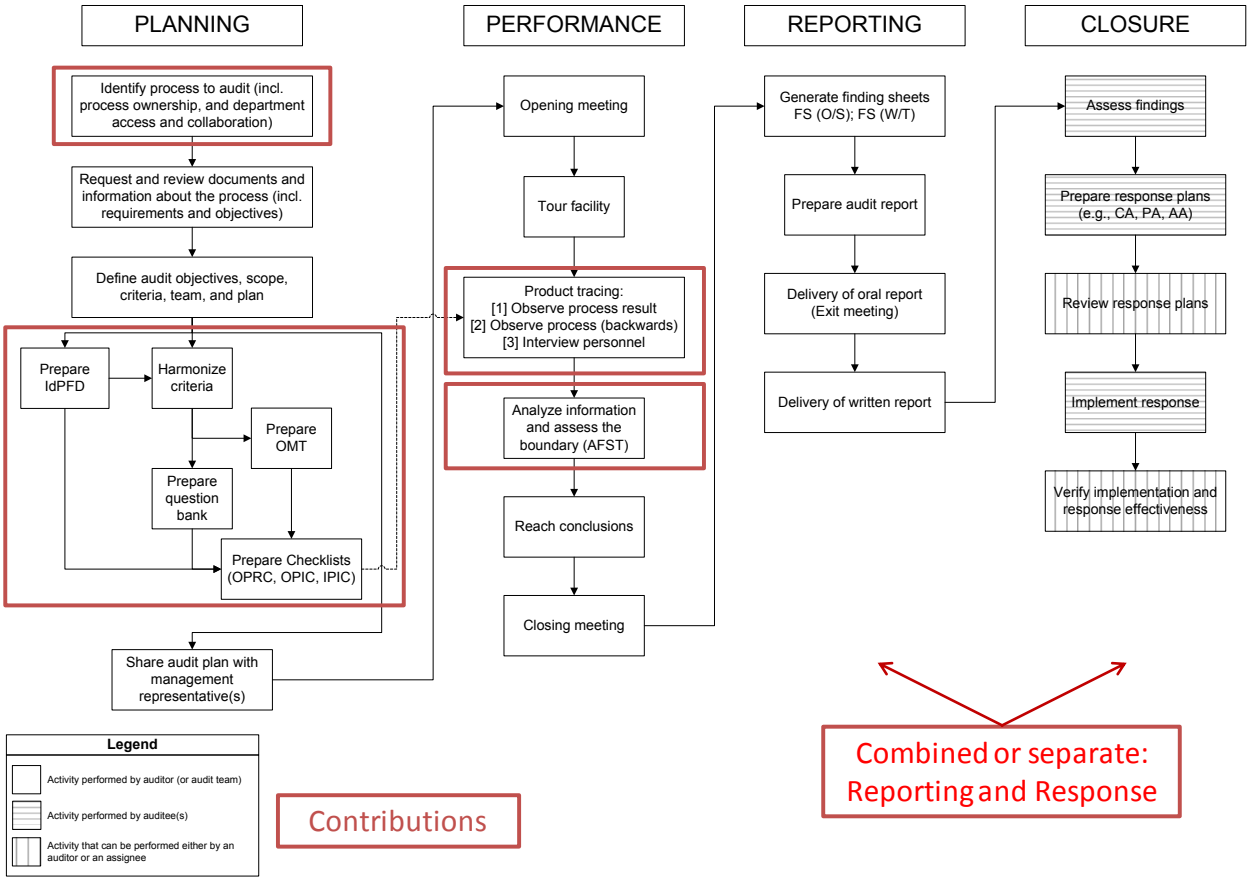
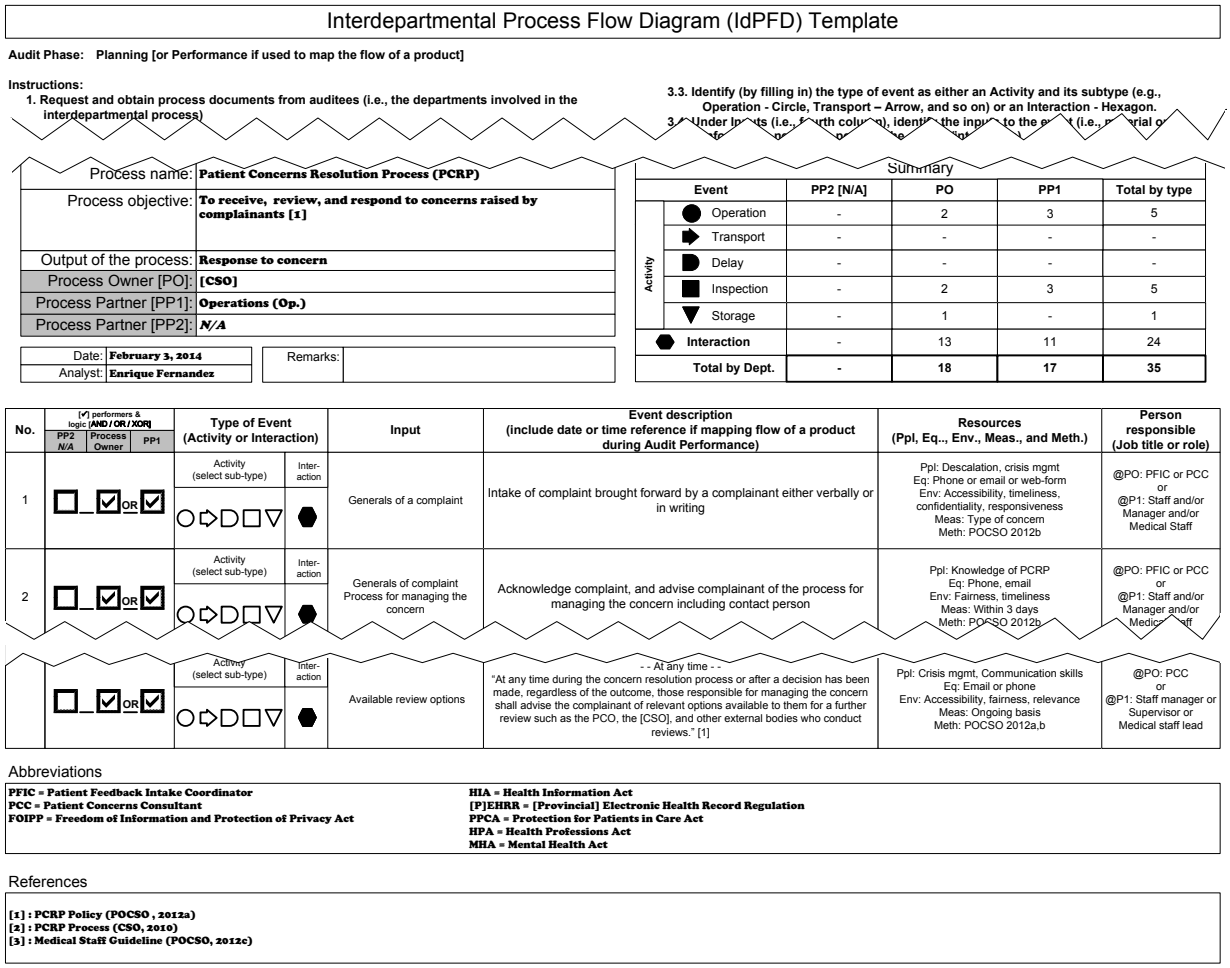


Figure 16 - Boundary Audit Method - abbreviated flowchart

5.3.3.1.2 Prepare Interdepartmental Process Flow Diagram

With the process documentation available, the auditor will get familiar with and understand the interdepartmental process. By means of the Interdepartmental Process Flow Diagram (IdPFD), the auditor can identify not only the activities that comprise the process, but also the interactions amongst members from different departments involved. Figure 17 shows an excerpt of an IdPFD that documents the PCRP; the excerpt shows the template instructions at the top, followed by the process details, summary table, and process steps (i.e., 'events') in the middle, and the abbreviations and references at the bottom. The IdPFD also allows to identify the resources used

in each process step, i.e., activity or interaction; the departments involved; as well as the person responsible. Both the template and an example of the IdPFD are provided in Appendix D.3.2.



Interdepartmental Process Flow Diagram (IdPFD) Template

Audit Phase: Planning [or Performance if used to map the flow of a product]

Instructions:
1. Request and obtain process documents from auditees (i.e., the departments involved in the interdepartmental process)
3.3. Identify (by filling in) the type of event as either an Activity and its subtype (e.g., Operation - Circle, Transport – Arrow, and so on) or an Interaction - Hexagon.

Process name:	**Patient Concerns Resolution Process (PCRP)**
Process objective:	**To receive, review, and respond to concerns raised by complainants [1]**
Output of the process:	**Response to concern**
Process Owner [PO]:	**[CSO]**
Process Partner [PP1]:	**Operations (Op.)**
Process Partner [PP2]:	***N/A***

Date:	**February 3, 2014**
Analyst:	**Enrique Fernandez**
Remarks:	

Summary

	Event	PP2 [N/A]	PO	PP1	Total by type
Activity	Operation	-	2	3	5
	Transport	-	-	-	-
	Delay	-	-	-	-
	Inspection	-	2	3	5
	Storage	-	1	-	1
	Interaction	-	13	11	24
	Total by Dept.	**-**	**18**	**17**	**35**

No.	[✔] performers & logic (AND / OR / XOR) PP2 N/A / Process Owner / PP1	Type of Event (Activity or Interaction)	Input	Event description (include date or time reference if mapping flow of a product during Audit Performance)	Resources (Ppl, Eq.., Env., Meas., and Meth.)	Person responsible (Job title or role)
1	☐_☑OR☑	Activity (select sub-type) / Inter-action	Generals of a complaint	Intake of complaint brought forward by a complainant either verbally or in writing	Ppl: Descalation, crisis mgmt Eq: Phone or email or web-form Env: Accessibility, timeliness, confidentiality, responsiveness Meas: Type of concern Meth: POCSO 2012b	@PO: PFIC or PCC or @P1: Staff and/or Manager and/or Medical Staff
2	☐_☑OR☑	Activity (select sub-type) / Inter-action	Generals of complaint Process for managing the concern	Acknowledge complaint, and advise complainant of the process for managing the concern including contact person	Ppl: Knowledge of PCRP Eq: Phone, email Env: Fairness, timeliness Meas: Within 3 days Meth: POCSO 2012b	@PO: PFIC or PCC or @P1: Staff and/or Manager and/or Medical Staff
	☐_☑OR☑	Activity (select sub-type) / Inter-action	Available review options	- - At any time - - "At any time during the concern resolution process or after a decision has been made, regardless of the outcome, those responsible for managing the concern shall advise the complainant of relevant options available to them for a further review such as the PCO, the [CSO], and other external bodies who conduct reviews." [1]	Ppl: Crisis mgmt, Communication skills Eq: Email or phone Env: Accessibility, fairness, relevance Meas: Ongoing basis Meth: POCSO 2012a,b	@PO: PCC or @P1: Staff manager or Supervisor or Medical staff lead

Abbreviations

PFIC = Patient Feedback Intake Coordinator
PCC = Patient Concerns Consultant
FOIPP = Freedom of Information and Protection of Privacy Act
HIA = Health Information Act
[P]EHRR = [Provincial] Electronic Health Record Regulation
PPCA = Protection for Patients in Care Act
HPA = Health Professions Act
MHA = Mental Health Act

References

[1] : PCRP Policy (POCSO , 2012a)
[2] : PCRP Process (CSO, 2010)
[3] : Medical Staff Guideline (POCSO, 2012c)

Figure 17 - IdPFD Example Excerpt

5.3.3.1.3 Harmonize criteria

With the IdPFD providing a structured representation of the interdepartmental process and its main components (i.e., a model), the auditor may realize that the information in the documentation provided by the auditees is extensive. A helpful step prior to the second stage, Audit Performance, is to harmonize the criteria (i.e., to merge or combine requirements or objectives that are similar but scattered through the available documentation). Harmonizing the criteria will be helpful when preparing the Objective Mapping Template (which allows to organize and classify the relevant objectives of the stakeholders involved in the interdepartmental process), and when preparing the questions for the Checklists (which will be used by the auditors to guide the observation of the process output, of the process interactions,

and the interviews with personnel from the auditees). Appendix D.1.1 provides details on a method for harmonizing criteria.

5.3.3.1.4 Prepare Objective Mapping Template

From the harmonized criteria, objectives pertaining to the different stakeholders of the process (i.e., the departments involved, the parent organization to which those department belong, as well the customer) can be identified and organized by means of the Objective Mapping Template (OMT) so as to identify 'common objectives', 'unique objectives', and 'potentially conflicting objectives'. Figure 18 illustrates the use of the OMT, as it contains common, unique, and potentially conflicting objectives of the CSO, Operations, Patient/Family and POCSO.

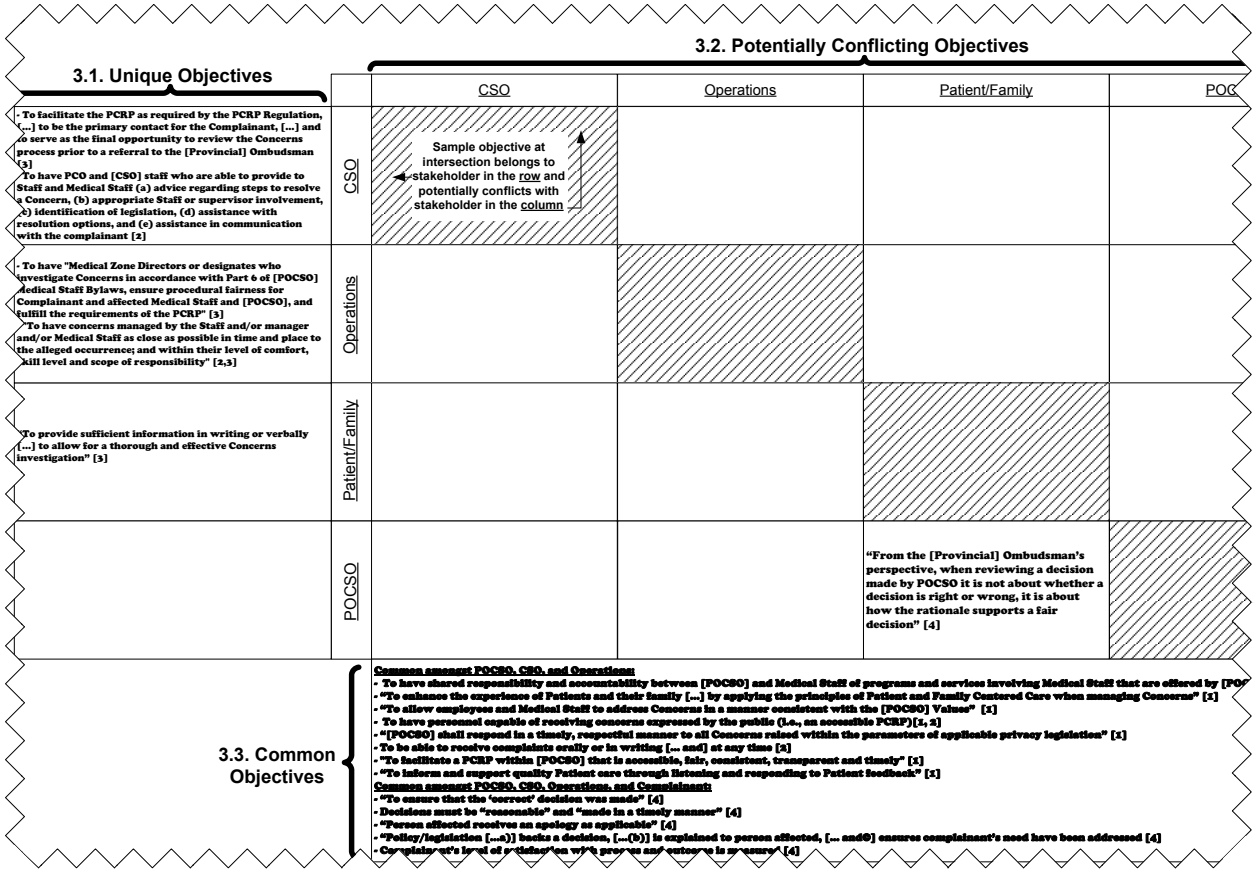


Figure 18 - OMT Example (Excerpt)

Identifying and organizing objectives by means of the OMT can be helpful in the Boundary Audit to early on identify potential misalignments in the objectives pursued by the departments, or between one or more departments and the customer. Such a finding would be considered an audit finding that would be included in the audit report for management of the auditees to address. Both template and example of the OMT tool are available in Appendix D.3.1.

5.3.3.1.5 Prepare question bank

Also from the harmonized criteria, questions can be prepared to examine the six process elements (i.e., People, Equipment, Environment, Materials, Measures, and Methods [PEEMMM]) of select process interactions and of the process output with respect to the applicable audit objectives (i.e., Compliance, Effectiveness, Risks, and Improvement Opportunities), in relation to the applicable audit criteria (as organized and harmonized from the process documentation). Table 14 displays questions prepared using the criteria (i.e., requirements and objectives) to assess 'compliance' and 'effectiveness' for process interaction no. 1 "Intake of a complaint brought forward…", according to the flowcharted PCRP (from the IdPFD prepared using document POCSO, 2012a).

Table 14 - Example of interaction-specific questions, as prepared from applicable criteria (Excerpt)

No.	Type of event	Process step (i.e., 'event')		
IC No.	ITEMS	INTERACTION CRITERIA (IC)	COMPLIANCE QUESTIONS	EFFECTIVENESS QUESTIONS
1	**Interaction**	**Intake of complaint brought forward by a complainant either verbally or in writing**		
23	104	"1.4 Concerns may be communicated by the Complainant verbally or in writing" (PCRP Procedure, p. 2) **Implied objective:** To be able to receive complaints orally or in writing	[P] What training did you receive in complaint intake? [Eq] What equipment is there available to record complaints? [En] How can you establish rapport with the complainant or recognize their perspective? [Mat] What details are important to gather when receiving a complaint? [Meas] How are complainants encouraged to raise concerns as close to the time and place of occurrence as possible? [Meth] What procedures are applicable to the process of receiving concerns?	[P] If concern involved Medical Staff care or conduct, was it managed in accordance to relevant procedures? [Eq] What resources are available to employees and Medical Staff to support intake of concerns? [En] What are examples of [POCSO] values and were they adhered to during concern management? How is shared responsibility and accountability evidenced when managing concerns? [Mat] How effectively are concerns resolved at local level? [Meas] How is it determined if a concern needs follow up investigation and communication to complainant? [Meth] What procedures are applicable to managing concerns that involve Medical Staff?
32	82, 83	"1.2 Complainants shall be encouraged to raise their Concerns as close to the time and place of the alleged occurrences as possible" (PCRP Policy, p. 2)		
37	56, 57	"Recognize the complainants' perspective" ('Pocket card') "Establish rapport with the complainant" ('Pocket card')		
46	120a1, 120a2	"3.2 The following steps shall be undertaken during a review: a) Ensure there is opportunity for the complainant to provide, either verbally or in writing, a complete description of the Concern and a response to the outcome of the review." (PCRP Procedure, p. 4)		
3	74, 75, 76, 105, 106, 81, 102, 103	"Complainants have a right to raise Concerns with [POCSO] regarding their health care experience or that of a Patient about whom they are concerned" (PCRP Policy, p. 1) "1.5 Complainants may express their Concerns to various individuals within the organization…" (PCRP Procedure, p. 2) "1.1 Complainants may at any time raise Concerns with [POCSO] about their health care experience or that of a Patient …" (PCRP Policy, p. 2; PCRP Procedure, p. 1)		
5	109, 110, 112, 112fg, 113, 116, 116b, 143, 144, 136, 137, 145a, 145b 79, 80, 100, 101, 132, 133,	"2.2 Concerns received, shall whenever possible, be managed by the Staff and/or manager and/or Medical Staff as close as possible in time and place to the alleged occurrence." (PCRP Procedure, p. 2) "2.4 […] Staff and Medical Staff shall manage Concerns within their level of comfort, skill level, and scope of responsibility." (PCRP Procedure, p. 2) "2.4 [letter b] Best attempts are to be made by the supervisor to resolve the Concern at the local level." (PCRP Procedure, p. 2) "2.5 Concerns involving Medical Staff care or conduct shall be managed in accordance with the [POCSO] Medical Staff Bylaws and Rules and the [POCSO] PCRP Policy and 'Medical Staff Guideline'." (PCRP Procedure, p. 3; identified as 3.1 in Medical Staff Guideline, p. 2)) "1.2 Concerns regarding any individual Medical Staff, service or program shall be reviewed, and where possible managed…" (Medical Staff Guideline, p. 1) "3.2 if a Medical Staff Leader receives a Concern which has a clear solution and does not require a follow up Concern investigation…" (Medical Staff Guideline, p. 2) Implied objective: "To have concerns managed by the Staff and/or manager and/or Medical Staff as close as possible in time and place to the alleged occurrence, and within their level of comfort, skill level and scope of responsibility (i.e., at the local level)" "Compliance with these policies and procedures is required by all [POCSO] employees…" (PCRP Policy, p. 1; PCRP Procedure, p. 1; Medical Staff Guideline, p. 1)		

Appendix D.1.1.2 provides detailed guidance and examples on how to prepare such questions. The document (or spreadsheet) containing the questions for probing interactions and process output is referred to as 'question bank'.

5.3.3.1.6 Prepare checklists (OPRC, OPIC, IPIC)

From the question bank, questions can be transferred to the Checklists that will be used during the Audit Performance stage to guide the observation of the process output, the observation of the process interactions, and the interviews with personnel about interactions (i.e., Observe Process Result Checklist, OPRC; Observe Process (Interactions) Checklist, OPIC; and Interview Personnel (Interactions) Checklist, IPIC; respectively). The auditor will have to determine which interactions will be examined, and by what methods (i.e., observation and/or interviews). In order to select interactions to examine, the IdPFD can be used to identify interactions that are critically important; moreover, it is advisable to collect data from such interactions both by observation and interviews, so as to have enough data that allows corroboration of findings. The different Checklists (i.e., templates and examples) are available in Appendix D.3.3; while a comprehensive description of the Audit Planning stage of the Boundary Audit is available in Appendix D.2.1. Figure 19 on the next page presents an example of an OPRC, showing questions to assess the process result with regards to the four audit objectives (i.e., compliance, effectiveness, risks, and improvement opportunities). Next, a summary of the contributions related to the second stage of the BAM, Audit Performance is presented.

5.3.3.2 Audit Performance

The main activities of the audit performance stage include: holding an opening meeting, touring (i.e., "tour the area before start interviewing" Russell, 2003, p. 33), product tracing, analyzing information, assessing the boundary, reaching conclusions, and holding a closing meeting. The activities of the second stage of the audit can be performed concurrently or sequentially when accessing more than one auditee.

5.3.3.2.1 Product tracing

'Product tracing' is an audit strategy (Russell, 2005, p. 80) that can benefit from collecting information by means the following sub-methods: observing the process result (Arter *et al.,* 2013), observing the process interactions, and interviewing personnel about the interactions (Arter *et al.,* 2013; ISO, 2011b; Russell, 2005).

Boundary audit checklist (Part 1 - Observe Process Result)

Instructions 1. Secure access to process result or output (be it a product, or output records if a service or intangible)
2. Fill out audit details (incl. audit objectives, product / lot number or record reviewed, and criteria used)

Audit details

Audit objectives: Compliance ☑ Effectiveness ☑ Risks ☑ Improvement Opp. ☑

Product / lot number, or record reviewed:	**CC1A Concern, CSO Review, Response letter July 2011**	Date:	**02-May-16**
Criteria used:	**Process objectives and process requirements from harmonized criteria (i.e., PCRP Policy, PCRP Procedure, Medical Staff Guideline, Administrative fairness, and 'Pocket card')**	Analyst:	**Enrique Fernandez**

Process details

Process name:	**Patient Concerns Resolution Process (PCRP)**	Remarks:	
Process objective:	**To "receive, review, and respond to concerns raised by complainants" (POCSO, 2012b)**		
Output of the process:	**Response to concern**		

Compliance

No.	PEEMMM	What to observe (Enter own question in space provided, or use default question)	Yes	No
1	People	"Are we available to answer questions from the complainant once a decision has been made?" (Administrative fairness, p. 4)		
	~~Default Q.~~	~~Are personnel doing what they should (with regards to the process output)?~~	☑	☐
		Yes, the complainant is given the contact details of the CSO Director to contact in case of further questions		
...	...	...		

Effectiveness

No.	PEEMMM	What to observe (Enter own question in space provided, or use default question)	Yes	No
...	...	...		
3	Environment	"Have the decisions been made in a timely manner?" (Administrative fairness, p. 3)		
	~~Default Q.~~	~~How are relevant principles or values displayed when preparing or delivering the process output?~~	☑	☐
		Yes, the concern involved several operational reviewers and different concerns, which had to be dealt with separately. The decision is considered timely, because it was a complex concern.		
...	...	...		

Risks

No.	PEEMMM	What to observe (Enter own question in space provided, or use default question)
...	...	...
5	Measures	What could cause a decision fail to be consistent with previous decisions on similar matters? If discretion was exercised, what could cause the inconsistencies be hard to be explained or supported?
	~~Default Q.~~	~~What could cause the incorrect use of categories or targets relevant to the preparation or deliver of the process output?~~
		If the PCC or operational reviewer is new to the organization and/or there is no organizational memory available to provide information about past decisions. When inconsistencies may be necessary, lack of documentation pertaining
...	...	...

Improvement Opportunities

No.	PEEMMM	What to observe (Enter own question in space provided, or use default question)
...	...	...
2	Equipment	How could equipment be used differently or better (or what new equipment could be procured) to better document and establish linkages between concerns, decisions made, decision maker, and applicable legislation and regulation?
	~~Default Q.~~	~~What improvements could be made to the equipment used to prepare, deliver or communicate the process output?~~
		Flowcharts connecting concerns, decisions, decision maker, and applicable legislation and regulation. Organizational memory documents, story-telling or case studies to train new personnel.
...	...	...

Figure 19 - OPRC Example (Excerpt)

In order to guide observation and interviews, the Boundary Audit provides templates for the following checklists: OPRC, OPIC, and IPIC. In addition to the checklists, the IdPFD could also be used to document the 'flow' of a given product, especially when using closed files or records. Details pertaining to the sub-methods that comprise 'product tracing' are available in the appendices, as follows: Observe Process Result in Appendix D.2.2.1, Observe Process in Appendix D.2.2.2, and Interview Personnel in Appendix D.2.2.3. Moreover, templates and examples of the different Checklists of the BAM are available in Appendix D.3.3.

5.3.3.2.2 Analyze information and assess the boundary (AFST)

After information has been collected through observation and interviews, the audit team evaluates the completeness, reliability, and validity of such information. Then, the audit team extracts findings from the collected information. The audit team can use criteria such as 'repeated occurrences' or 'one time occurrences that have high risk' (Russell, 2005, p. 101) to identify audit findings. Audit findings can then be organized by their type and location by means of the Audit Finding Summary Template (AFST), of which an example is presented in Figure 20.

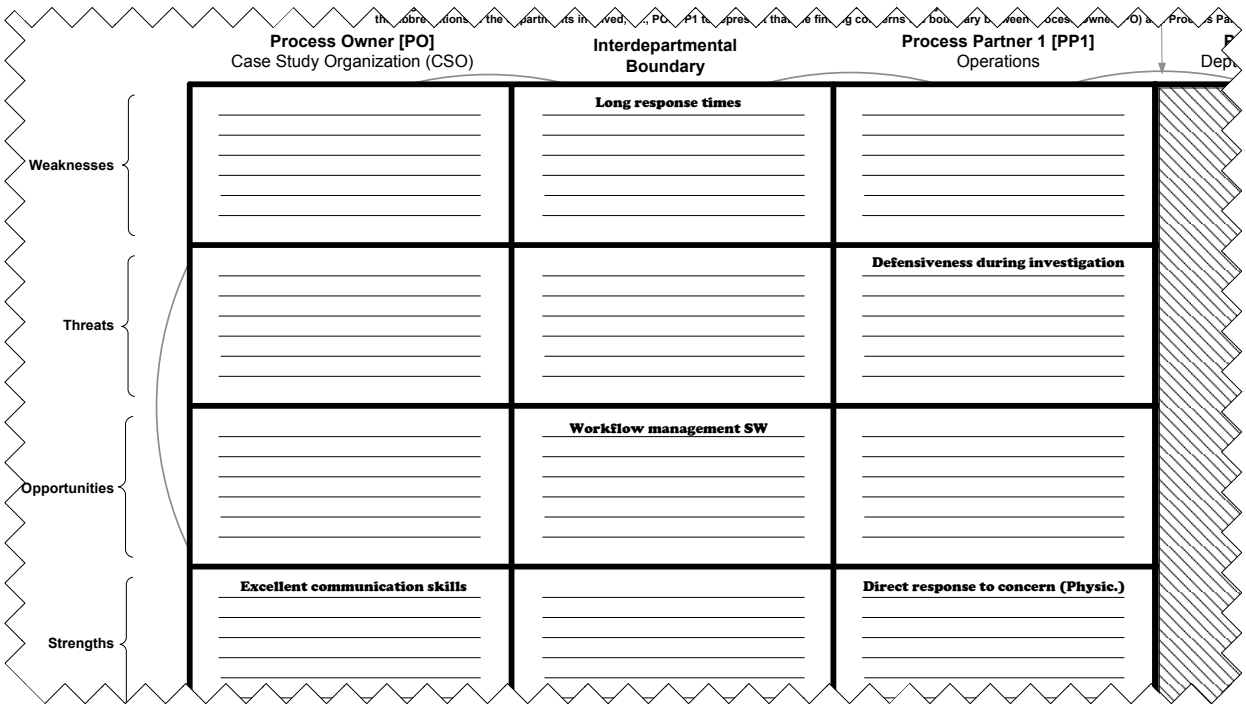


Figure 20 - AFST Example (Excerpt)

Then, the audit team can assess the 'boundary', i.e., the interdepartmental relationship, by identifying the findings that were categorized as belonging to the 'boundary'. The AFST allows to succinctly categorize findings (summarized by keywords or short statements) using the SWOT

framework (i.e., Strengths, Weaknesses, Opportunities or Threats) and to allocate findings to a specific department, or to the boundary (i.e., the intersection between departments). A boundary-allocated finding represents a 'shared finding' that ought to be addressed collaboratively by the departments involved. Appendix D.2.2.5 explains the use of the AFST with an example, while the AFST template is provided in Appendix D.3.4.

5.3.3.3 Audit Reporting

The third stage of the Boundary Audit is the result of combining and adapting Russell's (2005) and Arter *et al.*'s (2013) approaches. For example, "finding sheets" (as suggested by Arter *et al.,* 2013) were adapted to represent the categorization of findings as Weaknesses, Threats, Strengths, and Opportunities. In addition, the contents of the audit report (i.e., introduction and summary) were determined from Russell's (2005) suggestions, and expanded with the addition of "finding sheets" (as recommended by Arter *et al.*, 2013), with the particularity of organizing the "finding sheets" (Arter *et al.,* 2013) according to their location (e.g., Department A, Boundary, and Department B) and further by type of finding (i.e., SWOT).

5.3.3.3.1 "Finding Sheets"

Audit findings, summarized and preliminarily reported in the AFST, have to be subsequently documented in detail by means of "Finding Sheets" (Arter *et al.,* 2103). Finding Sheets to document negative-type findings (e.g., Threats and Weaknesses) are common in audits. Nonetheless, the Finding Sheet template to document positive-type findings (e.g., Opportunities and Strengths) was adapted in the Boundary Audit to include the use of the Balanced Scorecard Categories, i.e., *"Customer, Financial, Internal Business Processes, and Learning and Growth"* (Kaplan and Norton, 1996) to provide and categorize expected benefits (and the beneficiaries) of implementing the recommendation that arose from a given positive-type finding. Figure 21 presents an example excerpt of a Finding Sheet (Opportunities/Strengths).

Appendix D.2.3.1 further illustrates the use of the Finding Sheets with examples; while the FS (O/S) template is available in Appendix D.3.5. Moreover, Appendix D.3.6 provides details on the adaptation of the Balanced Scorecard Categories for classifying expected benefits of implementing recommendations.

Finding details

1. Location: ☐ Boundary ☑ Department (name) **Operations (Physicians)** 2. Type: ☐ Opportunity ☑ Strength
☐ Process Owner ☑ Process Partner

3. Audit Finding: **"Direct response to concern"**

The Operational Reviewer from Phyisicians reviewed the concern with other doctor and talked to the complainant to convey the response. The conversation served to provide assurance to the complainant of the usefulness of the feedback, and left the complainant satisfied with process and outcome.

4. Requirement: **"To allow employees and Medical Staff to address Concerns in a manner consistent with the [POCSO] Values" (PCRP Policy, p. 1)**

5. Audit Evidence: **Email from Operational Reviewer explaining that he had reviewed the concern with two other doctors, and that he then spoke to the complainaint. The Operational Reviewer mentioned that the complainant appreciated being heard.**
The Operational Reviewer talked to the complainant two days after receiving the Concerns Memo.

Enclosed: ☐ Pictures ☐ Notes ☐ Other _____

6. Recommendation: **To encourage Operational Reviewers, where possible, respond directly to the complainant.**

7. Expected benefits:
(Adapted Balanced Scorecard, from Kaplan & Norton 1996, p. 44)

		Beneficiary		
		P. Owne	Both	P. Partner
Customer (Ex. Satisfaction, retention, market, and account share)	**Increased cust. satisfaction since the customer talks directly to the Op. Reviewer**	☐	☑	☐
	Increased cust. satisfaction because less time taken to respond to concern	☐	☑	☐
		☐	☐	☐
		☐	☐	☐
Financial (Ex. Return on investment, and economic value-added)		☐	☐	☐
		☐	☐	☐
		☐	☐	☐
		☐	☐	☐
Internal Business Process (Ex. Quality, response time, cost, and new product introductions)	**Less handling of the concern by an intermediary (i.e., the PCC)**	☐	☑	☐
		☐	☐	☐
		☐	☐	☐
		☐	☐	☐
Learning and Growth (Ex. Employee satisfaction, and information system availability)	**Operational Reviewers gain experience in talking to complainants**	☐	☐	☑
		☐	☐	☐
		☐	☐	☐
		☐	☐	☐

Figure 21 - Finding Sheet (O/S) Example (Excerpt)

5.3.3.3.2 Combined or separate reporting

The audit report will contain introduction, summary and results (i.e., "finding sheets"). The summary should provide the audit team's opinion regarding extent of compliance, effectiveness, risks, and potential improvements (Russell, 2005, p. 114), as well as an opinion on the overall performance of the interdepartmental relationship (i.e., the 'boundary'). The contents of the audit report under the 'combined' approach will contain the findings for all departments that were audited plus those of the boundary; while the 'individual' approach to reporting will contain only those findings of a respective department plus those of the 'boundary'. Mirroring the approach to composing the audit report (i.e., combined or department-specific), exit meetings where the

report is orally conveyed by the auditors to management of the auditees can take place jointly for the departments involved, or individually. Combined reporting in the Boundary Audit is desirable to foster collaboration between auditees. As one of the research participants explained: *"I actually see combined reporting making much more sense as it provides the biggest picture and suggests areas of concern requiring improvement. It is an interactive, collaborative system whereby each needs to know what the findings are and address them. Usually one area impacts another and any gaps identified will be addressed thru a synthesized analyzed report so that actions can be identified for improvements"* (Participant 3). Nevertheless combined reporting could present potential drawbacks (as provided by research participants during the BAM Validation interviews) which are available in Appendix D.1.3, along with corresponding potential mitigation strategies (as provided by the author).

5.3.3.4 Audit closure

The fourth stage, Audit Closure, encompasses the activities that occur after the audit report is delivered and refer to the auditee's response to the audit findings, for example, by taking a corrective action to address a weakness, a preventive action to prevent a threat, or by following a recommendation to exploit a strength or opportunity by means of an advancement action. Similarly to reporting, responding to audit findings could take place jointly by the auditees, or separately, as explained next.

5.3.3.4.1 Combined or separate responding

The Boundary Audit when documenting and reporting audit findings (i.e., by means of the AFST, and the Finding Sheets, the latter of which are included in the audit report), requires auditors to indicate if a finding corresponds to a specific department, or to two or more (i.e., to the boundary). In the same vein, assessing findings, and responding to findings could be performed jointly by the auditees involved, or separately. Response plans (i.e., Corrective Action Plan, Preventive Action Plan, or Advancement Action Plan) also allow to indicate if interdepartmental collaboration is needed. For Advancement Action Plans, the use of the adapted Balanced Scorecard Categories is also encouraged to identify how will the effectiveness of the response be measured (i.e., item 8 in the AAP template). Potential drawbacks of combined responding (as provided by research participants), and corresponding potential mitigation strategies (as identified by the author) are provided in Appendix D.1.3. Examples of response

plan preparation are available in Appendix D.2.4.2, while the AAP Template is available in Appendix D.3.7.

5.4 Summary

The Boundary Audit Method allows the examination of an interdepartmental process through a focus on interactions (i.e., the interfaces between departments). The BAM was developed by adapting the traditional process audit to examine interdepartmental interactions. A "conceptual framework" was developed to provide context to the adaptation of the process audit in order to accommodate the elements that would support the interdepartmental process audit. Alongside the development of the "conceptual framework", the following "supporting concepts" were also developed, with the purpose of supporting the actual performance of the audit (complementing the context provided by the "conceptual framework"):

- process ownership
- activities and interactions
- interaction assessment
- access and collaboration
- concurrent and sequential approach

Lastly, steps of the boundary audit method that involve multi-departmental access or collaboration were documented (e.g., planning, product tracing, reporting, and responding); while "supporting tools" were also significantly adapted (e.g., IdPFD, OPRC, OPIC, IPIC, FS (O/S)) or newly created (e.g., OMT, AFST, AAP). Subsequent to the design of the method, it was verified with closed complains, and later validated through interviews with research participants.

The interdepartmental scope of the BAM is evidenced since the beginning of the method, where access to, and collaboration amongst, auditees, are determined. Interdepartmental interactions are identified by means of the IdPFD, while objectives (from harmonized criteria, for which a method was also documented) are organized by means of the OMT to find potentially conflicting objectives amongst stakeholders. The harmonized criteria are also used to prepare questions to assess the process interactions and the process output under each of the applicable audit objectives (i.e., Compliance, Effectiveness, Risks, and Improvement Opportunities). The

questions are transferred to the Checklists (i.e., OPRC, OPIC, IPIC), which are used by the auditors to guide the observation of the process output, of the process interactions, and the interviews. Information collected is assessed (completeness, validity, reliability), and analyzed to determine audit findings based on recurrence or criticality. Audit findings are summarized by means of the AFST, and documented by means of Finding Sheets. An audit report is prepared and presented to auditees (either jointly or separately), and responses are planned and executed by the auditees using the response plan templates provided (e.g., AAP), also jointly or separately. The next chapter presents the method and results of the BAM Verification.

6 Verification of the Boundary Audit Method

6.1 Introduction

After its initial development, the Boundary Audit Method (BAM) was assessed with regards to its ability to meet the initial research objective, i.e., *"To allow the auditing of an interdepartmental process"*. Such assessment is referred to herein as 'Verification of the BAM', and this chapter presents the corresponding method and results.

The verification was limited to original or significantly-adapted tools and concepts of the BAM. The main objective was further subdivided into specific objectives, presented below:

1. To assess suitability of original and significantly-adapted boundary audit concepts and components
2. To examine suitability of the method to examine interdepartmental interactions
3. To identify areas of improvement of the boundary audit
4. To recognize any need for changes to the method or the tools and implement them.

The verification methodology is presented next.

6.2 Method

The verification of the BAM consisted of two stages: "verification of tools" and "verification of method". Moreover, the "verification of method" was further subdivided into two parts: audit of records from the Office of the Patient Concerns Officer (PCO), and audit of records from CSO's PCRP. Figure 22 presents the BAM verification method as a flowchart with two distinct stages: "Verification of tools" and "Verification of method", along with the subsections of the dissertation where each sub-step is described. The next two subsections present the methodology in detail, while the results are discussed in the section thereafter.

6.2.1 Verification of tools

The Boundary Audit makes use of several supporting tools to guide the audit effort, including templates (e.g., OMT, IdPFD, AFST, and AAP) and checklists (e.g., OPRC, OPIC, OPAC, IPIC, and IPAC). The "Verification of the tools" focused on contributions, in other words, on tools that were original or had significant adaptations, and started with the 'Selection of tools' to verify, as explained after Figure 22.

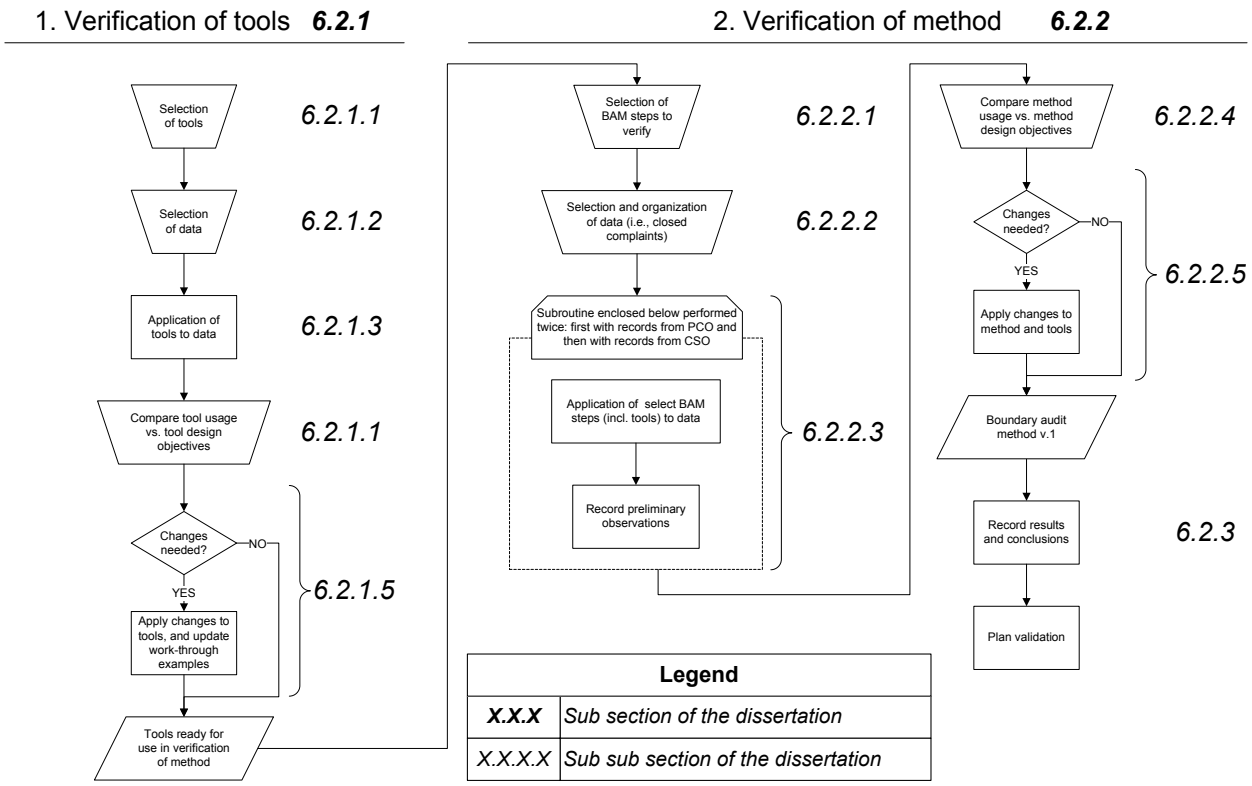


Figure 22 - BAM Verification Flowchart

6.2.1.1 Selection of tools

Tools to verify were selected based on their originality and feasibility of verification. "Originality" referred to tools designed from scratch or significantly adapted for the purpose of the Boundary Audit; while "feasibility of verification" referred to whether a given tool could be verified using the closed records available. Tools meant to be used during interviews (e.g., IPIC) were set aside to be tested during the "Validation of the method". The names of the tools whose verification was feasible through the use of records and deemed as either original or as significantly-adapted were entered into a table, as illustrated by the excerpt in Table 15. For each tool, the original value was identified with details describing the extent of the modifications to the tool (if significantly adapted), or whether it was a new tool and the rationale (i.e., purpose) for its creation. In addition to the 'original value', the 'verification criteria' was identified for each tool. The verification criteria corresponded to the design objectives guiding the adaptation or creation of each tool (i.e., what each significantly-adapted or new tool sought to achieve or possess). The complete tables are available in Table 52 and Table 53 of Appendix E.1.1.

Table 15 - Tool selection, original value and criteria (Excerpt)

Tool	Original value	Verification criteria (i.e., design objectives)
1. Objective Mapping Template (OMT)	New tool: used to map objectives of involved departments in addition to the customer, and the organization, in order to facilitate auditing for "effectiveness"	- To allow documentation of different stakeholders' objectives - To classify and organize objectives in one of three categories: unique, common, or potentially conflicting. - To suggest to the auditors the most relevant stakeholders in a boundary audit (i.e., the organization, the customer of the organization, the process owner and the process partner). - To highlight conflicting objectives which may be the root cause of problems at the boundary (i.e., between the two departments) and may later surface as audit findings. - To provide accurate instructions for use on the template.
…	…	…
9. Advancement Action Plan (AAP)	Expanded tool: Designed to guide not only planning, but also enable review of plan, and verification of implementation and effectiveness	- To allow the identification of "interdepartmental collaboration" in the response plan - To allow the recording of the recommendation as documented in the "Finding Sheet (2. Opportunities/Strengths)" - To allow the recording of the expected benefits from the recommendation as documented in the "Finding Sheet (2. Opportunities/Strengths)" - To allow the auditee to make a decision regarding the recommendation

In total, the following nine tools were identified as original or as significantly-adapted: OMT, IdPFD, OPRC, OPIC, AFST, Finding Sheet (W/T), Finding Sheet (O/S), PAP and AAP. Once the tools were identified, the next step was to select the data onto which the tools would be applied. The process for selecting the data is explained next.

6.2.1.2 Selection of data

Since the tools of the BAM are meant to be used for interdepartmental processes, data from one such process was sought. Therefore, data from the CSO was requested and obtained; and included process documentation and records. The process documentation pertained to the Patient Concerns Resolution Process (PCRP) and was abundant (i.e., CSO, 2010; POCSO, 2012a,b,c), while records included one closed complaint (i.e., CC1A) that had been resolved using the PCRP which was available from the PCO-review records that were provided by the PCO. It was common to all available PCO review records that the first part of the record contained the original record from the CSO's PCRP, since the PCO-review is a review of the concern resolution undertaken by the CSO. After the tools and the data had been selected, the tools were applied to the data as explained next.

6.2.1.3 *Application of tools to data*

The application of the tools to the data resembled a cascading effect. Process documentation (i.e., CSO, 2010; POCSO, 2012a,b,c) was used to populate the OMT and the IdPFD. Then, the OMT and the IdPFD, in conjunction with the closed complaint CC1A were used to fill out OPRC and OPICs. Next, audit findings from OPRC and OPICs were extracted to populate the AFST, of which two findings were documented using one Finding Sheet (W/T) and one Finding Sheet (O/S), respectively. Finally, two response plans, i.e., one PAP and one AAP were created to address the audit findings. Figure 23 depicts how the data was applied to the tools, and how the outputs from one tool became the inputs of the next.

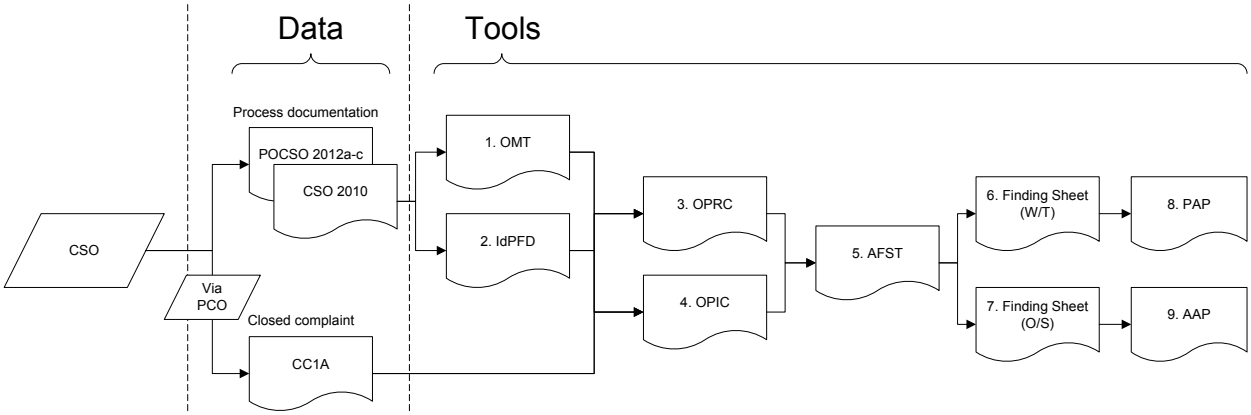


Figure 23 - Application of tools to data

After the tools had been prepared with data from the CSO's PCRP, they were compared against their respective design objectives; which is the topic of the next subsection.

6.2.1.4 *Comparison of tool usage to design objectives*

The design objectives were determined while developing or adapting each tool, and became the criteria against which to examine each tool during the 'Verification of tools' stage. Table 16 illustrates the results of the comparison between a tool (i.e., OMT) and its corresponding criteria; while the results for the remaining tools are provided in Table 54 to Table 60 of Appendix E.1.2.

Tools were assessed in terms of suitability and effectiveness with relation to the objectives that were used for their design. The verification allowed to recognize that the majority of the design objectives were accomplished by the tools. Nevertheless, some changes were identified, including corrections and improvements, as presented in the next subsection.

Table 16 - OMT verification against design objectives

OMT Verification		
Criteria	**Result**	**Example**
To allow documentation of different stakeholders' objectives	Yes, the objectives of different stakeholders involved with the interdepartmental process can be entered in the OMT	Using the example of the PCRP, objectives of the CSO, Operations, the Customer, and the Organization, were entered into the matrix.
To classify and organize objectives in one of three categories: unique, common, or potentially conflicting.	Yes, the OMT allows to classify objectives as unique, common or potentially conflicting by using the adapted matrix format.	From the table in the template: Vertical left row allowed to identify unique objectives; central matrix to identify potentially conflicting; and horizontal bottom, unique objectives.
To suggest to the auditors the most relevant stakeholders in a boundary audit (i.e., the organization, the customer of the organization, the process owner and the process partner).	Yes, relevant stakeholders are named at the top and require to be identified by the auditor in the space provided.	Relevant stakeholders from verification example: CSO (Process Owner), Operations (Process Partner), Patient/Family (Customer), Parent Organization of CSO and Operations (Organization)
To highlight potentially conflicting objectives which may be the root cause of problems at the boundary (i.e., between the two departments) and may later surface as audit findings.	Yes, potentially conflicting objectives can be entered in the cell where two stakeholders intersect.	Potentially conflicting objective: "To provide a balance between the interests of the complainant, the public, the health care system, and the providers…" (CSO, 2010) because the customer may not care about balance of interests, but rather about satisfactory resolution.
To provide accurate instructions for use on the template.	Yes, instructions are correct.	By following the instructions, the template was completed.

6.2.1.5 Identification and implementation of changes

The results of the 'Verification of tools' stage included the identification of changes, both to templates and examples. Below, Table 17 provides an excerpt of how the changes were planned for each tool, available in full as Table 61 in Appendix E.1.3.

Table 17 - Changes and improvements as a result of tool verification (Excerpt)

Tool	Changes to Template	Changes to Example
1. Objective Mapping Template (OMT)	Add a column to accommodate more than one process partner	Add example of potentially conflicting objective to in-text example.
2. Interdepartmental Process Flow Diagram (IdPFD)	- Make 'inputs' more prominent - Highlight hand-offs - Clarify AND/OR responsibility - Show the type of interaction - Use 'people' process element to document training skills as opposed to interaction co-performer - Accommodate at least 2 process partners - Allow for decision points in the template	Update in-text example using updated template of IdPFD
…	…	…

Decisions were made on how to address the needed changes, i.e., by modifying the tools, or by making corrections or clarifications to the template instructions. Then, changes were implemented on the templates and checklists, while the work-through examples which are used to illustrate the BAM were also updated. Once the tools had been verified and updated, they

were considered to be ready to be used in stage two, "Verification of method". The methodology and results of the "Verification of method" are presented in the next subsection.

6.2.2 Verification of method

Whereas the "Verification of tools" examined the suitability of each tool individually, the verification of the method looked to examine the effectiveness of the method as a whole, i.e., as a sequence of steps that uses supporting tools sequentially with the purpose of assessing an interdepartmental process with relation to compliance, effectiveness, risks and improvement opportunities. "Verification of method" consisted of the following steps:

1. Selection of BAM steps to verify
2. Selection and organization of data
3. Application of select method-steps to data
4. Comparison of method usage vs. design objectives
5. Identification and implementation of changes

The above steps are described next.

6.2.2.1 Selection of BAM steps to verify

As with the "Verification of tools" stage, the focus of the "Verification of method" stage was on originality and feasibility. On one hand, identified originality of the BAM steps (including tools) usually related to the adaptation of auditing (or business management) tools to evaluate an interdepartmental process by closely examining interactions between the departments involved. On the other hand, feasibility of verification resulted from the availability of data to be used when applying the method. In order to identify originality and feasibility, the following sequence was performed:

First, the audit steps were taken from the preliminary BAM flowchart (whose updated version is available in Appendix E.2 under the caption "Boundary Audit Method"), and organized in tabular form (an excerpt of which is presented in Table 18, with full tables available in Table 62 to Table 67 of Appendix E.2.1). Then, for each step, the following elements were identified: original value, the person performing the step, the resources required to verify such step, and the sources of data for verification (or whether the step was a common audit step, and was already verified from existing literature). Original steps for which data was available were considered for verification; whereas original steps that had no available data were considered for validation.

Table 18 - Analysis of BAM steps (Excerpt)

BAM step	Original value	Who performs the step	Required resources	Sources of data for verification
…	…	…	…	…
3. Understand process (IdPFD and Checklists)	- Adaptation of PFD to accommodate up to 3 departments, and allow the recording of interactions - Development of checklists, to observe and ask questions, to examine process result, activities, and interactions with relation to audit objective.	Auditor	- Information about the process (sequence of activities, resources required, process output) - Requirements the process (and product) need to comply with. - Objectives of the departments involved in the process, of the parent organization, and of the customer.	CSO documentation Closed concerns PCO Closed concerns CSO
4. Identify and compile applicable requirements and objectives (OMT)	Organizing objectives by common, unique and potentially conflicting allows to early on identify potential misalignments between departments performing an interdepartmental process.	Auditor	- Objectives of the departments involved in the process, of the parent organization, and of the customer.	CSO documentation
…	…	…	- …	…
6. Define audit team	Competent auditors	Auditor	Knowledge, experience, and personal skills and traits (Russell 2005, p. 67) of potential audit team members	Verification of audit team already existing in literature
7. Prepare the audit plan	Complete and accurate	Auditor	Audit objectives, scope, criteria, schedule, team, report distribution list	Verification of audit plan already existing in literature
…	…	…	- …	…
12. Observe process result	Adaptation of PEEMMM process elements to examine a process output via a checklist	Auditor	- Process documentation to understand the process result (to adapt the Observe Process Result Checklist) - A [physical] sample of the process result, or records of process result delivery to be examined against the checklist.	Closed concerns PCO Closed concerns CSO

An example of a BAM step that was chosen to be verified is step 3. "Understand process (IdPFD and Checklists)"; while steps 6. "Define audit team" and 7. "Prepare audit plan" are examples of steps not considered for verification, as explained next.

BAM step 3. "Understand process (IdPFD and Checklists)" was selected for verification because it was deemed as original since the IdPFD represented a significant modification to the traditional Process Flow Diagram, due to the fact that the IdPFD can accommodate up to three departments and allows to record interactions and their components. In addition, step 3 is performed by the auditor (i.e., who fills out the IdPFD and Checklists using documentation provided by the auditees), therefore, the step could be verified by the author, who was playing the role of the auditor during the verification. Lastly, the information needed for the verification of step 3 consisted of process documentation and objectives (e.g., with relation to the PCRP); while the sources that could provide such information were determined to be the PCO and CSO.

On the contrary, steps 6. "Define audit team" and 7. "Prepare the audit plan" were not considered for verification due to their lack of original value and because they had already been verified by the literature on audits (e.g., Arter *et al.*, 2013; ISO, 2011b; Russell, 2005).

After BAM steps had been screened based on originality, they were further narrowed down based on feasibility of verification with the available data. For example, steps that involve Observe Process (Activities), or Interview Personnel (Interactions and Activities), were discarded since no records of activities were available from either the CSO or the PCO, nor personnel to be interviewed prior to the validation stage. Table 19 presents the verification steps that were selected for verification.

Table 19 - Steps selected for verification

1. Identify and categorize departments at each side of the boundary (incl. determination of Process Ownership) 2. Determine access and collaboration 3. Understand process (IdPFD) 4. Interaction categories 5. Identify and compile applicable requirements and objectives (OMT)	6. Define audit criteria [interactions] 7. Observe process result 8. Observe process (interactions) 9. Assess the boundary (AFST) 10. Generate finding sheets 11. Prepare response plans (AAP)

After the BAM steps had been identified, the data to be used for the verification was selected and organized, as described in the next subsubsection.

6.2.2.2 Selection and organization of data

Data used to verify the BAM consisted of process records from two different departments. First, PCO-review records provided by the Office of the Patient Concerns Officer, PCO, were used; followed by closed complaint records of the Patient Concern Resolution Process (PCRP) provided by the Case Study Organization (CSO). Both processes share similarities and involve similar participants. On one hand, the PCRP aims to *"receive, review, and respond to concerns raised by complainants"* (POCSO, 2012a) and is performed by the CSO personnel who serve as an intermediary between patients and family members (referred to as "complainants"), and the Operational departments at POCSO. When complainants are not satisfied with the PCRP process or outcome, they have an option for internal escalation via the Patient Concerns Officer (PCO), who can initiate a review of the concern resolution process followed by the CSO. The PCO-review objective is *"to provide an independent, internal review at the request of the complainant to ensure that a fair concerns resolution process was used"* (CSO, 2010, p. 13). Moreover, the PCO-review will at times resemble the PCRP because the PCO investigator may also serve as an intermediary between complainant and Operational departments. Thus, the two processes are similar, but performed by different people at different departments. Also, both processes involve interactions with complainants as well as Operational departments, and even amongst each other (that is, between the CSO and the PCO). Records from both departments were used for verification because both processes contain data pertaining to an interdepartmental process, including details about interactions.

Closed records used for "Verification of method" included: five closed complaints from the PCO and six closed complaints from the CSO. The five closed complaints from the PCO encompassed the totality of the data provided by the PCO, whereas the six closed concerns from the CSO were selected randomly from a sample of 23 records that was provided by the CSO. Appendix E.2.2 shows a screenshot of the web application used to randomly generate numbers for the sample selection. An interesting difference between the two sets of data was the extent of detail on a per-concern basis: for example, the PCO files contained copies of emails, letters and faxes (and each file ranged from 60 to more than 100 pages), while the CSO complaints were summaries of the

concern resolution process, including communication timelines and resolution responses, and never exceeded eight pages each. Put differently, the PCO files provided exhaustive evidence of interactions, while the CSO complaints solely offered summaries. Thus, one benefit of the verification was that using data from the two departments served to test whether the BAM could be used on records containing different levels of detail. Table 20 presents the two data sets used during the "Verification of method" stage, including the source of each data set, the number of records comprising each data set, and the specific records examined (code-named by the author).

Table 20 - Records per department

Set of data	Department source of data	Number of records examined (out of total available)	Records used for 'Verification of method' by ID number (CC = Closed Complaints)
1	PCO	5 (5)	CC1B, CC2B, CC3B, CC4B, CC5B
2	CSO	6 (23)	CC9, CC10, CC13, CC16, CC21, CC24

Once the records had been selected and organized, the selected steps of the BAM (available in Table 19), were applied to the closed complaints as described in the next subsubsection.

6.2.2.3 Application of select BAM steps to data

The application of the BAM steps to the data was slightly different for each set. For example, all tools were applied to the data from the PCO, whereas only a sub-set of tools were applied to the data from the CSO. More details are presented below regarding the application of the BAM steps to the two data sets, followed by a brief analysis of record and tool usage.

6.2.2.3.1 Part 1: Using first set of data

Select steps of the BAM were applied to five records from the PCO. Some steps were applied once for the data set, such as step 6. "Define audit criteria [interactions]", and step 9. "Assess the boundary [AFST]", since due to their nature they have to be performed once per audit (i.e., when determining the criteria at the beginning of the audit, and when evaluating the boundary prior to writing the report). Other steps were applied once per closed complaint, e.g., step 3. "Understand process (IdPFD)", so as to track the flow of the complaint in a given record; while other steps were applied more than once per record, such as step 8. "Observe Process Interactions (OPIC)", which was applied twice per closed complaint since the information on interactions was abundant and therefore interesting for research purposes. The application of certain other tools was not dependent on the number of closed complaints, but rather on the number of audit findings, such as step 10. "Generate finding sheets", which included the preparation of six

finding sheets (i.e., one finding sheet per audit finding): three for Weaknesses/Threats, and three for Opportunities/Strengths. Similarly for step 11. "Prepare response plans", in which three AAPs were prepared, in response to the three Opportunity/Strengths findings.

Table 21 summarizes the BAM steps (including tools) used on each and all of the PCO-review records. Further details are presented in bullet form next.

- For step 1. "Identify and categorize departments at each side of the boundary (incl. determination of Process Ownership)", the number of departments interacting in each closed complaint is provided (e.g., 5 departments in record CC1B). Also, for all records the PCO was identified as the Process Owner, which was determined using "Test 1: Responsibility for the process", as described in Appendix D.1.2.
- The application of Step 2. "Determine access and collaboration" was limited because only records from one department (i.e., the PCO) were available; therefore no departmental collaboration with regards to audit planning or performance activities was tested.
- Step 3. "Understand process (IdPFD)" was performed for each record, i.e., five IdPFDs were prepared.
- Regarding item 4. "Interaction categories", each interaction recorded in each of the IdPFDs was categorized as one of the following: Request, Response, Notification, Contribution, or Collaboration, thus the categories used were appropriate.
- For step 5. "Identify and compile applicable requirements and objectives (OMT)", two OMTs were prepared: one that identified the Ombudsman as the customer, and another one that identified the complainant as the customer. Such a decision followed the fact that one record (i.e., CC2B) treated the Ombudsman as the customer, since it was the Ombudsman who requested the PCO review, as opposed to the complainant, who was the requester of the PCO-review on the other four records Additionally, information from Operations, (i.e., process partner 1) was unavailable, and required the author to assume the following statement "to provide health care services" as the objective for the Operations department.

Table 21 - Verification plan (BAM tool usage with data from PCO Review)

BAM step \ Record ID number**	PCO Review					Total times step was performed (or tool used)
	CC1B	**CC2B**	**CC3B**	**CC4B**	**CC5B**	
1. Identify and categorize departments at each side of the boundary (incl. determination of Process Ownership)	5 Departments	6 Departments	8 Departments	13 Departments	11 Departments	5
	Process Owner: PCO, identified using "Test 1: Responsibility for the process" (as described in Appendix D.1.2)					
2. Determine access and collaboration	Access: PCO only by means of 5 PCO-review records					N / A
3. Understand process (IdPFD)	✓	✓	✓	✓	✓	5
4. Interaction categories	39 interactions, Categories used were appropriate	29 interactions, Categories used were appropriate	36 interactions, Categories used were appropriate	52 interactions, Categories used were appropriate	46 interactions, Categories used were appropriate	5 *[202 interactions]*
5. Identify and compile applicable requirements and objectives (OMT)	✓ (Two OMTs prepared: one where complainant was the customer, another where Ombudsman was the customer) PCO objectives and Ombudsman objectives: OK, Other department objectives unavailable					2
6. Define audit criteria [interactions]	✓ (One per audit) Select guidance from Code of Conduct (POCSO, 2013a)					1
7. Observe process result	✓ Statement of outcome (letter)	✓ Statement of outcome (letter)	✓ Statement of outcome (letter)	✓ (x2) 1) Statement of outcome letter (rejected by complainant) 2) Final statement of outcome	✓ Statement of outcome (letter)	6
8. Observe process (interactions)	✓ (x2)* 1) Op. Rev. response 2) CSO referral of complaint to PCO	✓ (x2) 1) Contact Op. Mgr. 2) Request for Health Record	✓ (x2) 1) Complainant letter dissatisfied w/ progress 2) Complainant letter with updated concerns	✓ (x2) 1) Dissatisfaction-with-PCO-review letter to Ombudsman 2) Response from Op. Rev. communicating investigation result	✓ (x2) 1) Dissatisfaction-with first PCO-review response to PCO 2) "Review underway" letter by PCO	10
9. Assess the boundary (AFST)	✓ (One per audit) Preliminary table with 33 Potential Findings → 12 Corroborated Findings entered into the AFST					1
10. Generate finding sheets	✓ (Six times during the audit) 3 Department-specific W/T finding sheets 3 Boundary-related O/S finding sheets					6
11. Prepare response plans (AAP)	✓ (Three times during the audit) AAP for 3 Boundary-related Opportunity-type findings					3

Legend
✓ checkmark indicates that the tool in the row was applied once (unless otherwise specified) to the record in the intersecting column
* ✓ (x2) the step or the tool was applied twice for a given record. For example, two OPICs were used to document two different interactions for each closed complaint
** From author's internal classification of records

- Regarding step 6. “Define audit criteria [interactions]”, due the lack of organizational communication guidelines at the organization, the author prepared a substitute of interaction criteria from the organization’s Code of Conduct (POCSO, 2013a), which is available as Figure 61 in Appendix E.2.3. Examples of interaction criteria would include the following: *“To treat people with respect, compassion, dignity and fairness”*, and *“To communicate in a timely and appropriate manner”* (adapted from POCSO, 2013a).
- For step 7. “Observe Process Result”, one OPRC was prepared to examine the “statement of outcome” letter of each record; except for record CC4B, for which two OPRCs were prepared since the file contained two “statement of outcome” letters: one rejected by the complainant and a final one issued prior to the closing of the file.
- For item 8. “Observe Process (Interactions)”, two OPICs were prepared for each record. The author selected interactions based on the following criteria:
    1. To have interactions that are performed at different stages during the resolution process (i.e., the beginning, such as “contacting the operational manager”; the middle, such as when the “operational reviewer responds”; and the end, such as when “the complainant responds to the PCO review”), and
    2. To examine interactions between different people from different departments, in order to have a broad sample of how people communicate.
- Step 9. “Assess the boundary (AFST)” was applied once during the examination of the CSO data. Using information from the checklists (i.e., OPRCs and OPICs), tentative audit findings were extracted and assessed in terms of recurrence or criticality. An example of a recurring finding is “long processing times”, since four concerns out of five took considerable time to be resolved (e.g., 43, 55, 56, and 256 days for records CC3B, CC1B, CC2B, and CC4B respectively). In total, out of 33 potential findings, 12 were selected and entered into the AFST as corroborated findings.
- Step 10. “Generate finding sheets” included the preparation of three negative-type findings (i.e., W/T), and three positive-type findings (i.e., O/S), in order to thoroughly document a selection of the findings entered into the AFST as per the prior step. The three documented negative-type findings were: “Long process time”, “Lack of satisfaction measurement”, and “Lack of Operational Reviewer response guidance”, all of them weaknesses; while the three positive-type findings were “Formal tracking of communications”, “Specifications for

measuring timeframes", and "Guidance on dealing with verbose/rhetoric communications", all of them opportunities.

- Step 11. "Prepare response plans (AAP)" consisted of preparing three response plans (i.e., AAPs) addressing the positive-type findings from step 10.

Notes and observations were kept throughout the application of the BAM steps to the first set of data (i.e., the PCO-review records) to help the author organize preliminary thoughts. Moreover, since additional data was available from another process, namely the Patient Concerns Resolution Process (PCRP) performed by the CSO, the BAM steps were also applied on such data set as explained in the next subsection.

6.2.2.3.2 Part 2: Using second set of data

The same BAM steps applied to the PCO-review records were applied to the records from the CSO. The main difference was that not all tools were applied for all closed complaints, due to time limitations. The summary of the application of the method-steps and tools to the second data set, i.e., that of the CSO, is presented in Appendix E.2.4. Moreover, Appendix E.3 contains, for both sets of data employed, an analysis of the number of records and interactions examined, as well as the number of times each tool was applied.

After the tools had been applied to the two sets of data; filled-out tools, and preliminary results and observations were used to assess whether verification design objectives had been met. The results of such comparison are presented next.

6.2.2.4 Assessing of the BAM against the design objectives

BAM design objectives were used as criteria during the last stage of the "Verification of method". Table 22 presents the results of the verification.

Table 22 - Verification of method against design objectives

Criteria	Results
Is the audit method appropriate to examine interactions?	The boundary audit method allowed to examine interactions through their identification using the IdPFD to map each concern, and then by using OPIC to examine the interactions.
Can product-tracking be used as a method to examine records (i.e., closed complaints)?	Yes, the product tracking method was appropriate for examining interactions, particularly "backward tracking" since dissatisfaction with the output could more than once be traced back to a non-conforming interaction.
Can the audit method assess effectiveness of interactions?	Yes, the OPICs allowed to compare interactions against objectives (i.e., effectiveness)

Do the tools employed by the method facilitate the assessment of an interdepartmental process with relation to audit objectives?	Yes, the tools worked well by themselves, and when combined, the results can be synergistic; for example, the IdPFD helped to identify problematic interactions that could be subsequently examined using the OPICs.
How did the OMT contribute to assessing an interdepartmental process?	The OMT allowed to document objectives that were later used in the OPRC and OPICs to examine whether process output and interactions met the relevant objectives, respectively
How did the IdPFD contribute to assessing an interdepartmental process?	The IdPFD allowed to document interdepartmental process instances (e.g., a closed complaint) and to break them down in interactions that could be examined using the OPICs.
How did the OPRC contribute to assessing an interdepartmental process?	The OPRC allowed to examine whether the process output met customer objectives, and whether satisfaction data was collected, amongst others.
How did the OPIC contribute to assessing an interdepartmental process?	The OPIC allowed to compare interactions against procedures (i.e., compliance), against objectives (i.e., effectiveness), and to identify potential risks, or improvement opportunities.
How did the AFST contribute to assessing an interdepartmental process?	The AFST allowed to classify and organize audit findings in a concise fashion. A prior step had to be developed in order to select findings based on recurrence or criticality.
How did Finding Sheet (W/T) contribute to assessing an interdepartmental process?	The Finding Sheet (W/T) allowed to expand and document negative-type audit findings, including whether the finding could be addressed jointly by two or more departments.
How did Finding Sheet (O/S) contribute to assessing an interdepartmental process?	The Finding Sheet (O/S) allowed to expand and document positive-type audit findings, including recommendation, expected benefits from implementing the recommendation, and whether the finding could be addressed jointly by two or more departments.
How did AAP contribute to assessing an interdepartmental process?	The AAP allowed to document a response plan to Opportunities- and Strengths-types of findings, including whether and what kind of interdepartmental collaboration was required.

The comparison of the result of the BAM application against design objectives yielded that the BAM was appropriate to examine an interdepartmental process (including interactions) with regards to the four audit objectives. Moreover, the tools of the BAM (e.g., OMT and IdPFD), were found to be capable of working synergistically. In one instance, for example, the IdPFD allowed to identify customer dissatisfaction with process output, then the OPRC was used to closely look at the process output and identify the issues causing dissatisfaction, while the OPIC allowed to examine the specific interactions where the deficiency originated.

Apart from determining suitability of the BAM, applying the BAM steps to the data helped to identify changes and improvement opportunities for the tools and the method, as presented in the next subsection.

6.2.2.5 Identification and implementation of changes

Arising from the preliminary results and observations recorded along the performance of "Verification of method", needed changes or potential improvements were identified, along with their motivation, as presented in Table 23, which also contains a third column outlining the changes implemented to address the need or potential improvement. The next section, *Results*, describes a few examples of changes that resulted from the verification.

6.3 Results

Changes implemented to address identified needs or potential improvements covered a broad spectrum: from augmenting the use of a tool in a way other than originally intended, to adding elements to the method, including a new document and a sub-step. Such examples of changes are relevant because they were unexpected by the author; whereas other changes, such as revising fields or instructions in the templates, were expected. Next, three of the relevant implemented changes are explained:

- With relation to the first change or potential improvement from Table 23, namely "Preparing an IdPFD for every process instance that is examined…", the method description was modified to include the possible use of the IdPFD to map the flow of a product when examining records. In addition, the IdPFD template was updated to accommodate such additional possible use by indicating in the header that the IdPFD could also be used during "Audit performance" in addition to "Audit planning", and by updating the instructions at the top of the template.
- As for the third change or potential improvement, i.e. "Need to have a more-detailed interaction classification system", a new document was prepared, called "Interaction classifications system – Guidance"[3], and introduced during the description of the conceptual framework of the BAM, by means of an excerpt.
- For the tenth change or potential improvement, "Need to have a step to select actual findings from tentative findings…", a sub-step was introduced in the method description by means of a new paragraph that describes how to sort findings by importance based on recurrence or criticality, as suggested by Russell (2005, p. 100).

[3] Post-validation, the Interaction Classification System (ICS) was removed from the BAM since the Validation results yielded that the ICS was not comprehensive, nor appropriate. The ICS was kept for archival purposes in Appendix D.4.2.

Table 23 - Change plan from "Verification of method"

Needed change, or potential improvement	Motivation	Implemented change
1. Preparing an IdPFD for every process instance that is examined, for example, for each closed complaint.	The original BA method recommended that an IdPFD be prepared to represent the process that will be audited (i.e., the model). However, while performing the verification, individual IdPFDs were prepared for each process instance (e.g., PCO-review file) with many benefits, including: better understanding of the progress of the process instance across time, and increased opportunity to identify interesting interactions, for example, responses by the complainant expressing dissatisfaction with the progress or with the results.	- Updated method description (second paragraph under "Observe the Process" subsection to mention the possibility of using IdPFD to map the flow of a product when examining records. - Updated the IdPFD template (first line under template header) to recognize possible used during Audit Performance to map the flow a product
2. Identify a way to record the date of the interaction in the IdPFD	It is helpful to measure time elapsed between interactions in processes that span several days, and that can be adversely affected by time delays.	- Updated the IdPFD template as follows: (a) instructions, and (b) "Event" header in the table, to require the inclusion of a date or time reference (i.e., 'after 4 days') if mapping the flow of a product. - Also updated the in-text examples of IdPFD in the method description, and added the updated version of the IdPFD as an appendix.
3. Need to have a more-detailed interaction classification system	Some interactions were unexpected, such as customer threats, phone call meetings, voice mails, courtesy updates, self-introductions by a new participant in the process, forwarding of ancillary information, reminding someone to do something, combined interactions, for example, a response that acknowledges a concern review but also expresses dissatisfaction (thus becoming a request to extend the review). Also, having detailed guidelines will help ensure codification repeatability.	- Prepared a new document called "Interaction classification system – Guidance". - Also updated the conceptual framework under "Defining Activities and Interactions" by adding an excerpt of the "Interaction Classification System". - Note: post-validation the ICS was removed, but the ICS is available for archival purposes in Appendix D.4.2.
4. Clarifications regarding recording of interactions in the BA method	Decide whether or not to include nonessential communications, e.g., "Thank you" emails	Updated "Instructions" section in the IdPFD to give the option to the auditor "not to record simple interactions such as "Thank you" emails, especially in complex processes with numerous interactions."
5. Provide guidance (in the method) to select interactions for examination	1) Examining all interactions is not practical 2) Selecting one or two interactions per process instance is acceptable. How to make such a selection? Relevance? Complexity? Problems-identified? Randomly?	Added in the method description that the IdPFD or OPRC can be used to identify "interactions where miscommunication or delays had occurred", so that those are selected for closer examination using the OPICs.
6. Make sure that questions in checklist (esp. OPIC) are "open ended" as opposed to "close ended"	Improvement opportunities questions are "close-end" questions… try turning them into open ended (i.e., instead of "would…" try "how would…")	Questions for "risks" and "improvement opportunities" in the OPIC were converted to open-ended.
7. Clarify that "Risks" in the OPIC can be used to document "actual problems", not only risks that occurred during a specific process instance.	Section "risks" in the OPIC can be used not only for "potential" risks but also for actual problems that were experienced during the interaction (with the benefit of hindsight) that may not have been identified through the questions used to examine for 'compliance' or 'effectiveness'.	Updated "Instructions" section in the OPIC to indicate that: "For section "Risks", not only potential risks could be identified, but also actual occurrences or problems that happened during the process instance [i.e., record] or during the process observation."
8. Clarify interpretation of terms "Environment" and "Equipment" for questions in the checklists.	Meaning of questions regarding the "environment" on the checklists (i.e., OPIC, OPAC, IPIC, IPAC) is not clear. Questions about "equipment" are sometimes repetitive.	The description and guidance on the use of the terms 'Environment' and 'Equipment' were expanded under subsubsection of the method description "Guidance on questions…"
9. Need to add "Departments involved in the interactions" to the OPIC	Identifying the departments involved in an interaction is important to give context to the checklist.	Added a new field to the top section of the OPIC (under "Interaction description" field) called "Departments involved"
10. Need to have a step to select actual findings from tentative findings (based on importance, i.e., recurrence or criticality)	The addition of a tool to evaluate importance of tentative findings using recurrence or criticality as criteria. Such a step was missing in the original BA method and I realized during verification that I needed to include it.	Added a paragraph under subsubsection "Analyzing information" of the method description that mentions Russell's (2005) strategy of sorting findings by importance "based on (1) Repeated occurrences, or (2) One time occurrences that have high risk"

After changes had been made to the tools and the method, the resulting BAM was deemed to be version 1, thus ready for validation with human subjects (as available in the next chapter).

6.4 Summary

The verification of the BAM took place in two stages: verification of tools and verification of method. The latter was further broken down into two sub-stages, where the method was applied to two distinct sets of data. The results of the verification included changes to the tools and to the method; including extending the initial intent of certain tools such as the IdPFD, and providing more details pertaining to aspects of the conceptual framework, such as the Interaction Classification System – Guidance. The result of the verification was denominated as Boundary Audit Method v.1 and was deemed ready to be validated with human subjects, topic of the next chapter.

7 Validation of the Boundary Audit Method

7.1 Introduction

Validation was the third stage of the development of the BAM (after design and verification). The Validation sought to assess whether the BAM overall, and the concepts and tools deemed as original contributions in particular, were appropriate to assess an interdepartmental process by means of the examination of interactions. Such determination was made through the collection and analysis of data from subject-matter experts as described in the following subsections.

7.2 Method

The Validation of the Boundary Audit Method (BAM) comprised the following four main stages: Planning, Performance, Analysis and Changes. Figure 24 presents a flowchart with the main stages and their constituting steps.

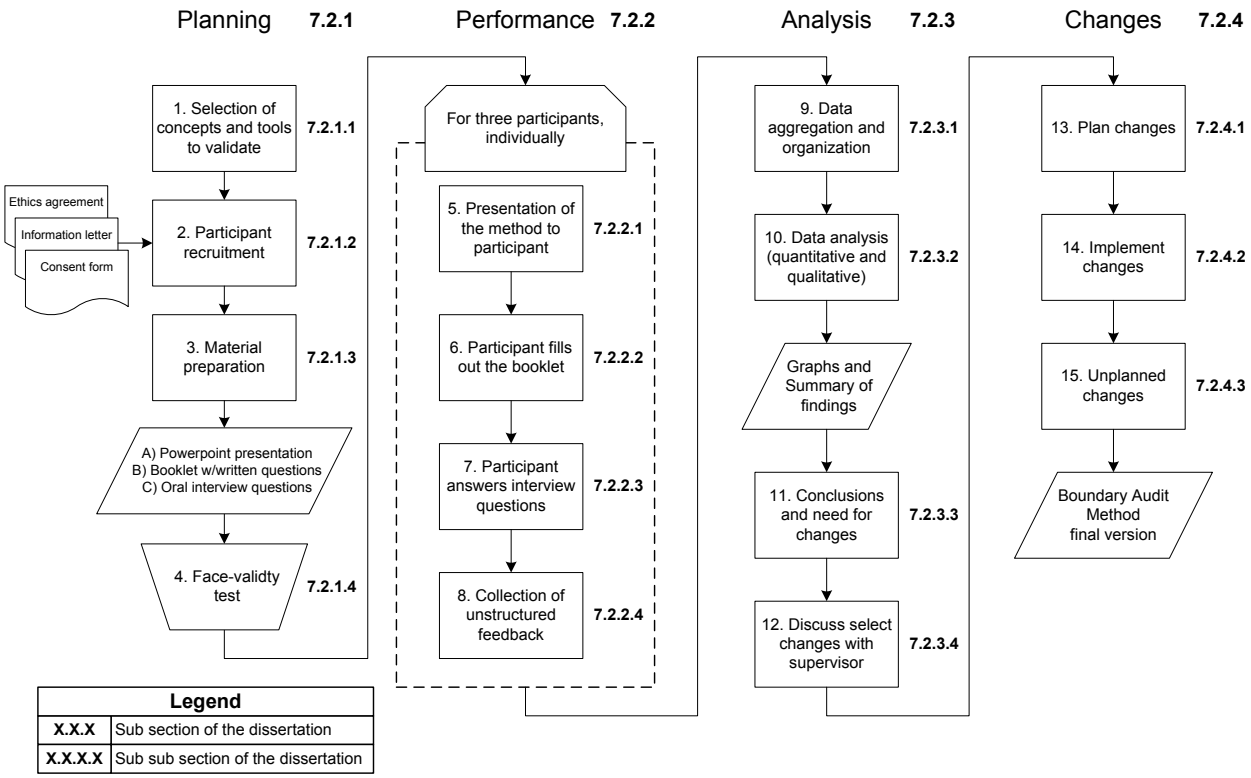


Figure 24 - BAM Validation Flowchart

7.2.1 Planning

The Planning stage included the selection of concepts and tools to validate, recruitment of participants, preparation of the validation material, and a face-validity test; steps explained next.

7.2.1.1 Selection of concepts and tools to validate

As with the Verification, tools and concepts that were deemed as original contributions were selected for Validation. Each BAM step (including their corresponding tools and concepts) were assessed for originality, and whether they had been verified or not, as available in Appendix F.1 Steps (with concepts and tools in parenthesis) that were identified as original and whose validation was feasible were selected for validation and are displayed in Table 24.

Table 24 - Tools and concepts, organized by step, selected for validation (unique to validation in bold)

1. Identify and categorize departments at each side of the boundary (incl. determination of process ownership) 2. Determine access and collaboration 3. Understand process (IdPFD, Checklists, ICS) 4. Identify and compile applicable requirements and objectives (OMT) 5. Define audit criteria **6. Determine concurrent or sequential approach**	7. Observe Process Result (RPEs, OPRC) 8. Observe process (interactions) (OPIC) **9. Interview personnel (interactions) (IPIC)** 10. Assess the boundary (AFST) 11. Generate finding sheets (FS (O/S)) **12. Determine if combined or separate reporting and responding** 13. Prepare response plans (AAP)

Table 24 shows in bold font three elements that were not part of the Verification, but unique to the Validation, i.e., "6. Determine concurrent or sequential approach", "9. Interview personnel (interactions) (IPIC)" and "12. Determine if combined or separate reporting and responding". The three components were not verified because the data available in the Verification (i.e., closed complaints) could not be used to assess the appropriateness of the proposed approaches (i.e., concurrent or sequential, as per component 6.), or the appropriateness of the IPIC template (i.e., component 9.), or the appropriateness of the proposed 'combined or separate reporting and responding' (i.e., component 12). Therefore, components 6, 9, and 12 were evaluated solely during the validation with human subjects. Once the concepts and tools had been selected for validation, participants (i.e., human subjects) were recruited, as explained next.

7.2.1.2 Participant recruitment

Prior to recruiting participants, a request was prepared and submitted to the Research Ethics Board (REB) detailing the study objective and methods (i.e., the Ethics Agreement). The Ethics Agreement was approved (as shown in Appendix A), and the recruitment of participants was initiated.

Since the Validation aims to assess if a given product meets customer requirements, and because the opportunity to develop a method for auditing interdepartmental processes arose from findings at the CSO and their explicit interest, personnel from the CSO were approached to be part of the BAM Validation. Good knowledge of an interdepartmental process (e.g., the PCRP) was a requirement in the selection of the participants; therefore two Directors from the CSO were invited to join the study, to which they agreed. Additionally, arising from a suggestion by the Directors from the CSO, one Director from the Internal Audit Department of the Parent of the CSO (IAPOCSO) was also invited to join the study. In order to recruit a member from IAPOCSO, an amendment to the Ethics Agreement was submitted and was subsequently approved. When explaining the study to the member from IAPOCSO they expressed that they would prefer not to have to perform the proposed audit method (i.e., the Boundary Audit), but rather thoroughly understand and critique the BAM aiming to increase the benefits to the research from their expertise in auditing. Therefore, the booklet provided to the participant from IAPOCSO was slightly modified to avoid the application of one BAM concept and one BAM tool (i.e., process ownership and IdPFD), and instead questions were presented to test the understanding of the concept and tool respectively, without asking the participant to apply the concept or tool.

The sample of three research participants represented significant expertise in either an interdepartmental process or in auditing. The recruitment process consisted of the following steps: explaining the study to the participants, providing an information letter that explained the study along with a consent form, and subsequently collecting the signed consent forms upon agreement to join the study. Once participants had been recruited, the material for the Validation was prepared, topic of the next subsection.

7.2.1.3 Material preparation

The material for the validation was comprised of a PowerPoint Presentation that presented and illustrated the Boundary Audit Method overall, with detailed descriptions and examples of the supporting concepts and tools that represented original contributions. The purpose of the PowerPoint Presentation was to explain and train the research participants in the application of the Boundary Audit Method.

Additionally, a booklet was prepared with the purpose of probing participants with regards to the different supporting concepts and tools of the BAM.

Lastly, interview questions were prepared to collect additional information regarding the effectiveness of the supporting concepts and tools, as well as of the method overall.

Appendices F.2.1, F.2.2, and B.2 present an excerpt of the PowerPoint Presentation, an excerpt of the booklet, and the interview questions, respectively. Once the material was ready, it was tested with the supervisor of the author, as explained next.

7.2.1.4 Face-validity test

During a meeting between the author and his supervisor, the author presented the Boundary Audit Method using the PowerPoint Presentation mentioned above, and then provided the booklet and interview questions to the supervisor. The supervisor provided feedback regarding the length of the presentation and the booklet, i.e., to shorten them; changes that were subsequently implemented. With the material deemed ready to be used, individual meetings were scheduled with the research participants. The next subsection presents details on how the Validation with research participants took place.

7.2.2 Performance

The performance stage of the BAM Validation involved meeting with research participants individually to present the BAM, have the participant fill out the booklet with questions about the BAM, interview the participant about the BAM, and collect unstructured feedback.

7.2.2.1 Presentation of method to participant

With the Validation material deemed ready after the face-validity test, individual meetings were scheduled with the different research participants. The individual meetings with CSO Directors were held at the CSO main office, while the meeting with the Director from IAPOCSO took place via Teleconference due to the participant and the author being in different geographical locations. During each meeting, the PowerPoint Presentation was shown to explain and illustrate the supporting concepts and tools through examples displayed via slides with animations (an excerpt of the PowerPoint Presentation is available in Appendix F.2.1). The PowerPoint Presentation was delivered in around 50 to 60 minutes in each of the three occasions. After the

presentation had been delivered, the participants were given a chance to ask questions for clarification prior to being given the booklet with written questions.

7.2.2.2 Participant fills out the booklet

The booklet presented, as an example of an interdepartmental process, a very brief summary of the Patient Concerns Resolution Process (PCRP), including detailed descriptions of two sub-processes, namely "Initial Management of Concerns" and "Review of Concerns", followed by questions regarding the applicability of BAM supporting concepts and tools (such as "Process Ownership" and "Access and Collaboration" as examples of the former, and the IdPFD and OMT as examples of the latter) to the PCRP. In addition to asking questions about the appropriateness of supporting concepts such as the Interaction Classification System (ICS) or the Reframed Process Elements (RPEs), booklet questions ranged from assessing clarity of the instructions at the top of the tool templates, through the appropriateness or effectiveness of the tools in achieving their design objectives, to the usefulness of the tools. Even though the participants were provided hard copies of the booklet, they chose to fill them out electronically, so as to have more room to enter responses and comments. The electronic versions of the filled out booklets were kept and subsequently analyzed. An excerpt of an unanswered booklet is available in Appendix F.2.2

After the participant had filled out the booklet, individual follow-up oral interviews were scheduled and subsequently held to collect additional information regarding the participants' understanding and opinion of the Boundary Audit Method, including supporting concepts and tools.

7.2.2.3 Participant answers interview questions

Since the research participants had busy schedules due to their job responsibilities, individual follow-up phone meetings were scheduled to perform the interviews after the booklets had been filled out. Thus, through the phone and with the author using the computer to type answers and notes, the interviews took place. Participants were asked questions regarding the objective of the Boundary Audit Method, and whether that objective was met; as well as about the sufficiency of the available BAM documentation. Questions also included appropriateness of supporting concepts, and effectiveness of the tools in achieving their specific design objectives. The participants were also asked about how the tools could be improved, whether they would suggest

the adoption of the BAM, and whether they would like to provide any additional comments. The interview questions are available in full in Appendix B.2.

7.2.2.4 Collection of unstructured feedback

During the presentation of the Boundary Audit Method, as well as during the filling out the booklet, and before and after the follow-up interviews, observations made by the participants regarding the Boundary Audit Method were recorded and subsequently included as a source of information when collating information available regarding supporting concepts and tools. The rationale for collecting the unstructured feedback was that the impromptu comments made by the participants at different stages of the Validation (either when being exposed to the BAM and its concepts and tools during the PowerPoint Presentation; or prior to their starting filling out the booklet; or conversationally before or during the interview) reflected their first impressions about the method, concepts and tools. Such first impressions sometimes evidenced uncertainty about the appropriateness of concepts (e.g., "Test 3. Centrality" of Process Ownership, or the ICS), while other times they reflected excitement about the method (e.g., collaborative approaches to reporting and responding). Therefore, the 'unfiltered' nature of the unstructured feedback served to enhance the information that would be subsequently analyzed to draw conclusions about the method, and supporting concepts and tools.

Once the information from different participants and different sources had been collected, it was then aggregated, organized, and analyzed; steps which are described in detail through the next subsection.

7.2.3 Analysis

The third stage of the Validation, namely 'Analysis', was comprised of the following steps or activities: Data aggregation and organization, Data analysis, Conclusions and need for changes, and Discussion of select changes with supervisor.

7.2.3.1 Data aggregation and organization

A database was created using Microsoft Excel, where a master table accommodated all individual responses from the participants, with an excerpt provided in Appendix F.3.1. The table allowed to aggregate and organize all relevant information (on a per-participant basis) for all concepts and tools since each concept and tool was addressed manifoldly in each of the

different sources (i.e., booklet and interview) by means of multiple concept- or tool-specific questions. For example, several questions were asked regarding the Objective Mapping Template (OMT) in both the booklet (i.e., questions 6.1a, 6.1b, 6.2a, 6.2b) and the interview (i.e., questions 10.1a and 10.1b), plus unstructured feedback was also collected from certain participants regarding the OMT.

Tabulated information was then organized and sorted per concept or tool to facilitate its analysis and, more importantly, identify need for changes.

7.2.3.2 Data analysis

The analysis of the information was tilted towards identifying negative issues with the BAM concepts or tools since positive findings albeit encouraging, would solely reinforce the BAM; while negative issues could trigger meaningful improvements. A similar approach was foreshadowed during the Validation by one of the research participants who commented in relation to the BAM that audits ought to focus predominantly on negative issues, rather than positive, since their ultimate purpose is improvement.

With the organized responses easily sortable by means of the master table, a word-processing file was prepared wherein responses were transferred and organized by concept or tool. Then, responses were graphed where practicable (e.g., for closed-end questions whose responses spanned 'Yes/No/Unsure' as well as for Likert-scale type questions) or summarized if textual. Summaries of textual responses were enhanced with quotes from the participants, aiming to preserve their 'voice'. Along with the preparation of the summary of responses, notes from the author were kept pertaining to interesting or relevant aspects; such notes were clearly identified to maintain a distinction between the participant-generated findings and the author's interpretation. Figure 25 presents an excerpt of a summary of responses to the questions related to Tool 1: Objective Mapping Template (OMT) to illustrate:

- qualitative analysis by means of the textual summary containing select participant quotes
- quantitative analysis by means of a graph
- interspersed notes by the author

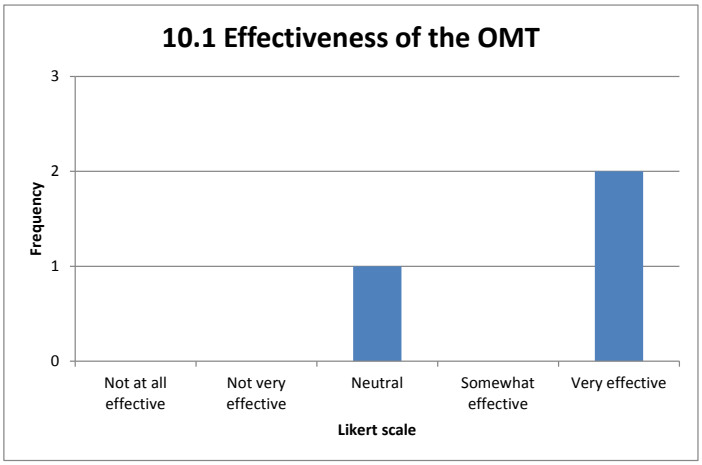
[…]

To the booklet question 6.2a "[…] *does the OMT help to identify potentially conflicting objectives that may be the root cause of problems at the boundary between two or more departments?"*, two participants answered "Yes", and one answered "No". When asked "Why?" (i.e., 6.2b), their responses were:

- Participant 1, who answered "Yes", said that: *"By identifying them for each partner, and placing them all on one page, you can identify those that are congruent vs those that conflict. The difficult is teasing out the real vs. stated objectives (e.g. complainant may want someone disciplined but doesn't clearly identify it as their main objective)"* (Participant 1).
  - [Note from author: Participant 1 mentioned that it may difficult to distinguish between 'real vs. stated objectives' and gave as an example that "a complainant may want someone disciplined but doesn't clearly identify it as their main objective']
- Participant 2, who answered "Yes", said that: *"It's a different way of presenting how various stakeholders participate to the overall objective. It will allow the auditor to articulate findings and recommendations in a way that is very relevant to each business owner"* (Participant 2).
- Participant 3, who answered "No", said that: *"Rather than privacy leg should be PCRP reg. Also statement about [POCSO] values should be replaced with PCRP Policy suite which includes the policy, procedure and practitioner guideline. Also may be important to include an objective that references the administrative fairness of the concerns resolution process which includes timeliness, complete and thorough review that includes the decision, decision maker and rationale for decision."*
  - [Note from author: Participant 3 commented on the details used to illustrate the example and suggested that accordance with PCRP regulation be included under one of the objectives, as well as the PCRP policy suite and administrative fairness]

[…]

From interview question no. 10.1: "Please rate the effectiveness of the OMT […] to document relevant objectives…" two participants answered "Very effective", and one "Neutral", as graphically depicted in the figure below.



[…]

Figure 25 - Sample summary of responses for Tool 1: Objective Mapping Template (Excerpt)

The summarized responses were organized under each of the BAM concepts and tools examined during the Validation, with the aim of pooling together all relevant information for each concept or tool so as to present individual 'big pictures'. After summarizing the information from the responses, conclusions were drawn for each concept and tool. Table 25 presents an excerpt of the summarized conclusions and follow up actions (or possible alternatives), with the full table available in Appendix F.3.2.

Table 25 - Summary of conclusions from validation, organized per supporting concept or tool - Excerpt

Concept or tool	Summarized conclusions	Follow up action (or possible alternatives)
Concept 4: Interaction Classification System (ICS)	- The opinions of the participants regarding the appropriateness and completeness of the ICS were divided. Even though two participants found the ICS to be appropriate and comprehensive; one participant found it to be not appropriate, nor comprehensive. - Subsequent comments pertaining to IdPFD stressed insufficiency of ICS	Decide on one of the following possible changes: a) Remove ambiguity from ICS, or b) Remove ICS from BAM
Concept 5: Audit criteria for interactions	- Proposed Interaction Criteria (i.e., excerpt from Code of Conduct) was too subjective (as stated by participants 1 and 2), and perhaps not appropriate. - Other IC that may be more applicable to CSO's PCRP (as per responses from Participant 3) may include: "Pocket card" guidance, "Administrative fairness" guidance, and "Policy Suite" guidance.	- Review the following CSO documentation: "Pocket card", "Administrative fairness" guidance, and "Policy Suite" guidance. - Select Interaction Criteria from above documents. - Reconsider process for selecting 'interaction criteria', apply changes to determination of interaction criteria in method description
Concept 7: Reframed Process Elements (RPEs)	- One RPE considered appropriate but insufficient: Customer - Certain RPEs found to be inappropriate: e.g., product, product enclosure - Certain RPEs found to be ambiguous or redundant: e.g., customer experience, satisfaction & feedback, delivery method	Re-assess whether RPEs would stay in the BAM, if they do: clarify definitions, provide more examples of use
Tool 1: Objective Mapping Template	- Two participants said that the OMT was 'very effective' in helping identify relevant objectives, while one participant said it was 'neutral'. - It was not clear to one participant how to organize objectives in the template (i.e., he/she thought that 'only conflicting objectives are to be entered'); the instructions were not clear either.	- Clarify instructions, make template clearer on how/where to enter 'unique', 'common', and 'conflicting' objectives. - Example used to illustrate OMT needs to be updated to reflect most current documentation
Tool 2: Interdepartmental Process Flow Diagram	- Participants found the IdPFD to be useful (2 very useful, 1 somewhat useful), although requiring *"a commitment to a very thorough and detailed audit [which may require too much] time / labor intensive if it involves multiple departments / PCCs"* (Participant 1) - The opinion regarding 'usefulness of classifying events as activities or interactions' were divided: two 'neutral', and one 'very useful' - Regarding the usefulness of identifying departments involved at each interaction, participants expressed strong agreement (i.e., 3 ratings of "Very useful"). - When asked about rating the effectiveness of the IdPFD, two participants answered "Somewhat effective", and one "Very effective".	- Implement changes that may have been done to the Interaction Classification System (ICS) in the IdPFD template - Consider making an electronic version of the template (for easier filling out) - Examples may also need to be updated
Tool 4: Observe Process (Interactions) Checklist	- All three participants found the instructions of the OPIC template to be clear. Participant 1 was unclear about the option in the template "tracing route: backward vs. forward" - From the booklet questions and interview two participants considered that the OPIC template was "effective in allowing the auditor to assess interactions of an interdepartmental process", while the third did not think the OPIC was effective for such a purpose. - Participant 1 mentioned that the OPIC may be effective, but its use could be hindered by the lack of "defined procedures for interactions" (i.e., criteria); nevertheless, such finding would be important to help recognize "organizational gaps".	- Include in the OPIC any new interaction criteria found in recently suggested documentation, i.e., the "Administrative fairness" document, "PCRP policy suite", "Pocket card". - Examples may also need to be updated
…	…	…

7.2.3.3 Conclusions and need for changes

The research participants' opinion of the BAM was positive. When asked about what the BAM actually achieved, they mentioned:

- *"What it does is it looks for what's working well and not; and understanding that both departments are equal contributors to the process. It's really assessing how that interaction is working"* (Participant 1).
- *"It offers, or achieves, a structured approach or process. It's a model that would work well in a complex environment when you have many departments and a lot of individuals, a lot of stakeholders, functions…. It provides a structure you need to be well organized and be able to organize your conclusion at the end"* (Participant 2).
- *"I think it provides a really good feedback or direction in terms of where a process could be working well, where the gaps are between the different departments and the interactions and where there could be breakdowns in the communication; where there are gaps on the process, and provide recommendations to make improvements in the process"* (Participant 3).

Accordingly, most of the concepts and tools received a positive assessment by the participants; for instance, concepts such as Process ownership, Access and collaboration, and Concurrent vs. sequential approach; as well as tools such as the OMT, IdPFD, OPIC and AFST. Nevertheless, deficiencies were identified with certain concepts such as the 'Test 3. Centrality' for determining Process Ownership; as well the 'Interaction Classification System' (ICS) used in the IdPFD to categorize interactions; and the 'Reframed Process Elements' (RPEs) used in the OPRC to assess the process output. For the deficiencies encountered, definitive changes were determined where possible, while different potential alternatives were identified where an obvious solution was not immediately discernible. For changes readily determined, planning and implementation were straightforward, as discussed in subsection 7.2.4; while immediately below, a summary of the select changes that were discussed with the author's supervisor is presented.

7.2.3.4 Discussion of select changes with supervisor

Issues identified during the BAM Validation pertaining to the ICS and the RPEs were discussed with the author's supervisor. According to the research participants, the categories of the ICS (i.e., Request, Response, Notification, Contribution and Collaboration) were confusing and ambiguous. After considering whether to improve the ICS or remove it altogether from the BAM, a decision was made after consulting with the author's supervisor, to remove the ICS due to the inherent challenges in establishing a classification system (e.g., how to successfully develop a comprehensive, unambiguous system that can ensure reliability of categorization).

Similarly, the RPEs (i.e., Customer, Product enclosure, Customer experience, Product, Satisfaction & feedback, and Delivery method) used to assess the process output with regards to customer requirements and objectives, were found to be inappropriate or overlapping, even redundant. After discussing the negative assessment of the RPEs by the research participants with the author's supervisor, it was determined to remove the RPEs since they suffered from similar challenges related to categorization systems evidenced by the ICS. The ICS and RPEs, even though removed from the final version of the BAM as presented in Chapter 5, are available for information and archival purposes in Appendices D.4.2 and D.4.3. Changes to the BAM extended beyond removals, and included clarifications, enhancements and updates, as explained next.

7.2.4 Changes

The fourth stage of the method was comprised of three major steps: Plan changes, Implement changes, and Unplanned changes.

7.2.4.1 Plan changes

Changes for each concept or tool were identified as well as any critical dependencies. An example of the latter is illustrated by the fact that a common finding of several validated concepts or tools (i.e., Concept 5. Audit criteria for interactions, Concept 7. Reframed Process Elements, Tool 1 OMT, Tool 3. OPRC, Tool 4: OPIC, and Tool 5: IPIC), was the suggestion to identify and utilize audit criteria from the following CSO documentation: "Administrative fairness" (CSO, 2013), "Pocket card" (POCSO, 2013b), and the "Policy Suite" (POCSO, 2012a,b,c), as opposed to the criteria from the POCSO Code of Conduct (2013a) which was used to illustrate the concepts and tools in the material used during the Validation. Therefore, reviewing the aforementioned documents with the aim of identifying more appropriate audit criteria became an early step of the Change Plan, since changes related to illustrative examples of several concepts and tools would be dependent on such newly-identified criteria. Similar dependencies between two concept-tool pairs were identified, namely between the ICS and the IdPFD on one hand; and between the RPEs and the OPRC on the other. Therefore, planning the impact that the removal of the concepts (i.e., ICS and RPEs) would have on the tools (i.e., IdPFD and OPRC) was important to ensure an effective and efficient change management. Table 26 and Table 27 present the plan of changes for the BAM concepts and tools, respectively.

Table 26 - Plan of changes (Part 1 of 2)

Concept (C) or Tool (T)		Plan of changes
C1	Process ownership	No changes to concept of Process Ownership
C2	Test 3 – Centrality	• Remove 'Test 3. Centrality' from Process Ownership determination description in conceptual framework (including from flowchart) • Relocate description related to 'Test 3. Centrality' to archival appendix
C3	Access and collaboration	• Update conceptual framework with drawbacks from 'combined reporting' and 'combined responding', as well as potential mitigation strategies • Update conceptual framework to include 'potential challenges and mitigation strategies' of an interdepartmental process audit
C4	Interaction Classification System (ICS)	• Remove ICS from conceptual framework and method description • Update IdPFD template to reflect removal of ICS • Update in-text examples of IdPFD's two uses (i.e., to model process, and to track product) • Relocate description related to 'Interaction Classification System' to archival appendix
C5	Audit criteria for interactions	• Review participant-supplied documentation (e.g., "Administrative fairness" (CSO, 2013), "Pocket card" (POCSO, 2013b), and "Policy Suite" (POCSO, 2012a,b,c)) aiming to identify more relevant audit criteria • Update Boundary Audit Method description with new criteria (remove reference to "Code of Conduct") • Update examples illustrating use of tools that involve audit criteria: e.g., OMT, OPRC, OPIC, IPIC • Old audit criteria used during Verification, i.e., "Code of Conduct" (adapted from POCSO, 2013a)) avail. in Appendix E.2.3
C6	Concurrent vs. sequential approach	No changes
C7	Reframed Process Elements (RPEs)	• Remove RPEs from conceptual framework and method description • Update OPRC template to reflect removal of RPEs • Update in-text example of OPRC usage, including description of in-text example • Relocate description related to 'Reframed Process Elements' to archival appendix

Table 27 - Plan of changes (Part 2 of 2)

Concept (C) or Tool (T)		Plan of changes
T1	Objective Mapping Template	• Clarify instructions in the template, make template clearer on how/where to enter 'unique', 'common', and 'potentially conflicting' objectives • Update in-text example of OMT with criteria identified from latest documentation, i.e., "Administrative fairness" (CSO, 2013), "Pocket card" (POCSO, 2013b), and "Policy Suite" (POCSO, 2012a,b,c).
T2	Interdepartmental Process Flow Diagram	• Update template by removing any usage of the Interaction Classification System (including in the instructions) • Update in-text examples (two uses: to model a process, and to track a product) and corresponding method descriptions
T3	Observe Process Result Checklist	• Update template by removing any usage of the Reframed Process Elements (including in the instructions); use regular process elements instead (i.e., PEEMMM) to prepare default questions • Update in-text example and corresponding method description using updated template; also update custom questions in checklist by using criteria from latest documentation (i.e., "Administrative fairness" (CSO, 2013), "Pocket card" (POCSO, 2013b), and "Policy Suite" (POCSO, 2012a,b,c))
T4	Observe Process (Interactions) Checklist	• Update template by making blank space to customize questions more prominent • Update in-text example of OPIC by re-formulating custom questions in checklist using criteria from latest documentation (i.e., "Administrative fairness" (CSO, 2013), "Pocket card" (POCSO, 2013b), and "Policy Suite" (POCSO, 2012a,b,c) • Update description of use of tool in method description
T5	Interview Personnel (Interactions) Checklist	• Update template by making blank space for custom questions more prominent (swap with default question) • Update in-text example of IPIC by re-formulating custom questions in checklist using criteria from latest documentation (i.e., "Administrative fairness" (CSO, 2013), "Pocket card" (POCSO, 2013b), and "Policy Suite" (POCSO, 2012a,b,c) • Update description of use of tool in method description
T6	Audit Finding Summary Template	• Incorporate use of 'themes' to organize findings in the audit report (not directly in the AFST) and update the method description detailing the preparation of the audit report • Reject the suggestion to use the 'Dimensions of Quality' (DQ) to organize findings because DQ are health-care specific, and the BAM aims to be universally applicable • Update AFST example with findings from updated OPRC, OPIC and IPIC examples
T7	Finding Sheet (Opportunities / Strengths)	• Clarify, in the appendix detailing the design and use of the FS (O/S) template, the use, in section 7 of the template, of the Balanced Scorecard Categories (BSC) to classify potential benefits of implementing recommendations • Reject the idea of including 'customer' as a potential beneficiary in section 7 of the FS (O/S) template, since 'customer' is already a BSC that allows to classify related expected benefits • Reject the suggestion to use the DQ to organize expected benefits of recommendations because DQ are health-care specific, and the BAM aims to be universally applicable • Update the in-text example with findings from the updated OPRC, OPIC, IPIC and AFST examples
T8	Advancement Action Plan	• Add to the template 'request for explanation if not using a SMART goal' • Reject the suggestion to use the DQ to organize expected benefits of recommendations or to measure response (i.e., Advancement Action) effectiveness because DQ are health-care specific, and the BAM aims to be universally applicable
	Method overall	• Provide details on how to define 'scope of work' at the BAM; and how the boundary audit could be implemented progressively • Mention the possibility of having 'check points' to assess 'progress', 'roadblocks', or 'challenges' of audits and responses • Update BAM flowchart to reflect changes (including updated templates)

7.2.4.2 Implement changes

The planned changes for concepts and tools were subsequently implemented, minding the identified dependencies, e.g., the need to identify criteria from newly-available documentation early on since numerous tools would need them; as well as the dependencies between the following concept/tool pairs: ICS/IdPFD and RPE/OPRC.

Updates to, and removals of, concepts were performed as planned. Similarly, changes were made to the tool templates, while the in-text examples that illustrate the usage of the tools were also updated, including the respective textual descriptions. The results of the implementation of changes are presented in the final version of the Boundary Audit Method available as follows:

- Supporting concepts in Appendices D.1.2 to D.1.4,
- Boundary Audit Method description in Appendix D.2
- Supporting tools (templates and examples) in Appendix D.3

Even though most changes to concepts and tools were adequately anticipated, certain unplanned changes arose and had to be addressed, as explained in the next subsubsection.

7.2.4.3 Unplanned changes

As a result of having reviewed the documentation suggested by the research participants (i.e., 'Administrative fairness', 'Pocket card' and 'Policy suite'), criteria had to be identified and extracted to be used in the illustrative examples of the Boundary Audit Method. Consequently, the author realized that the newly-available documentation contained criteria that was relevant to the PCRP but that was disseminated throughout the different documents, at times redundantly, or quasi-redundantly (i.e., with slight variations across two or more documents). Therefore, following the review of the documentation, the author had to find a way to establish a link between the raw criteria disseminated in multiple documents and the checklist questions that would enable the examination of interactions and process output. The journey from multiple documents to checklist questions was documented and yielded the following two methods:

1) Method to identify, organize, and harmonize criteria from available documentation, and

2) Method to prepare questions to assess interactions and process output

The first method above describes:

1. How to use organizational documentation to extract criteria from descriptive statements,
2. How to organize criteria as one of the following types that are relevant to the Boundary Audit, i.e., process requirements, process objectives, interaction criteria, process output requirements, and process output objectives, and
3. How to harmonize criteria by adapting the guidance from the IUMSS handbook (ISO, 2008a, pp.97-98) on how to harmonize requirements from one or more Management Systems to criteria from process documentation.

The detailed method for identifying, organizing and harmonizing criteria is presented and illustrated in Appendix D.1.1.1

The second method, preparing questions to assess interactions and process output, starts with the output of the previous method (i.e., the organized and harmonized criteria), and suggests the use of the Process Elements which in accordance to the applicable audit objectives (e.g., Compliance, Effectiveness, Risks, and Improvement Opportunities), can be used to generate questions to assess interactions and the process output. The detailed method for preparing questions to assess interactions and process output is available in Appendix D.1.1.2.

Once the unplanned changes were addressed and documented, in addition to the planned changes, the Boundary Audit was deemed in its final version.

7.3 Results

The final version of the Boundary Audit reflects the changes that arose from the Validation and is summarily described, along with its supporting concepts and tools, in Chapter 5 of this dissertation (with detailed descriptions and examples available in Appendices D.1 to D.3).

7.4 Summary

The third stage of the development of a method to audit an interdepartmental process (i.e., the Boundary Audit Method) involved the Validation of the concepts and tools deemed as original (i.e., newly created or significantly adapted). The validation took place with three human subjects who were recruited due to their expert knowledge of an interdepartmental process (i.e.,

the PCRP) or of auditing. In individual meetings, the BAM was presented to each participant; then each participant was asked to fill out a booklet with questions about the BAM concepts and tools, followed by an oral interview. The responses from the booklet and interviews, plus any collected unstructured feedback, were aggregated and analyzed in order to draw conclusions and identify negative issues with the BAM concepts and tools. Changes were identified, including the removal of certain concepts, and subsequently implemented. The extent of changes included the review of newly-available documentation to extract audit criteria; and the updating of concepts and tools, including templates, in-text examples and their corresponding in-text descriptions. Unplanned changes included the recognition of the need for, and the development of, a method to identify, organize, and harmonize criteria from available documentation; as well as of a method to prepare questions to assess interactions and process output. After the implementation of planned and unplanned changes, the BAM was deemed to be in its final version, which is summarily presented in Chapter 5 of this dissertation (with the full version available in Appendices D.1 to D.3).

8 Development of the ABSI approach

8.1 Introduction

The 'ABSI approach' is comprised of two elements, an Accounting-based model for Structuring and Integrating MSS requirements (i.e., ABSI model), and an Accounting-based Assessment technique for examining MS component relationships (i.e., ABA technique). This chapter explains:

- How the ABSI model and ABA technique were developed,
- How the ABSI model was pre-tested, first using ISO's "High Level Structure" (HLS) guidance, and then using ISO 9001 and ISO 14001,
- How the ABSI model was subsequently verified using ISO 10002 and ISO 10003, and
- How the ABA technique was verified using data from the CSO's Patient Concerns Resolution Process (PCRP) (CSO, 2009a).

The steps for utilizing the ABSI model and ABA technique, respectively, are presented at the end of the chapter under the section 'Results'.

8.2 Method for developing the ABSI approach

The methodology followed to design, pre-test, and verify the two components of the ABSI approach is presented in Figure 26, with the first stage 'Design', explained in the next subsection.

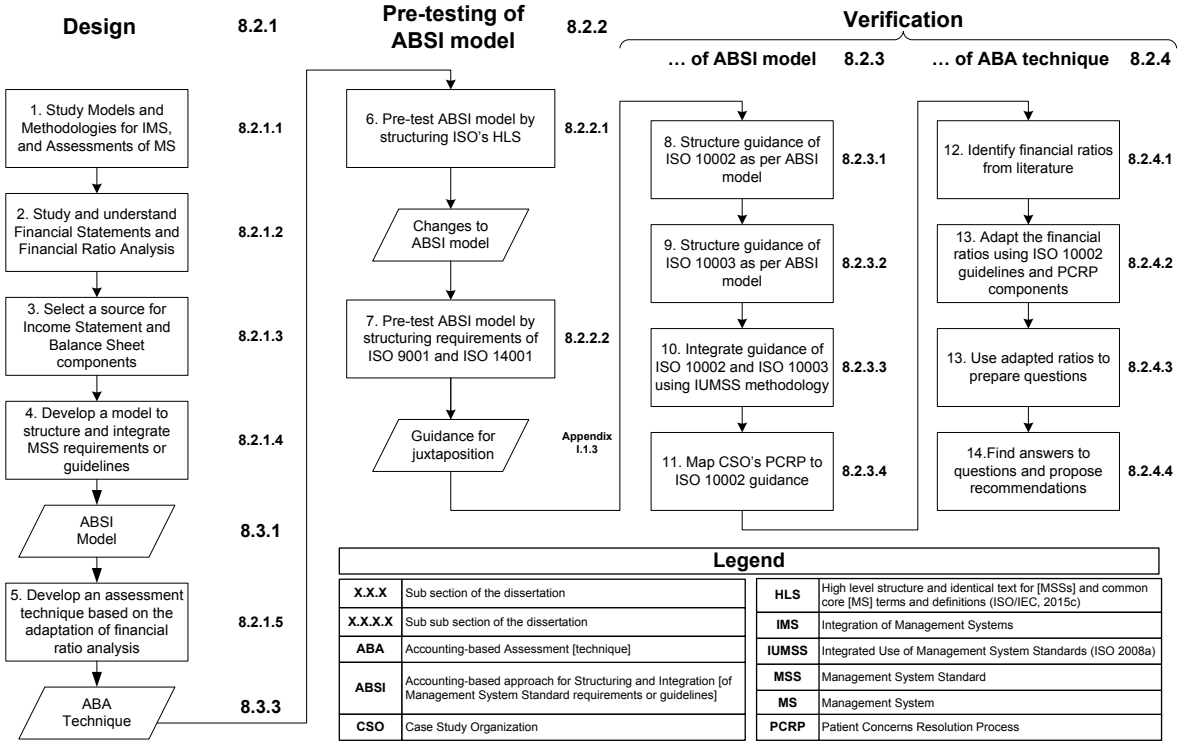


Figure 26 - Development, pre-testing and verification of the ABSI model and ABA technique

8.2.1 Design

8.2.1.1 Study Models and Methodologies for IMS, and Assessments of MS

A literature review was performed in order to identify the state of the art regarding Models and Methodologies for Integration of Management System Standards and/or of Management Systems, as well as on the topic of Assessments of Management Systems. The literature review started with queries of terms such as {"Integrated Management Systems" OR "Integration of Standardized Management Systems" AND "Model" OR "Methodology"}, as well as {"Assessment of Management Systems"} in the database Emerald Insight. The results were examined and notes from relevant papers were kept, while also using the bibliographies of relevant results to further track and gather prior articles. The results of the literature review are presented in Chapter 2.

With an understanding of the state of the art on models and methodologies for Integration of Management Systems (MSs) and Management System Standards (MSSs), as well as on Assessments of MSs, and the confidence that there was an opportunity to explore the use of Financial Statements (FS) with relation to the Integration of MSS requirements and the Assessment of MS components, the next step was to better understand Financial Statements.

8.2.1.2 Study and understand Financial Statements and Financial Ratio Analysis

Different resources were examined to better understand Financial Statements (FS) and Financial Ratio Analysis (FRA): from the origins of double-entry accounting (e.g., Edwards, 2013; Gleeson-White, 2012), to the use of FS and FRA (e.g., Flynn, 2009; Frasier and Ormiston, 2004; Peterson and Fabozzi, 2012; Tracy, 2006); to currently relevant standards such as the "International Financial Reporting Standard for Small and Medium-sized Entities" by the International Accounting Standards Board (IASB 2009a, 2009b). The consulted bibliography helped to understand that:

- There is no single format to organize and present financial results; organizations can choose the accounts (Flynn, 2009), and format (IASB, 2009a) they consider more appropriate to report performance to their stakeholders.
- In addition, different authors compute financial ratios differently (as explained and illustrated by Flynn, 2009; and Frasier and Ormiston, 2004)

Notwithstanding the lack of a unified, single format for FS, or the lack of complete accord in the computation of financial ratios, FS undoubtedly *"contain a wealth of useful information regarding the financial position of a company, the success of its operations, the policies and strategies of management, and insight into its future performance"* (Frasier and Ormiston, 2004, p. 3). Some say that FS are *"the only globally recognized way in which we measure business performance"* (Holly and Gien, 2014). Therefore, it may be possible to use FS to guide the structuring of MSSs requirements and MS components; and then to use FRA to assess the relationships between MS components.

8.2.1.3 Select a source for Income Statement and Balance Sheet components

Different authors use different structures (i.e., number and names of accounts or line-items) to present the Income Statement (I/S) and Balance Sheet (B/S). During the development of the ABSI model, the I/S and B/S structures of Flynn (2009); IASB (2009a,b); and Peterson and Fabozzi (2012) were considered as options which to use to organize MSS requirements.

Flynn's (2009, p. 24) structure of the I/S was initially considered but subsequently discarded because it included a line-item that was not used during early attempts at juxtaposing MSS requirements, namely 'Bad debt, warranty and allowance', and also because a more standardized version was desirable, being that the scope of Flynn's (2009) is on Financial Management for Engineers.

The structure of the I/S by the IASB (2009b), an accounting standardization body, as illustrated in IASB (2009a, pp.6-7), was then considered, but ultimately rejected because it presents line-items in Statement of Comprehensive Income and Retained Earnings, such as 'Dividends' and 'Retained earnings', that did not have matches during preliminary attempts at juxtaposing MSS requirements; while also offering two variations of the Statement of Comprehensive Income, i.e., by nature and by function. Therefore, the structure provided by IASB (2009a,b) was considered to be too detailed to allow for a successful abstraction of the I/S components and their interrelationships (i.e., to design the ABSI model) for the purpose of organizing MSS requirements.

Ultimately, the structures of the I/S and B/S by Peterson and Fabozzi (2012) were found to be appropriate in the level of detail of line-items they present, and were chosen to use and document the ABSI model and ABA technique.

8.2.1.4 Develop a model to structure and integrate MSS requirements or guidelines

The I/S is a *"summary of operating performance over a period of time"* (Peterson and Fabozzi, 2012), while the Balance Sheet (B/S) shows *"the financial condition or financial position of a company on a particular date […; and it presents] a summary of what the firm **owns** (assets), and what the firm **owes** to outsiders (liabilities) and to internal owners (stock-holder's equity)"* (Frasier and Ormiston, 2004, highlighted text by original authors). Connections between the components of the I/S and the B/S could be made, for example, linking 'Sales' in the I/S and 'Cash' and 'Accounts receivable' in the B/S representing how "Making sales (and incurring expenses for making sales) requires a business to maintain a working cash balance" (Tracy, 2006, p. 144).

The Accounting-based Model for Structuring and Integrating Management System Standard requirements (i.e., the ABSI model) was developed by identifying the components of the I/S and B/S and their relationships, and then by creating an abstraction of such relationships. Then, a table with the I/S and B/S components was prepared to allow for the juxtaposition of requirements from MSSs (including the corresponding justifications). Lastly, guidance was developed to guide the juxtaposition of MSS requirements to the I/S and B/S components.

Appendix G.1.1 presents the components and interrelationships between the original I/S and B/S components; while the abstraction of the relationships is presented in a flowchart that depicts boxes connecting with each other (available in part (a) of Appendix G.1.2) that can be used to accommodate the juxtaposition of MSS requirements next to the I/S and B/S components (available in part (b) Appendix G.1.2). Lastly, the guidance for juxtaposition is available in Appendix G.1.3.

The steps for using the ABSI model are presented in section 8.3.1, while sample excerpts of the use of the ABSI model to structure the guidance from two MSSs, namely ISO 10002 and ISO 10003 are available in Figure 27 and Figure 28 on the next page. Following the two figures, the next subsection describes the development of the ABA technique.

Income Statement

I/S component	First Juxtaposed MSS: ISO 10002 (2014)		Second Juxtaposed MSS: ISO 10003 (2007)	
Name[a]	Sub clause	Justification	Sub clause	Justification
Sales	7.7 Response to complaints 7.8 Communicating the decision 7.9 Closing complaints	Sub clauses 7.7, 7.8, and 7.9 were juxtaposed to 'Sales' because the three sub clauses represent the last activities or sub-processes of the Operational section, i.e., 'last-mile' activities, that involve interaction with the customer (akin to 'sales')	7.5 Resolution of dispute (incl. sub sub clauses) 7.6 Implementation of resolution 7.7 Closing the file	Sub clauses 7.5, 7.6, and 7.7 were juxtaposed to 'Sales' because the three sub clauses represent the last activities or sub-processes of the Operational section, i.e., 'last-mile' activities, that involve interaction with the customer (akin to 'sales')
Cost of goods sold [COGS]	7.2 Receipt of complaints 7.3 Tracking of complaints 7.4 Acknowledgement of complaints 7.5 Initial assessment of complaints 7.6 Investigation of complaints	Sub clauses 7.2 - 7.6 can be compared to 'COGS' (or 'direct costs') because they are performed as many times as complaints enter the CH process (i.e., they are dependent on the number of 'units' entering the process). In other words, just as direct costs increase or decrease with the units produced and sold; the processes represented by the juxtaposed sub clauses are performed with a frequency that is dependent on the number complaints entering the CH process.	7.2 Complaint referral 7.3 Receipt of dispute notice 7.4 Formulation of the organization's response (incl. sub sub clauses)	Sub clauses 7.2 Complaint referral, 7.3 Receipt of dispute notice, and 7.4 Formulation of the organization's response (incl. sub sub clauses) were juxtaposed to 'COGS' because the sub clauses describe activities that are performed 'variably', i.e., with relation to the number of complaints received.
Gross profit	*N/A - Intermediate step to accommodate an arithmetic operation*		*N/A - Intermediate step to accommodate an arithmetic operation*	
Selling, general, and administrative expenses [SG&A]	7.1 Communication	Sub clause 7.1 Communication is juxtaposed to 'SG&A' because regardless of the number of complaints received, 'Communication' of the CH-process has to take place via 'brochures, pamphlets or electronic-based communication'. Therefore, the sub clause is juxtaposed to 'SG&A', also called 'fixed' or 'overhead' expenses.	Annex D (normative) - Guide on accessibility Annex I (normative) - Guide on transparency 7.1 General (Operations) 7.1 General (Operations)	Sub clause 7.1 General (Operations) is juxtaposed to 'SG&A' because the sub clause provides the underlying advise that the organization "apply its procedures for dispute resolution in a fair, efficient and effective manner" and that "where necessary, the provider and organization should adjust their operational procedures to ensure coordination..." (ISO 2007, p. 8). Such guideline could be considered as 'overhead' or 'fixed' because it provides advice on 'fixed' characteristics of the DR process: i.e., fairness, efficiency, effectiveness, and flexibility.
Operating profit	*N/A - Intermediate step representing an arithmetic operation*		*N/A - Intermediate step representing an arithmetic operation*	
Interest expense	8.2 Analysis and evaluation of complaints	'Interest expense' represents the cost of borrowing money, and sub clause 8.2 Analysis and evaluation of complaints could be equated to a 'financial cost' because just like borrowing money allows the operation of the business, analyzing and evaluating information of the CH-process could be considered a non-operating cost to the organization.	8.2 Analysis and evaluation	'Interest expense' represents the cost of borrowing money, and sub clause 8.2 Analysis and evaluation could be equated to a 'financial cost' because just like borrowing money allows the operation of the business, analyzing information of the DR-process could be considered an essential, yet non-operating, cost to the organization.
Income before taxes	*N/A - Intermediate step representing an arithmetic operation*		*N/A - Intermediate step representing an arithmetic operation*	
Taxes	8.3 Satisfaction with the complaints-handling process	Just like 'taxes expense' refers to money paid to the government as a proportion of the income generated (after all prior expenses), 'Satisfaction with CH process' represents the effort of the organization to "determine the level of satisfaction of complainants with the complaints-handling process." In other words, just like a business has to relinquish a part of the[illegible] to the government, an organization [illegible] process needs to [illegible] monitoring [illegible] faction with [illegible]		

Figure 27 - ISO 10002 and 10003 guidance juxtaposed as per I/S components (Excerpt)

Balance Sheet

TYPE	B/S component	First Juxtaposed MSS: ISO 10002 (2014)		Second Juxtaposed MSS: ISO 10003 (2007)	
	Name[b]	Sub clause	Justification	Sub clause	Justification
ASSETS	**Current Assets**				
	Cash	6.1 General [Planning and design]	Sub clause 6.1 advises the organization to "plan and design an effective and efficient CH process...", just like 'Cash' allows (i.e., enables) the business operation.	6.1 General [Planning, design and development]	Sub clause 6.1 advises the organization to "plan, design and develop an effective and efficient DR process [...] including the creation of necessary procedures...", just like 'Cash' allows (i.e., enables) the business operation.
	Accounts Receivable				
	Inventory	6.3 Activities	6.3 Activities, is matched to 'Inventory' because the 6.3 Activities can be considered as representing how the 6.4 Resources (matched to 'PPE' below) are used for the performance of the CH process. Akin to how the PPE is used to build inventory to sell in the business operation	6.3 Activities 6.3.1 Diagnosis 6.3.2 Design 6.3.3 Testing	6.3 Activities, is matched to 'Inventory' because 6.3.1 Diagnosis, 6.3.2 Design and 6.3.3 Testing will yield a DR process, which will in turn be operated to resolve disputes, just like 'Inventory' represents the goods to sell in the business operation.
	Non-current Assets				
	Property, Plant and Equipment [PPE]	6.4 Resources	Resources represent the 'things' used to operate the CH process, e.g., "personnel, training, procedures, documentation, specialist support, materials and equipment, computer hardware and software, and finances" ; just like PPE represents assets that enable the business operation.	6.4 Resources	Resources represent the 'things' used to operate and evaluate the DR process, e.g., "personnel, information, materials, funding and infrastructure" (ISO 2007, p. 8); just like PPE represents long-lived assets that enable the business operation (e.g., 7.1 to 7.7 juxtaposed above to the I/S)
	...				
LIABILITIES	**Current Liabilities**				
	Short term bank loans	6.2 Objectives	6.2 Objectives is juxtaposed to 'Short term bank loans' because objectives represent concrete commitments of the organization that will allow for the performance of the activities related to CH process (just like funds from the short term bank loan allow for the business operation)	6.2 Objectives	6.2 Objectives is juxtaposed to 'Short term bank loans' because objectives represent concrete commitments of the organization that will guide the operation of the DR process (just like funds from the short term bank loan enable the business operation)
	Accounts payable				
	Current maturities of long-term debt	5.3 Responsibility and authority	Just like 'Current maturities of LTD' represents the amount of LTD due within a year, 5.3 represents the immediate commitment by the organization (i.e., concreteness of the policy) as evidenced by the assignment of responsibilities for the establishment, performance, maintenance and improvement of the CH process.	5.3 Top management responsibilities	Just like 'Current maturities of LTD' represents the amount of LTD due within a year, 5.3 represents the immediate commitment by the organization (i.e., concreteness of the policy) as evidenced by the assignment of responsibilities for the establishment, performance, maintenance and improvement of the DR process.
	Long term Liabilities				
	Long Term Debt [LTD]	5.2 Policy	Sub clause 5.2 Policy is juxtaposed to 'LTD' since the policy represents "the overall intention and direction of the organization related to complaints handling" (ISO 2014, p. 4) just like 'LTD' represents obligations by the organization to repay the loans granted by banks and other lenders.	5.2 Dispute-resolution policy 5.2.1 Policy establishment 5.2.2 Policy review 5.2.3 Policy consistency	Sub clause 5.2 is juxtaposed to 'LTD' since the policy describes "under which circumstances the organization will inform customers about the dispute-resolution process and offer dispute resolution to complainants [...either] as an advanced commitment, or on a case-by-case basis" (ISO 2007, p. 5) just like 'LTD' represents commitments or obligations by the organization to repay the loans granted by banks and other lenders.
EQUITY	**Stakeholders' Equity**				
	Common stock	5.1 Commitment	Just like common stock represents the original seed funds used to initiate the business; sub clause 5.1 Commitment, represents the primordial commitment by management to establish, operate, and improve the CH process.	5.1 Commitment	Just like common stock represents the original seed funds used to initiate the business; sub clause 5.1 Commitment, represents the primordial commitment "to an effective and efficient DR process [and procedures] that conforms to the organization's DR policy".
	Additional paid-in capital	4. Guiding principles	Section 4. Guiding principles (and its sub components) could be deemed as an additional demand on the CH process (albeit expressed as a 'recommendation'), i.e., that the CH process adhere to the 9 guiding principles in 4.2 to 4.10 for 'effective handling of complaints'; just like 'additional paid-in capital' represents [illegible] amount paid for shares of stock by investors in excess of par or stated value" (Peterson and Fabozzi, 2012).	4 Guiding principles	Section 4. Guiding principles (and its sub components) could be deemed as an additional demand on the DR process, e.g., "the foundation of effective and efficient DR is based on adherence to the guiding principles set out in 4.2 to 4.12" (ISO 2007, p. 3); just like 'additional paid-in capital' represents the "amount paid for shares of stock by investors in excess of par or stated value" (Peterson and Fabozzi, 2012).

Figure 28 - ISO 10002 and 10003 guidance juxtaposed as per B/S components (Excerpt)

8.2.1.5 Develop Assessment technique based on the adaptation of FRA

After the requirements of one or more MSSs have been implemented within an organization's MS (for example, by following the IUMSS methodology, ISO, 2008a, for integration and implementation), the components of the Standardized Management System (SMS) and their interrelationships could be assessed for the purpose of improvement beyond the required performance evaluation suggested by MSS components such as *9.1 Monitoring, measurement, analysis and evaluation*; *9.2 Internal audit*; and *9.3 Management review*, as exemplified using sub-clauses of HLS (ISO/IEC, 2015). The three abovementioned performance evaluation components are likely to focus on:

- inputs to the SMS and appropriateness of the SMS components, as illustrated by the internal audit requirement to assess conformance to requirements (sub-clause 9.2 of ISO/IEC, 2015); and
- outputs or results of the SMS, as exemplified by the requirements to evaluate performance and effectiveness (sub-clause 9.1 of ISO/IEC, 2015); and suitability, adequacy and effectiveness (sub-clause 9.3 of ISO/IEC, 2015).

Nevertheless, in addition to inputs and outputs to the SMS, the interrelationships amongst SMS components could also be examined, especially within the systems approach, where the relationships between components are recognized to be critical to the success of the system.

The relationships amongst components of an SMS that had been structured as per the ABSI model, e.g., where mapping was used as the technique to "connect MSS requirements to the organization's MS" (ISO, 2008a, p. 65), and such mapping used the ABSI model through the juxtaposition to I/S and B/S components as the underlying structure, could be assessed through the adaptation of FRA. As Peterson and Fabozzi (2012) explain it: *"a financial ratio is simply an expression of the relation between two financial statement accounts and financial ratio analysis is the investigation of a company's condition and performance using one or more of these ratios [;…one can] use these ratios to get a measure of the relative value of one account to another."*

The Accounting-based Assessment Technique (ABA technique) adapts FRA for the purpose of assessing SMS components interrelationships. With the SMS components structured as per the ABSI model (i.e., with SMS components juxtaposed to the I/S and B/S components), financial

ratios could be adapted by entering in the numerator and denominator the corresponding juxtaposed SMS components. Figure 29 illustrates the adaptation of 'Current ratio' using ISO 10002 (2014) components and then using the CSO's (2009a) PCRP components.

Traditional financial ratio	Adapted financial ratio using components from ISO 10002 (2014) and from CSO's PCRP (CSO 2009a)
$Current\ ratio = \frac{Current\ assets}{Current\ liabilities}$	Adapted using ISO 10002 guidance (intermediate step): $"Current\ ratio" = \frac{6.1\ General\ [Planning\ and\ design], and\ 6.3\ Activities}{6.2\ Objectives, and\ 5.3\ Responsibility\ and\ authority}$ Adapted using CSO's PCRP components (for assessment purposes): $"Current\ ratio" = \frac{PCRP\ document, algorithm\ and\ flowcharts\ Effort\ to\ harmonize\ 3\ geog. processes\ into\ one}{PCRP\ objectives\ PCRP\ Roles\ and\ process\ descriptions}$

Figure 29 - Adapted financial ratio example

Assessment possibilities could include the examination of interrelationships amongst SMS components on each half of the ratio (i.e., how the components in the numerator affect those in the denominator, or vice versa), such as the examination of how "the PCRP objectives and PCRP roles and process descriptions have enabled the creation of the PCRP document, algorithm and flowcharts, and the effort to harmonize processes from the three geographic regions into one". In addition, an assessment could also be performed amongst components within a given half of the ratio (i.e., either the numerator or denominator), for example, by examining how "the PCRP objectives relate to or enable the PCRP roles and process descriptions", or how "the PCRP document, algorithm and flowcharts relate to the effort to harmonize the processes from the three geographic regions into one" (components from CSO's (2009a) PCRP, referencing the adapted 'Current ratio' in the bottom right of Figure 29).

The assessment examples above could be classified as 'inter-term' and 'intra-term', respectively. The word "term" is used to refer to each of the two comprising halves of the ratio, i.e., numerator and denominator (Sonnenschein and Nesbitt, 1870, p. 69). Thus, 'inter-term assessment' is used to refer to the examination of how the SMS component or components in one *term* of the ratio (e.g., the numerator or denominator) affect or enable the SMS component or components in the other *term* of the ratio; while 'intra-term assessment' is used with regards to the examination of

how a given SMS component or set of components *within* one *term* of the ratio (e.g., either in the numerator or the denominator) affect another SMS component or set of components within the *same term*, for ratios that may contain multiple SMS components in the corresponding *term*. The steps for performing the ABA technique are presented in section 8.3.3

After having designed the ABA technique, it was verified using data from the CSO's PCRP. Such verification is presented in section 8.2.4 Verification of ABA technique. However, prior to the verification of the ABA technique, the ABSI model was pre-tested and verified as explained in the following two subsections.

8.2.2 Pre-testing

Early exploratory attempts at using the I/S and B/S structures to organize MSS requirements were done with the guidance from ISO 10002 (2004), Guidelines for complaints-handling in organizations (i.e., the first version of ISO 10002, which was subsequently revised in 2014 and from thereon used in this research). The preliminary results were encouraging: the guidance from ISO 10002 (2004) could be juxtaposed to the I/S and B/S components, especially when providing justification for the juxtapositions.

Nevertheless, during the design stages of the ABSI model, ISO released Guide 83 (2011a), a draft describing the *"High level structure and identical text for management system standards and common core management system terms and definitions"* (ISO, 2011a), abbreviated as "HLS" for convenience. HLS was subsequently published in Appendix 2 of the Annex SL of the ISO/IEC Directives, Part 1 (ISO/IEC, 2015) and aims to provide a common structure and terminology for to-be-revised MSSs as well as for to-be-developed MSSs. Therefore, it was important to assess if and how could the HLS be structured as per the ABSI model. Thus, after the preliminary attempts suggested feasibility in the usage of the I/S and B/S components to structure MSS requirements, the ABSI model was pre-tested with the HLS guidance, as presented next.

8.2.2.1 Pre-test ABSI model by structuring ISO's "High Level Structure"

ISO's HLS aims to *"ensure consistency among future and revised management system standards and make integrated use simpler"* (Tangen and Warris, 2012). The method and results related to

the pre-testing of the ABSI model with the HLS guidance (ISO/IEC, 2015) are available in Appendix G.2, with the interim conclusions from such first stage of pre-testing available below.

Interim conclusions of pre-testing with HLS guidance (ISO/IEC, 2015)

- The ABSI model, (i.e., the I/S and B/S components as adapted from Peterson and Fabozzi, 2012) allowed to organize the HLS guidance (ISO/IEC, 2015), as depicted in Appendix G.2.
- A critical element for effective juxtaposition of HLS clauses or sub-clauses next to the I/S and B/S components, was the inclusion of the rationale for such juxtapositions, entered under the column 'Justification'. The justification, even if brief, can allow the analyst to organize their thoughts and rationale for matching one or more HLS sub-clauses to the corresponding I/S and B/S components.
- It was considered acceptable that not all I/S or B/S accounts or line-items had to be matched to one or more HLS sub-clauses; for example, 'Interest expense' and 'Taxes', both components of the I/S were left unmatched. A possible explanation for the lack of juxtapositions could be that the HLS guidance (ISO/IEC, 2015) is very generic, and both 'Interest expense' and 'Taxes', preconceived to accommodate sub-clauses that could represent the 'cost of doing business' or 'transfers of value to third parties, analogous to the government', respectively, are less likely to be used with the HLS generic guidance than with actual MSSs that may contain more specific or detailed (and likely more numerous) guidance or requirements.
- Similarly, the ABSI model displayed flexibility, since it could accommodate additional accounts or line-items, such as 'Short term bank loan' and 'Treasury stock', aiming to enable a more appropriate juxtaposition of sub-clauses.

The second stage of the pre-testing involved the juxtaposition of the "flagship" standards, namely ISO 9001 (2015c) and ISO 14001 (2015a), as explained in the next subsection.

8.2.2.2 Pre-test ABSI model by structuring requirements of ISO 9001 and ISO 14001

While the first stage of the pre-testing aimed to assess whether the 'new structure' of recent and future MSSs, i.e., the HLS guidance (ISO/IEC, 2015), could be organized as per the I/S and B/S

components (i.e., the ABSI model); the second stage of pre-testing sought to organize the contents of two actual MSSs, namely ISO 9001 (2015c) and ISO 14001 (2015a).

On the one hand, ISO 9001, Quality Management Systems – Requirements (2015c), provides requirements that organizations can implement aiming to ensure that products and services *"meet customer and applicable statutory and regulatory requirements"*, while also aiming to "facilitate opportunities to enhance customer satisfaction […,] address risks and opportunities […, and] be able to demonstrate conformity to quality management system requirements" (ISO, 2015c, p. vii). On the other hand, ISO 14001, Environmental Management Systems – Requirements with guidance for use (2015a), specifies "requirements that enable an organization to achieve the intended outcomes it sets for its environmental management system" (ISO, 2015a, p. vi).

The method and results related to the pre-testing of the ABSI model with the two assimilating (AS) MSSs (as per Karapetrovic's [2005] classification), namely ISO 9001 (2015c) and ISO 14001 (2015a) are available in Appendix G.3, with the conclusions from such second phase of pre-testing available below.

Conclusions of pre-testing with ISO 9001 (2015c) and ISO 14001 (2015a)

- The ABSI model allowed to organize the requirements from ISO 9001 (2015c) and ISO 14001 (2015a), even when both MSSs contained significantly more clauses than the HLS used in the first stage of pre-testing, e.g., ISO 9001 (2015c) contained 28 sub-clauses and 38 sub-sub-clauses, while the HLS (ISO/IEC, 2015), only contained 20 sub-clauses and no sub-sub-clauses.
- The common structure used by ISO 9001 and ISO 14001 was evidenced during the juxtaposition since sub-clauses from sections 4, 5, 6, 7, 9, and 10 were almost identically juxtaposed for both MSSs. In other words, only certain sub-clauses of section 8 in both ISO 9001 (2015c) and ISO 14001 (2015a) were juxtaposed to different I/S components, evidencing how operational requirements of MSSs may have different characteristics as a result of their different function or purpose. Nevertheless, sub-*clause 8.1 Operational planning and control* was juxtaposed to 'Cash' in the B/S for both ISO 9001 and ISO 14001, following the interpretation that planning for the operation of the respective MS (i.e., QMS and EMS respectively) will allow for the performance of the operational

activities of said MS, just like 'cash' allows for the business operation, for example, by allowing the purchasing of raw materials and paying labour.

- After the pre-testing of the ABSI model, it was recognized that the juxtaposition of MSS sub-clauses to I/S and B/S components could be considered too subjective an endeavor. As a result, a document called "Guidance for juxtaposition of MSS requirements to I/S and B/S components" was developed. Such document provides the following: guidance for juxtaposing MSS sub-clauses, statements describing important relationships between B/S and I/S components that would be helpful to keep in mind when juxtaposing MSS requirements or guidelines, and examples of juxtaposed elements from AUG MSSs (i.e., ISO 10002 and ISO 10003) and AS MSSs (i.e., ISO 9001 and ISO 14001). The "Guidance for juxtaposition…" is available in Appendix G.1.3.

The ABA technique, which allows to probe relationships between SMS components, was not pre-tested because MS data available was limited (i.e., CSO's PCRP) and a decision was made to use the data during the verification as opposed to during pre-testing.

After the ABSI model had been pre-tested with the sections and subsections from the HLS, and the requirements from ISO 9001 (2015c) and ISO 14001 (2015a), the ABSI model was deemed to be preliminary ready. Then, the ABSI model was verified with the guidance from two AUG MSSs, namely ISO 10002 (2014) and ISO 10003 (2007), aiming to assess conformance of the model to design requirements. Subsequently, the ABA technique was verified with data from the CSO's PCRP (CSO, 2009a). The verification of the ABSI model is presented next, followed by the verification of the ABA technique.

8.2.3 Verification of ABSI model

The objective of the verification of the ABSI model was to assess if the model allowed "to structure MSS requirements and to facilitate MSS requirement integration".

The ABSI model, after changes from the pre-testing stage, was verified by using the guidance from two MSSs, namely ISO 10002 (2014) and ISO 10003 (2007). Such two MSSs can be considered as augmenting (AUG MSSs) (Karapetrovic, 2005) because they provide guidance for specific processes or functions within a MS (i.e., complaints handling (CH) process and dispute resolution (DR) process, respectively), therefore 'augmenting' the capabilities of the

organization. Another reason for selecting AUG MSSs for the verification was to have a set of MSS with a different structure than the AS MSSs used during pre-testing: for example, ISO 10002 (2014) and ISO 10003 (2007) follow the structure *"Plan – Design – Operate – Maintain – Improve"* (Karapetrovic, 2007); while ISO 9001 follows the *"process approach that incorporates the 'Plan – Do – Check – Act' (PDCA) cycle and risk-based thinking"* (ISO, 2015c), and ISO 14001 the *"PDCA model"* (2015a), the latter two further structured as per the HLS (ISO/IEC, 2015). Next, the first step of the verification is presented.

8.2.3.1 Structure guidance of ISO 10002 as per ABSI model

The first step of the verification of the model consisted of structuring the guidance from ISO 10002, Guidelines for complaints-handling in organizations (2014), as per the ABSI model (i.e., through juxtaposition to I/S and B/S components, including justifications for such juxtapositions). Notes and observations were recorded, and interim conclusions were drawn. Then, the guidance from a second AUG MSS was juxtaposed next to that of ISO 10002 (2014), as summarized in the next subsection.

8.2.3.2 Structure guidance of ISO 10003 as per ABSI model

A second AUG MSS, namely ISO 10003, Guidelines for dispute resolution external to organizations (2007), was structured as per the ABSI model, next to the first (i.e., ISO 10002, 2014). Differences between the juxtaposition of the second MSS and the first (i.e., ISO 10003 and ISO 10002, respectively) were identified and discussed. Table 28 and Table 29 illustrate the juxtaposition of the guidance from ISO 10002 (2014) and ISO 10003 (2007).

After juxtaposing the guidance from ISO 10002 (2014) and ISO 10003 (2007), the following interim conclusions were drawn:

- The sub-clauses from the two AUG MSS (i.e., ISO 10002 and ISO 10003) were successfully juxtaposed, with justifications provided, to the I/S and B/S components.
- The number of sub-clauses and sub-sub-clauses from ISO 10002 (2014) and ISO 10003 (2007) are significantly less than for ISO 9001 (2105b) and ISO 14001 (2015a); as such, certain I/S and B/S components were left unused.
    - Such occurrence was not deemed a disadvantage, because it solely reflects that the structure used, i.e., the ABSI model, has a certain capacity that may not be fully used

at all times. Conversely, the unused components of the I/S and B/S could be interpreted as opportunities for adding components to a MS (such as 'Auditing' (ISO 9001, 14001, 10002) when 'Treasury stock' is not used (as for ISO 10003) or 'Actions to address risks and opportunities' (ISO 9001, 14001) when 'Accounts payable' may not be used (as for ISO 10002 and 10003).

- Empty spaces or blanks after juxtaposition could also be the result of the MSS having been composed with a lower level of resolution, i.e., that certain items are not broken down at the same level of detail as in other MSSs; for example, how ISO 10002 (2014) does not specify 'Competence' as an intangible resource (like ISO 9001, 2015c, does in sub-clause 7.2), but just mentions 'training' under sub-clause *6.4 Resources* (ISO, 2014).

Following the juxtaposition of the second AUG MSS, guidance of both MSSs were integrated as briefly discussed below.

8.2.3.3 Integrate guidance of ISO 10002 and ISO 10003 using IUMSS methodology

After having juxtaposed the guidance of both MSSs, i.e., ISO 10002 (2014) and ISO 10003 (2007), the guidelines were examined for commonalities. As per the IUMSS methodology (2008a), certain guidelines of ISO 10002 (2014) and ISO 10003 (2007) were identified as common for both MSSs; while others were found to be unique; and still others that shared similarities were harmonized. Table 28 and Table 29 illustrate the identification of commonalities between guidelines, while details about the identification of commonalities and harmonization (mostly using the 'maximum' approach, ISO, 2008a, p. 98) are presented in Appendix G.4.

Table 28 - Commonalities between ISO 10002/3, and mapping of CSO's PCRP to ISO 10002 (I/S)

Income Statement				
I/S component	**ISO 10002 (2014)**	**ISO 10003 (2007)**		**CSO's PCRP (CSO, 2009a)**
Name[a]	**Sub clause**	**Sub clause**	**Common / unique / harmonization approach**	**Mapping of ISO 10002 (2014) guidance to PCRP component (originally in table 'Gap analysis result' in Chapter 4, but re-arranged herein to illustrate mapping via ABSI model)**
Sales	7.7 Response to complaints 7.8 Communicating the decision 7.9 Closing complaints	7.5 Resolution of dispute (incl. sub sub clauses) 7.6 Implementation of resolution 7.7 Closing the file	10002: 7.7 & 10003: 7.6 - harmonized, maximal 10002: 7.8,7.9 & 10003: 7.7 - common	- 7.7 Response to complaints: addressed under 'Action' and 'Resolution of a concern' of the section 'Fundamental Activities of the PCRP' (p. 9); and in 'Documentation' of the role description of PCC (p. 13) - 7.8 Communicating the decision: addressed under 'Communication' of the section 'Fundamental Activities of the PCRP' (p. 9) - 7.9 Closing the complaint: addressed under 'Documentation' in the section 'Fundamental Activities of the PCRP' in p. 9; and in the roles of the PCO; and the possibility of involvement of the [Provincial] Ombudsman
Cost of goods sold [COGS]	7.2 Receipt of complaints 7.3 Tracking of complaints 7.4 Acknowledgement of complaints 7.5 Initial assessment of complaints 7.6 Investigation of complaints	7.2 Complaint referral 7.3 Receipt of dispute notice 7.4 Formulation of the organization's response (incl. sub sub clauses)	10002: 7.2, 7.3 & 10003: 7.2 - common 10002: 7.4 & 10003: 7.3 - common 10002: 7.5 - unique 10002: 7.6 & 10003: 7.4 - common	- 7.2 Receipt of complaint: addressed by sub section 'Communication' in the role descriptions of the PFIC/PCC (p. 12); and in sub section 'Concerns Intake & Data Team File Processes' (p.1) related to the electronic database. - 7.3 Tracking of complaint: addressed by "Patient Feedback Form", the use of the electronic database; and sub section 'Documentation' in the role description of the PCC (p. 13) - 7.4 Acknowledgement of complaint: addressed by sub section 'Communication' in the role descriptions of the PFIC and PCC (p. 12); and objective in place to to acknowledge complaint within "3 business days" - 7.5 Initial assessment of complaint: addressed by sub section 'Initiation of follow-up' in the role descriptions of the PFIC who "initiates follow up to concern by notifying PCC or PCDir of any associated urgency/risk" (p. 12) - 7.6 Investigation of complaints: addressed by sub section 'Coordination' in the role description of the PCC
Gross profit	*N/A - Intermediate step to accommodate an arithmetic operation*			
Depreciation				
Selling, general, and administrative expenses [SG&A]	7.1 Communication	Annex D (normative) - Guide on accessibility Annex I (normative) - Guide on transparency 7.1 General (Operations)	10002: 7.1 & 10003: Annex D - common 10003: Annex I - unique 10003: 7.1 - unique	7.1 Communication: satisfied by online websites; as well as the online PDFs; also during one-one-one communication between the PFIC/PCC and the complainant (pp. 12-13)
Operating profit	*N/A - Intermediate step representing an arithmetic operation*			
Interest expense	8.2 Analysis and evaluation of complaints	8.2 Analysis and evaluation	10002: 8.2 & 10003: 8.2 - common	8.2 Analysis and evaluation of complaints: evidenced by the use of Categories table (Measurement & Reporting of Feedback) in p. 31; and 'Reporting and Trending' sub section in the role description of the PCDirs in p. 14; and under 'Determination and Action' of the 'Fundamental Activities of the PCRP' section in p. 9
Income before taxes	*N/A - Intermediate step representing an arithmetic operation*			
Taxes	8.3 Satisfaction with the complaints-handling process		10002: 8.3 - unique	8.3 Satisfaction with the CH process: evidenced by second screen shot in p. 3 of the Concerns Intake & Data Team File Processes document; and under 'Resolution of a concern' of the 'Fundamental Activities of the PCRP' section in p. 9
Net income	8.1 Collection of information 8.4 Monitoring of the complaints-handling process	8.1 Monitoring	10002: 8.1, 8.4 & 10003: 8.1 - harmonized, maximal	- 8.1 Collection of information: addressed by Electronic Database (CSO 2007); role description of the PCC in p. 12; and by results on the objectives of the PCRP identified in the 2008-2009 POCSO Annual Report - 8.4 Monitoring of the CH process: evidenced by weekly or biweekly meetings between PCDirs and the PCED; performance indicators and targets pertaining the PCRP in the POCSO Annual Report p. 32; and by reports generated every quarter for Top Management (according to interviews with directors)

[a] Components names and definitions from Peterson and Fabozzi (2012), Analysis of Financial Statements, 3rd Edition, Wiley, New Jersey,

Table 29 - Commonalities between ISO 10002/3, and mapping of CSO's PCRP to ISO 10002 (B/S)

Balance Sheet					
TYPE	B/S component	ISO 10002 (2014)	ISO 10003 (2007)		CSO's PCRP (CSO, 2009a)
	Name[b]	Sub clause / Sub sub clause	Sub clause / Sub sub clause	Common / unique / harmonization approach	Mapping of ISO 10002 (2014) guidance to PCRP component (originally in table 'Gap analysis result' in Chapter 4, but re-arranged herein to illustrate mapping via ABSI model)
ASSETS	**Current Assets**				
	Cash	6.1 General [Planning and design]	6.1 General [Planning, design and development]	10002: 6.1 & 10003: 6.1 - common	6.1 General: evidenced by the PCRP document (QPI 2009a) including the PCRP algorithm (p. 17) and the supporting flowcharts (pp. 18-21)
	Accounts Receivable				
	Inventory	6.3 Activities	6.3 Activities 6.3.1 Diagnosis 6.3.2 Design 6.3.3 Testing	10002: 6.1 & 10003: 6.1 - harmonized, maximal	6.3 Activities: evidenced by the effort made by the CSO's three sub-units to understand each other's processes and to harmonize them (from interviews)
	Non-current				
	Property, Plant and Equipment [PPE]	6.4 Resources	6.4 Resources	10002: 6.4 & 10003: 6.4 - common	6.4 Resources: addressed by the fact that the CSO exists with facilities, people, equipment to operate the PCRP; in addition to the training and education that staff receive.
	Less accumulated depreciation				
	Net property, plant and equipment				
	Intangible assets				
LIABILITIES	**Current Liabilities**				
	Short term bank loans	6.2 Objectives	6.2 Objectives	10002: 6.2 & 10003: 6.2 - common	6.2 Objectives: results on select few objectives of the PCRP were identified in the 2008-2009 POCSO Annual Report
	Accounts payable				
	Current maturities of long-term debt	5.3 Responsibility and authority	5.3 Top management responsibilities	10002: 5.3 & 10003: 5.3 - common	5.3 Responsibility and authority: satisfied with role and process descriptions in CSO 2009a
	Long term				
	Long Term Debt [LTD]	5.2 Policy	5.2 Dispute-resolution policy 5.2.1 Policy establishment 5.2.2 Policy review 5.2.3 Policy consistency	10002: 5.2 & 10003: 5.2 - common	5.2 Policy: addressed by elements in documentation ("Overview" and "Foundational tenets" in CSO 2009a)
EQUITY	**Stakeholders'**				
	Common stock	5.1 Commitment	5.1 Commitment	10002: 5.1 & 10003: 5.1 - common	5.1 Commitment: realized by having PCRP in place (incl. documentation)
	Additional paid-in capital	4. Guiding principles	4 Guiding principles	10002: 4 & 10003: 4 - common	Matching principles available in document CSO 2009a (p. 5)
	Treasury Stock	8.5 Auditing of the complaints-handling process		10002: 8.5 - unique but could be applied to DR process	8.5 Auditing of the CH process: Audit of the PCRP (i.e., Boundary Audit) [Post gap closure]
	Retained Earnings	8.6 Management review of the complaints-handling process 8.7 Continual improvement	8.3 Management review 8.4 Continual improvement	10002: 8.6 & 10003: 8.3 - common 10002: 8.7 & 10003: 8.4 - common	- 8.6 Management review of the CH process: partially evidenced by performance indicators and targets pertaining to the PCRP as reported in the POCSO Annual Report (p. 32); and by reports generated every quarter for Top Management (according to interviews with directors) - 8.7 Continual improvement: partially addressed in section 'Overview: The Provincial Patient Concerns Resolution Process' in p. 8; and under 'Determination; of the 'Fundamental Activities of the PCRP' section in p. 9; and under 'Purpose' of the Patient Concerns Resolution Framework in p. 4

[b] B/S components and definitions adapted from Peterson and Fabozzi (2012), Analysis of Financial Statements, 3rd Edition, Wiley, New Jersey; unless otherwise noted

8.2.3.4 Map CSO's PCRP to ISO 10002 guidance

After the guidance had been integrated, the MS, namely the CSO's PCRP (CSO, 2009a) was mapped to the ISO 10002 guidelines. Such limitation (i.e., not having mapped against the ISO 10002/10003 integrated system) was required because the available PCRP data did not contain enough details about activities or sub-processes that relate to the DR process, and so ISO 10003 was not used during mapping.

As such, the results of mapping the CSO's PCRP on to ISO 10002 (2014) guidance, which were already presented in Chapter 4 in the table called "Gap analysis results (clauses)", have been re-arranged herein as per the I/S and B/S components, for two reasons:

- to examine if the ABSI model would facilitate the mapping step of the IUMSS methodology (ISO, 2008a), and
- to exemplify the mapping of the MS (i.e., CSO's PCRP) to the MSS (i.e., ISO 10002) as per the ABSI model so as to allow for the verification, and illustration, of the ABA technique in a subsequent methodological step (i.e., the following section).

Table 28 and Table 29 available in the previous two pages illustrate the mapping of the CSO's PCRP to the ISO 10002 guidance. Details about the mapping of the guidelines are presented in Appendix G.4; while conclusions from the verification of the ABSI model are presented below.

8.2.3.5 Conclusions from the verification of the ABSI model

- The ABSI model was effective in allowing the structuring and integration of guidelines (the latter using the IUMSS methodology (ISO, 2008a) from ISO 10002 (2014) and ISO 10003 (2007).
- The inclusion of 'justification' next to each juxtaposition was found to be a very helpful practice due to the following benefits:
    - to clarify the rationale for a juxtaposition
    - to serve as a record (i.e., guidance) when juxtaposing additional MSSs
    - to help ensure consistency in the logic used for juxtaposing MSS requirements to I/S and B/S components (i.e., horizontally), while also helping to preserve the relational connections across MSS requirements (i.e., vertically), especially when using and juxtaposing multiple MSSs.

    - to serve as fodder when preparing questions to assess SMS component during the ABA technique
- The use of AUG MSSs (i.e., ISO 10002 and ISO 10003), in addition to the AS MSSs used during pre-testing (i.e., ISO 9001 and ISO 14001) served to confirm that the ABSI model is flexible to be used:
    - with MSSs that follow different structures, e.g., "Plan – Design – Operate – Maintain – Improve" of ISO 10002 and ISO 10003 (Karapetrovic, 2007); and the "process approach that incorporates the 'Plan – Do – Check – Act' (PDCA) cycle and risk-based thinking" (ISO, 2015c) of ISO 9001 and ISO 14001.
    - with MSSs that contain different levels of detail, as evidenced by the differing levels of specificity with which different MSSs describe activities or resources
    - with MSSs that contain differing number of sub-clauses and annexes
- The ABSI model facilitated the integration and harmonization of guidelines from ISO 10002 and ISO 10003, but more importantly, provided a framework for a new interpretation where the juxtaposition served to identify possibilities to enhance the activities or sub-processes suggested by the sub-clauses. For instance, the realization of the importance in cross-training of personnel as a result of having integrated guidelines that refer to 'last-mile'[4] activities that involve the customer and were juxtaposed to 'Sales', such as 7.7 to 7.9 of ISO 10002 and 7.5 to 7.7 of ISO 10003; or the eye-opening finding that sub-clauses describing Management review and Continual improvement refer not to after-thought activities, but to rather cornerstone and value-adding ones, as evidenced when juxtaposed to 'Retained earnings'.
- In addition, the table used with the ABSI model, which allows the successive juxtaposition of additional MSSs, contributed to identifying commonalities among MSSs as a result not only of the name, content, or meaning of the sub-clauses themselves, but also of the inherent properties (as interpreted) that allowed the sub-clauses to be juxtaposed to one or another I/S or B/S component, e.g., 'last-mile' sub-clauses from different MSSs as juxtaposed to 'Sales' were easily integrated or harmonized; as were those that being proportional to the number of

[4] The term 'last-mile' is used to refer to MSS/MS activities or sub processes near the end of a process or system that involve the customer. The term 'last-mile' was borrowed from telecommunications and network jargon where it is used to refer to "the final phase […] to deliver or complete connectivity from a communications provider to an end customer" (Dong, 2007, p. 280).

products entering the MS or process were juxtaposed to 'COGS'; as were those that not being proportional to the level of activity of the MS were juxtaposed to 'SG&A'; or those that are continuously required but 'non-operational' were juxtaposed to 'Interest expense'.

In summary, the ABSI model was considered to be effective for structuring, and facilitating the integration, of MSS requirements. Next, the methodology of the verification of the Accounting-based Assessment (ABA) technique is presented.

8.2.4 Verification of ABA technique

The purpose of the verification of the ABA technique was to assess whether the ABA "allowed to examine SMS component interrelationships" (i.e., as per its intended design objective). The verification of the ABA technique used the CSO's PCRP (CSO, 2009a) as SMS data, and the method consisted of three distinct steps summarily presented below, but detailed in Appendix G.5. Next, the first step of the ABA technique verification is presented.

8.2.4.1 Identify financial ratios from the literature

Financial analysis resources were reviewed to identify financial ratios and their definitions (e.g., Flynn, 2009; Fraser and Ormiston, 2004; and Peterson and Fabozzi, 2012). The ratios from Fraser and Ormiston (2004) were selected due to the completeness of the presentation of the ratios and the clarity of the explanations.

8.2.4.2 Adapt the financial ratios using ISO 10002 guidelines and PCRP components

The financial ratios (Fraser and Ormiston, 2004) were first adapted by using the juxtaposed MSS guidance, i.e., ISO 10002 (2014); and then by using the correspondingly mapped MS components, i.e., the CSO's PCRP (CSO, 2009a). The adaptation was done by replacing the respective I/S and B/S components in the numerator and denominator of the financial ratio, first with the corresponding (i.e., as juxtaposed) ISO 10002 guidelines, and then with the appropriate (i.e., as mapped) PCRP components. Details and examples of the financial ratio adaptation are presented in Appendix G.5.

8.2.4.3 Use adapted ratios to prepare questions

After having adapted the financial ratios, questions were prepared with the purpose of assessing interrelationships between and amongst ratio *terms* (i.e., the numerator and denominator). It was determined that the questions could be classified as *inter-term* and *intra-term*, and an example of

each was presented. Then, responses to the questions were composed, as summarily explained in the next step. Examples of questions and corresponding responses are available in Appendix G.5.

8.2.4.4 Find answers to probing questions and provide recommendations

The last step of the ABA technique verification consisted of identifying methods to find answers to the probing questions. The methods used by audits were selected and mentioned as feasible alternatives for collecting evidence that would allow to answer the probing questions, i.e., 'document review', 'interviews', and 'observation' (e.g., ISO, 2011b; Russell, 2005).

Responses to the probing questions were composed by using the PCRP document as a reference (CSO, 2009a), and subsequent recommendations were made. Details about the responses and recommendations are presented in Appendix G.5; while conclusions from the verification of the ABA technique are presented below.

8.2.4.5 Conclusions from the verification of the ABA technique

- When adapting financial ratios a helpful intermediate step is to first adapt the ratios using the MSS components that had been juxtaposed to the I/S and B/S components. Then a second set of adapted financial ratios can be prepared using the MS components (as mapped to the MSS components). By following such two-step financial ratio adaptation, the assessment questions can be prepared with a clearer understanding of what the MS components represent (i.e., because the sub-clauses of the MSS are also shown in the corresponding adapted financial ratio), reminding the analyst the purpose of the components (of the MS on one hand, and of the MSS on the other) that are being interrelated by means of the adapted ratio.
- The ABA technique allows examining interrelationships among MS components. By means of adapted financial ratios that contain MS components in the numerator and denominator (i.e., the two constituting *terms* of the ratio), two types of assessment could be performed, i.e., inter-term and intra-term assessments.
- The importance of the ABA technique is in prompting change as a result of the assessment. In other words, the analyst should not to stop after asking probing questions suggested by the adapted financial ratios, or even after answering them, but rather in recommending actions that would help strengthen linkages between MS components, for example, by making

explicit references amongst components (i.e., mentioning in the policy that management review and auditing are specific tools that will be used to enable continual improvement).

- Results and recommendations arising from assessments such as the ABA technique could be inputs to the Management Review.

In summary, the ABA technique was considered to be effective in allowing the assessment of MS component interrelationships. The next section presents and illustrates the post-verification ABSI model and ABA technique.

8.3 Results

After having presented the method for developing, pre-testing and verifying the ABSI model and ABA technique, the ABSI model and ABA technique themselves are presented in this section.

8.3.1 ABSI Model

Figure 30 presents the steps for using the ABSI model to structure and integrate MSS requirements and to accommodate the mapping of MS components so that the latter could be subsequently used during the performance of the ABA technique. The ABSI model steps are explained and exemplified following the figure.

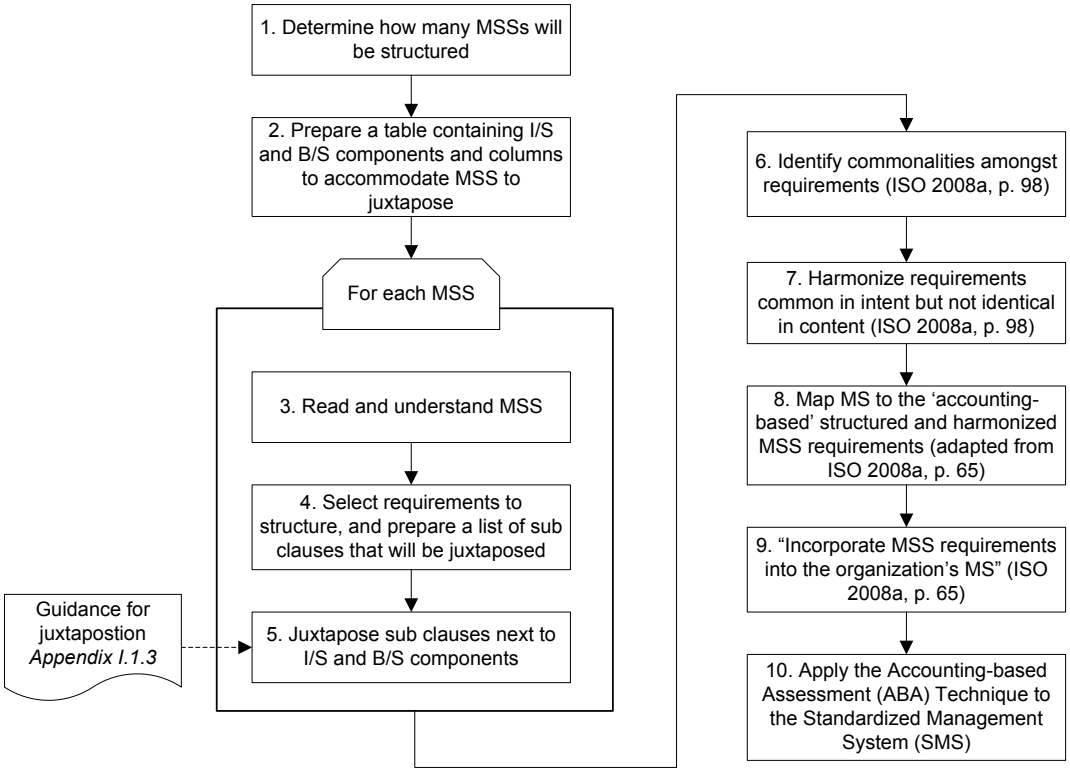


Figure 30 - ABSI model steps flowchart

8.3.1.1 Determine how many MSSs will be structured.

For example, two AUG MSSs, i.e., ISO 10002 (2014) and ISO 10003 (2007), could be chosen, since they represent guidance for a complaints handling (CH) process and for a dispute resolution (DR) process, respectively.

8.3.1.2 Prepare table containing I/S and B/S components and columns to accommodate MSSs

Prepare a table with the I/S and B/S components in the first set of columns, followed by as many additional sets (or pairs) of columns as MSSs will be juxtaposed. Each set of columns that will accommodate the juxtaposed MSSs requirements or guidelines should contain two columns, the first column to accommodate the sub-clause or sub-sub-clause, and the second column to accommodate a justification for the juxtaposition. A sample excerpt of such a table is available in Table 30 where the I/S and B/S components were taken from Peterson and Fabozzi (2012).

8.3.1.3 Read and understand the MSS

Read and understand the MSS, including "its purpose, application, context and content" (ISO, 2008a, p. 98).

8.3.1.4 Select requirements to structure and prepare a list of sub-clauses to juxtapose

"Identify requirements that will be applied in the organization" (ISO, 2008a, p. p. 98) and then prepare a list with the clauses and sub-clauses that will be organized as per the I/S and B/S components (e.g., copy and paste the table of contents of the standard into a new document and remove the sections that are not to be juxtaposed, which may include 1. Scope, 2. Normative references and 3. Terms, and some informative annexes). The analyst should decide whether supporting sections such as '4. Guiding Principles' of ISO 10002 (2014) and ISO 10003 (2007); as well as which, if any, informative and normative annexes will be structured.

Some informative annexes of MSSs are purely referential, such as Annexes A and B of ISO 9001 (2015c). Conversely, there are informative annexes that provide actual guidance, like Annexes B and D of ISO 10002 (2014), which provide templates that organizations could use as reference, adapt or directly adopt in their operations. Moreover, there also exist normative annexes which provide detailed guidance (as opposed to solely information), like Annex C and Annexes D to I of ISO 10003 (2007), the first of which provides detailed guidance emphasizing the voluntary nature of the dispute resolution process, the information that should be provided to the complainant, and options on when to provide such information; while the other six (i.e., Annexes

D to I of ISO 10003, 2007) provide guidance on how to operationalize the principles of accessibility, suitability, fairness, competence, timeliness and transparency, respectively. Thus, it is suggested to include 'normative' annexes in the juxtaposition, but leave the decision to the analyst whether to include 'informative' annexes in the structuring efforts.

8.3.1.5 Juxtapose sub-clauses next to I/S and B/S components

Using the list in step 8.3.1.4. above, and for each sub-clause or sub-sub-clause, juxtapose it to one I/S or B/S component under the appropriate set of columns in the table mentioned in step 2. above. Then, compose a justification that explains the rationale for the juxtaposition and enter it in the second column, next to the juxtaposed sub-clause or sub-sub-clause. The analyst could follow the advice below when juxtaposing the MSS requirements or guidance:

- Refer to the text of the MSS as support to clarify understanding and intent of the MSS sub-clauses and sub-sub-clauses when juxtaposing to the I/S and B/S components, and
- Use the document "Guidance for juxtaposition…", available in Appendix G.1.3, as reference during the juxtaposition of sub-clauses.

Table 30 presents sample excerpt (i.e., the I/S) of the juxtaposed guidance from ISO 10002 (2014) and ISO 10003 (2007), including justifications. For example, operational activities or sub-processes performed at the end of each process (i.e., CH and DR) and which involve interaction with the customer, also referred herein as 'last-mile' (i.e., 7.7, 7.8, and 7.9 of ISO 10002, and 7.5, 7.6, and 7.7 of ISO 10003, 2007) were juxtaposed to 'Sales' in the I/S. The rationale was that just like 'Sales' represent interactions with the customer, the 'last-mile' activities or sub-processes also involve interaction with the customer at the culmination of each respective process (i.e., when responding to a complaint and subsequent steps, and when resolving a dispute and subsequent steps).

8.3.1.6 Repeat sub-steps 3, 4, and 5 for any additional MSSs that ought to be juxtaposed

As the title indicates, for each MSS being implemented in an integrated manner, repeat steps:

3. Read and understand MSS,

4. Select requirements to structure and prepare a list of sub clauses that will be juxtaposed, and

5. Juxtapose sub-clauses next to I/S and B/S components.

Table 30 - ISO 10002 and ISO 10003 structured as per I/S components (Sample excerpt)

Income Statement					
I/S component		**First Juxtaposed MSS: ISO 10002 (2014)**		**Second Juxtaposed MSS: ISO 10003 (2007)**	
Name[a]	**Description[a]**	**Sub clause / Sub sub clause**	**Justification**	**Sub clause / Sub sub clause**	**Justification**
Sales	"Represent the amount of goods or services sold, in terms of price paid by customers."	7.7 Response to complaints 7.8 Communicating the decision 7.9 Closing complaints	Sub clauses 7.7, 7.8, and 7.9 were juxtaposed to 'Sales' because the three sub clauses represent the last activities or sub-processes of the Operational section, i.e., 'last-mile' activities, that involve interaction with the customer (akin to 'sales')	7.5 Resolution of dispute (incl. sub sub clauses) 7.6 Implementation of resolution 7.7 Closing the file	Sub clauses 7.5, 7.6, and 7.7 were juxtaposed to 'Sales' because the three sub clauses represent the last activities or sub-processes of the Operational section, i.e., 'last-mile' activities, that involve interaction with the customer (akin to 'sales')
Cost of goods sold [COGS]	"The amount of goods or services sold, in terms of cost to the firm."	7.2 Receipt of complaints 7.3 Tracking of complaints 7.4 Acknowledgement of complaints 7.5 Initial assessment of complaints 7.6 Investigation of complaints	Sub clauses 7.2 - 7.6 can be compared to 'COGS' (or 'direct costs') because they are performed as many times as complaints enter the CH process (i.e., they are dependent on the number of 'units' entering the process). In other words, just as direct costs increase or decrease with the units produced and sold; the processes represented by the juxtaposed sub clauses are performed with a frequency that is dependent on the number complaints entering the CH process.	7.2 Complaint referral 7.3 Receipt of dispute notice 7.4 Formulation of the organization's response (incl. sub sub clauses)	Sub clauses 7.2 Complaint referral, 7.3 Receipt of dispute notice, and 7.4 Formulation of the organization's response (incl. sub sub clauses) were juxtaposed to 'COGS' because the sub clauses describe activities that are performed 'variably', i.e., with relation to the number of complaints received.
Gross profit	"The difference between sales and cost of goods sold."	*N/A - Intermediate step to accommodate an arithmetic operation*			
Depreciation	"Used to allocate the cost of assets"				
Selling, general, and administrative expenses [SG&A]	"Salaries, administrative, marketing expenditures, etc."	7.1 Communication	Sub clause 7.1 Communication is juxtaposed to 'SG&A' because regardless of the number of complaints received, 'Communication' of the CH-process has to take place via 'brochures, pamphlets or electronic-based communication'. Therefore, the sub clause is juxtaposed to 'SG&A', also called 'fixed' or 'overhead' expenses.	Annex D (normative) - Guide on accessibility Annex I (normative) - Guide on transparency 7.1 General (Operations) 7.1 General (Operations)	Sub clause 7.1 General (Operations) is juxtaposed to 'SG&A' because the sub clause provides the underlying advise that the organization "apply its procedures for dispute resolution in a fair, efficient and effective manner" and that "where necessary, the provider and organization should adjust their operational procedures to ensure coordination..." (ISO 2007, p. 8). Such guideline could be considered as 'overhead' or 'fixed' because it provides advice on 'fixed' characteristics of the DR process: i.e., fairness, efficiency, effectiveness, and flexibility. Annexes D and I are juxtaposed to SG&A because the specify accessibility and transparency guidelines that ought to be in place regardless of the number of disputes entering the DR process
Operating profit	"Income from operations..."	*N/A - Intermediate step representing an arithmetic operation*			
Interest expense	"Interest paid on debt."	8.2 Analysis and evaluation of complaints	'Interest expense' represents the cost of borrowing money, and sub clause 8.2 Analysis and evaluation of complaints could be equated to a 'financial cost' because just like borrowing money allows the operation of the business, analyzing and evaluating information of the CH-process could be considered a non-operating cost to the organization.	8.2 Analysis and evaluation	'Interest expense' represents the cost of borrowing money, and sub clause 8.2 Analysis and evaluation could be equated to a 'financial cost' because just like borrowing money allows the operation of the business, analyzing information of the DR-process could be considered an essential, yet non-operating, cost to the organization.
Income before taxes	"Earnings before taxes."	*N/A - Intermediate step representing an arithmetic operation*			
Taxes	"Taxes expense for the current period."	8.3 Satisfaction with the complaints-handling process	Just like 'taxes expense' refers to money paid to the government as a proportion of the income generated (after all prior expenses), 'Satisfaction with CH process' represents the effort of the organization to "determine the level of satisfaction of complainants with the complaints-handling process." In other words, just like a business has to relinquish a part of the profits to the government, an organization with a CH process needs to spend (or allocate) resources monitoring complainant satisfaction with the CH process.		
Net income	"Operating profit less financing expenses (e.g., interest) and taxes."	8.1 Collection of information 8.4 Monitoring of the complaints-handling process	Just as 'Net income' represents the value generated by the business operation; sub clauses 8.1 Collection of information and 8.4 Monitoring of the CH process, will enable collection and monitoring of information aobut CH and its performance (e.g., Annex G). Such information (just like 'Net income') will be an input into Management Review (juxtaposed to 'Retained Earnings' in the B/S)	8.1 Monitoring	Just as 'Net income' represents the value generated by the business operation, sub clause 8.1 Monitoring, advises to "collect and record information on the nature, progress, and results of all disputes" (ISO 2007, p. 11). Such information (just like 'Net income') will be an input into Management Review (juxtaposed to 'Retained Earnings' in the B/S)

[a] Components names and definitions from Peterson and Fabozzi (2012), Analysis of Financial Statements, 3rd Edition, Wiley, New Jersey,

8.3.1.7 "Identify the commonalities amongst requirements" (ISO, 2008a, p. 98)

Commonalities between guidance from ISO 10002 (2014) and ISO 10003 (2007) can be easily identified because both standards follow the same structure and contain sections and sub-clauses identically or similarly named. In addition to the common names, the intent of the clauses is similar (for each according to their corresponding process, CH or DR). Table 31 and Table 32 illustrate the identification of commonalities between the guidance from the two MSSs, i.e., whether certain sub-clauses from both MSSs are common, unique or have been harmonized (with more details about harmonization provided in the next step)

8.3.1.8 "Harmonize requirements common in intent but not identical" (ISO, 2008a, p. 98)

"Where there are differences, the organization needs to make a decision to incorporate either the most comprehensive or the minimum shared level of detail as the basis to integrate the requirements" (ISO, 2008a, p. 98). Harmonization of certain sub-clauses (as identified in Table 31 and Table 32) of ISO 10002 (2014) and ISO 10003 (2007) included using the detailed guidance in 7.6 of ISO 10003 (2007) to enhance the guidance in 7.7 of ISO 10002 (2014). The former sub-clause provides a series of six detailed steps that break down the activities that should be undertaken when implementing a resolution (ISO 10003 (2007, p. 11), which can be adapted in a complaints-handling process, approach likely to contribute to the effectiveness of the implementation of complaint responses. More examples of harmonization of guidance from ISO 10002 (2014) and ISO 10003 (2007) are provided in Appendix G.4.

8.3.1.9 Map the MS to the 'accounting-based' structured and harmonized MSS requirements

The next step is to map the MS to the 'accounting-based' structured and harmonized MSS requirements, as adapted from the IUMSS (ISO, 2008a, p. 65). After the guidance had been integrated (i.e., through commonalities or harmonization) for ISO 10002 (2014) and ISO 10003 (2007), the next step was to map the MS (i.e., the CSO's PCRP). Since the PCRP documentation contains mostly details about the CH process, and only certain references to the escalation process to the [Provincial] Ombudsman, it was considered that not enough data was available to map the PCRP to the guidance from ISO 10003 (2007). Therefore, only the guidance from ISO 10002 (2014) was used for mapping of the CSO's PCRP (i.e., no mapping was done of the guidance from ISO 10003, even if such guidance had been structured and integrated for illustration purposes of the ABSI model).

Table 31 - Commonalities between ISO 10002/3, and mapping of CSO's PCRP to ISO 10002 (I/S)

Income Statement				
I/S component	ISO 10002 (2014)	ISO 10003 (2007)		CSO's PCRP (CSO, 2009a)
Name[a]	Sub clause	Sub clause	Common / unique / harmonization approach	Mapping of ISO 10002 (2014) guidance to PCRP component (originally in table 'Gap analysis result' in Chapter 4, but re-arranged herein to illustrate mapping via ABSI model)
Sales	7.7 Response to complaints 7.8 Communicating the decision 7.9 Closing complaints	7.5 Resolution of dispute (incl. sub sub clauses) 7.6 Implementation of resolution 7.7 Closing the file	10002: 7.7 & 10003: 7.6 - harmonized, maximal 10002: 7.8,7.9 & 10003: 7.7 - common	- 7.7 Response to complaints: addressed under 'Action' and 'Resolution of a concern' of the section 'Fundamental Activities of the PCRP' (p. 9); and in 'Documentation' of the role description of PCC (p. 13) - 7.8 Communicating the decision: addressed under 'Communication' of the section 'Fundamental Activities of the PCRP' (p. 9) - 7.9 Closing the complaint: addressed under 'Documentation' in the section 'Fundamental Activities of the PCRP' in p. 9; and in the roles of the PCO; and the possibility of involvement of the [Provincial] Ombudsman
Cost of goods sold [COGS]	7.2 Receipt of complaints 7.3 Tracking of complaints 7.4 Acknowledgement of complaints 7.5 Initial assessment of complaints 7.6 Investigation of complaints	7.2 Complaint referral 7.3 Receipt of dispute notice 7.4 Formulation of the organization's response (incl. sub sub clauses)	10002: 7.2, 7.3 & 10003: 7.2 - common 10002: 7.4 & 10003: 7.3 - common 10002: 7.5 - unique 10002: 7.6 & 10003: 7.4 - common	- 7.2 Receipt of complaint: addressed by sub section 'Communication' in the role descriptions of the PFIC/PCC (p. 12); and in sub section 'Concerns Intake & Data Team File Processes' (p.1) related to the electronic database. - 7.3 Tracking of complaint: addressed by "Patient Feedback Form", the use of the electronic database; and sub section 'Documentation' in the role description of the PCC (p. 13) - 7.4 Acknowledgement of complaint: addressed by sub section 'Communication' in the role descriptions of the PFIC and PCC (p. 12); and objective in place to to acknowledge complaint within "3 business days" - 7.5 Initial assessment of complaint: addressed by sub section 'Initiation of follow-up' in the role descriptions of the PFIC who "initiates follow up to concern by notifying PCC or PCDir of any associated urgency/risk" (p. 12) - 7.6 Investigation of complaints: addressed by sub section 'Coordination' in the role description of the PCC
Gross profit	*N/A - Intermediate step to accommodate an arithmetic operation*			
Depreciation				
Selling, general, and administrative expenses [SG&A]	7.1 Communication	Annex D (normative) - Guide on accessibility Annex I (normative) - Guide on transparency 7.1 General (Operations)	10002: 7.1 & 10003: Annex D - common 10003: Annex I - unique 10003: 7.1 - unique	7.1 Communication: satisfied by online websites; as well as the online PDFs; also during one-one-one communication between the PFIC/PCC and the complainant (pp. 12-13)
Operating profit	*N/A - Intermediate step representing an arithmetic operation*			
Interest expense	8.2 Analysis and evaluation of complaints	8.2 Analysis and evaluation	10002: 8.2 & 10003: 8.2 - common	8.2 Analysis and evaluation of complaints: evidenced by the use of Categories table (Measurement & Reporting of Feedback) in p. 31; and 'Reporting and Trending' sub section in the role description of the PCDirs in p. 14; and under 'Determination and Action' of the 'Fundamental Activities of the PCRP' section in p. 9
Income before taxes	*N/A - Intermediate step representing an arithmetic operation*			
Taxes	8.3 Satisfaction with the complaints-handling process		10002: 8.3 - unique	8.3 Satisfaction with the CH process: evidenced by second screen shot in p. 3 of the Concerns Intake & Data Team File Processes document; and under 'Resolution of a concern' of the 'Fundamental Activities of the PCRP' section in p. 9
Net income	8.1 Collection of information 8.4 Monitoring of the complaints-handling process	8.1 Monitoring	10002: 8.1, 8.4 & 10003: 8.1 - harmonized, maximal	- 8.1 Collection of information: addressed by Electronic Database (CSO 2007); role description of the PCC in p. 12; and by results on the objectives of the PCRP identified in the 2008-2009 POCSO Annual Report - 8.4 Monitoring of the CH process: evidenced by weekly or biweekly meetings between PCDirs and the PCED; performance indicators and targets pertaining the PCRP in the POCSO Annual Report p. 32; and by reports generated every quarter for Top Management (according to interviews with directors)

[a] Components names and definitions from Peterson and Fabozzi (2012), Analysis of Financial Statements, 3rd Edition, Wiley, New Jersey,

Table 32 - Commonalities between ISO 10002/3, and mapping of CSO's PCRP to ISO 10002 (B/S)

Balance Sheet					
TYPE	B/S component	ISO 10002 (2014)	ISO 10003 (2007)		CSO's PCRP (CSO, 2009a)
	Name[b]	Sub clause / Sub sub clause	Sub clause / Sub sub clause	Common / unique / harmonization approach	Mapping of ISO 10002 (2014) guidance to PCRP component (originally in table 'Gap analysis result' in Chapter 4, but re-arranged herein to illustrate mapping via ABSI model)
ASSETS	**Current Assets**				
	Cash	6.1 General [Planning and design]	6.1 General [Planning, design and development]	10002: 6.1 & 10003: 6.1 - common	6.1 General: evidenced by the PCRP document (QPI 2009a) including the PCRP algorithm (p. 17) and the supporting flowcharts (pp. 18-21)
	Accounts Receivable				
	Inventory	6.3 Activities	6.3 Activities 6.3.1 Diagnosis 6.3.2 Design 6.3.3 Testing	10002: 6.1 & 10003: 6.1 - harmonized, maximal	6.3 Activities: evidenced by the effort made by the CSO's three sub-units to understand each other's processes and to harmonize them (from interviews)
	Non-current				
	Property, Plant and Equipment [PPE]	6.4 Resources	6.4 Resources	10002: 6.4 & 10003: 6.4 - common	6.4 Resources: addressed by the fact that the CSO exists with facilities, people, equipment to operate the PCRP; in addition to the training and education that staff receive.
	Less accumulated depreciation				
	Net property, plant and equipment				
	Intangible assets				
LIABILITIES	**Current Liabilities**				
	Short term bank loans	6.2 Objectives	6.2 Objectives	10002: 6.2 & 10003: 6.2 - common	6.2 Objectives: results on select few objectives of the PCRP were identified in the 2008-2009 POCSO Annual Report
	Accounts payable				
	Current maturities of long-term debt	5.3 Responsibility and authority	5.3 Top management responsibilities	10002: 5.3 & 10003: 5.3 - common	5.3 Responsibility and authority: satisfied with role and process descriptions in CSO 2009a
	Long term				
	Long Term Debt [LTD]	5.2 Policy	5.2 Dispute-resolution policy 5.2.1 Policy establishment 5.2.2 Policy review 5.2.3 Policy consistency	10002: 5.2 & 10003: 5.2 - common	5.2 Policy: addressed by elements in documentation ("Overview" and "Foundational tenets" in CSO 2009a)
EQUITY	**Stakeholders'**				
	Common stock	5.1 Commitment	5.1 Commitment	10002: 5.1 & 10003: 5.1 - common	5.1 Commitment: realized by having PCRP in place (incl. documentation)
	Additional paid-in capital	4. Guiding principles	4 Guiding principles	10002: 4 & 10003: 4 - common	Matching principles available in document CSO 2009a (p. 5)
	Treasury Stock	8.5 Auditing of the complaints-handling process		10002: 8.5 - unique but could be applied to DR process	8.5 Auditing of the CH process: Audit of the PCRP (i.e., Boundary Audit) [Post gap closure]
	Retained Earnings	8.6 Management review of the complaints-handling process 8.7 Continual improvement	8.3 Management review 8.4 Continual improvement	10002: 8.6 & 10003: 8.3 - common 10002: 8.7 & 10003: 8.4 - common	- 8.6 Management review of the CH process: partially evidenced by performance indicators and targets pertaining to the PCRP as reported in the POCSO Annual Report (p. 32); and by reports generated every quarter for Top Management (according to interviews with directors) - 8.7 Continual improvement: partially addressed in section 'Overview: The Provincial Patient Concerns Resolution Process' in p. 8; and under 'Determination; of the 'Fundamental Activities of the PCRP' section in p. 9; and under 'Purpose' of the Patient Concerns Resolution Framework in p. 4

[b] B/S components and definitions adapted from Peterson and Fabozzi (2012), Analysis of Financial Statements, 3rd Edition, Wiley, New Jersey; unless otherwise noted

Table 31 and Table 32 also illustrate the mapping of the CSO's PCRP to the ISO 10002 (2014) guidance. Such mapping was already presented in Chapter 4 in the table called "Gap analysis results (clauses)"; however, in this section, the mapping results have been re-arranged as per the ABSI model to illustrate mapping using the ABSI model, aiming to have MS components juxtaposed to the I/S and B/S components so that financial ratios can be adapted as per the ABA technique.

8.3.1.10 "Incorporate MSS requirements into the organization's MS" (ISO, 2008a, p. 65)

Proceed as per the IUMSS methodology (ISO, 2008a, p. 65) to "Incorporate MSS requirements into the organization's MS", i.e., by "analyzing gaps", "closing gaps", and "verifying gap closure", for example, by adding or modifying procedures, and then verifying implementation of corrective actions (ISO, 2008a).

8.3.1.11 Apply the ABA technique to the Standardized Management System

After having closed any existing gaps, the interrelationships between SMS (e.g., ISO 10002-conforming PCRP) components could be assessed using adapted financial ratios as suggested by the Accounting-based Assessment (ABA) technique. Since the CSO's PCRP has been juxtaposed to the I/S and B/S components, financial ratios could be adapted for the purpose of assessing PCRP component interrelationships, as explained in section 8.3.3 ABA technique.

Next, some potential benefits of using the ABSI model to structure and integrate MSS requirements or guidelines are presented.

Potential advantages of the ABSI model

The use of the ABSI model (i.e., the I/S and B/S components) to structure MSS guidelines or requirements could contribute the following benefits:

- Recognize characteristics of the guidance or requirements that may not be evident from the usual textual structure of the standards (i.e., the document containing the text as organized by sub-clauses), but that become evident from the structuring as per the I/S and B/S components.
    - For example, the realization that certain supporting components, such as *7.2 Competence* and *7.3 Awareness* could be considered as 'Intangible assets' (as per the

corresponding juxtaposition), could lead an organization to treat such components of MS-related knowledge as 'intangible assets' that provide competitive advantage to the organization and need to be protected, e.g., by ensuring that personnel feel appreciated and measures are in place to continue developing their talent.

- Similarly, certain controls or enhancements could be implemented into activities or sub-processes that had been juxtaposed to 'Sales' with the aim to ensure that interactions with the customer will be successful; for example, by training the personnel involved in responding to complaints, communicating the decision, and closing complaints (i.e., as suggested in sub-clauses 7.7, 7.8, and 7.9 of ISO 10002, respectively) in effective communication (like active listening) and descalation techniques. Such training could increase the probability that interactions with the customer will be successful.
- Also, operational activities or sub-processes juxtaposed to 'COGS' could be reinforced via redundancies, to ensure their correct performance, knowing that those activities or sub-processes will be performed in direct relation to the number of products entering the MS (e.g., complaints entering the CH process) or the number of times the customer is served.
- Likewise, activities or sub-processes juxtaposed to 'SG&A' could be sought to be designed with a special aim of permanence, since those activities or sub-processes had been identified as 'fixed' and therefore need to be in place regardless of the number of times a product enters the MS.
- Regarding the B/S, the arrangement of sub-clauses such as 'Commitment' (juxtaposed to 'Common stock'), 'Principles' (juxtaposed to 'Additional paid-in capital'), and 'Policy' (juxtaposed to 'LTD'), help to represent the supporting structure that enables the MS and that can accommodate the incorporation of additional MSSs, i.e., because the foundation is already in place. Such interpretation is also evident because the support components are located at the bottom of the B/S, visually conveying the sense of a 'foundation' of a building or a house.
- 'Management review' and 'Continual improvement' (juxtaposed to 'Retained Earnings') represent the result of the continued effort of management with regards to the MS, just like compound interest allows to increases the value of the shareholders

of the company through the reinvestment of earnings. If 'Management Review' and 'Continual Improvement' are not carried out, the value generated by the MS will not be retained (e.g., *"opportunities for preventive and corrective actions or to improve the CH process and products offered"*, ISO 10002, 2014, p. 9).

- Another benefit of the ABSI model pertains to the natural extension of the analogy of the financial statements into financial analysis via ratios. Just like I/S and B/S components can be related via divisions, i.e., ratios, to identify interrelationships, the latter could also be examined among MS components. Such possibility has been explored during the development and verification of the Accounting-based Assessment (ABA) technique with the aim of probing interrelationships between MS components.
- Additional benefits, albeit not unique to the use of the ABSI model include the easiness to integrate the guidance or requirements as a result of having structured multiple MSSs as per a common model (i.e., the I/S and B/S components) which could contribute towards harmonization of common elements. For example, by using adjacent columns to structure MSS requirements as per the I/S and B/S components, the integration of the requirements could be more evident, especially for different MSS's structures, such as the HLS on one hand, and the previous structures on the other (e.g., ISO 10002, 2014 and ISO 10003, 2007).

The use of the ABSI model (i.e., the I/S and B/S components) to support the integration of MSS guidelines or requirements could contribute the following benefits:

- Integrated or harmonized requirements that have been juxtaposed to 'Sales' (i.e., deemed as 'last-mile' activities or sub-processes) could yield benefits such as ensuring that personnel that deal with customers are cross-trained in the corresponding [i.e., integrated] Management Systems or processes. Such cross-training efforts could yield increased performance effectiveness in addition to improvements in employee morale as a result of perceiving that management of the organization cares about and invests in their professional development
- Integrated or harmonized requirements that have been juxtaposed to 'COGS' (i.e., operational activities or sub-processes that are performed for example in direct proportion to the number of products entering the MS or process), can prompt management of the organization to design and deploy redundant measures to ensure the performance of such

critical SMS components, not only because they are essential to the performance of the process or system, but also because they represent vital links of initially different (but ultimately integrated) management systems. For example sub-clause *7.2 Receipt of complaints* and *7.3 Tracking of complaint*, both of ISO 10002 (2014) and *7.2 Complaint referral* of ISO 10003 (2007), as juxtaposed to 'COGS' in the ABSI model and considered 'common' after integration, could benefit from the following measures:

  - Ensuring that personnel are aware of both CH and DR processes so that customers or complainants can be referred to the appropriate intake or contact person (i.e., either within the CH process or DR process).
  - Instituting redundancies to error-proof intake and referral options. For example, CH process communications could offer CH as first option, but also mention DR as an alternative if the complainant prefers to by-pass the CH process and go straight for DR; while the DR provider could offer direct assistance for DR, while also suggesting the CH process as a preferred first alternative.

- Integrated or harmonized requirements that had been juxtaposed to 'SG&A' (e.g., operational activities or sub-processes needed irrespectively of the number of products entering the MS or process), can prompt management of the organization to carefully plan and implement such 'fixed' or 'overhead' MS components, looking for efficiencies. For example, by setting up communication methods that inform about the CH and DR jointly (i.e., as per sub-clause 7.1 of ISO 10002, and Annex D of ISO 10003, which due to their content can be deemed as 'common').
- Similarly, integrated or harmonized requirements that have been juxtaposed to 'Interest expense' (i.e., non-operational requirements that should be in place regardless of the level of process or system performance, just like interest represents the cost of borrowing money) can prompt management to seek to have shared equipment and resources to perform the 'analysis and evaluation' of CH and DR processes (i.e., as per 'common' sub-clause 8.2 Analysis and evaluation of both ISO 10002 and 10003).

Next, a short description of the methodology used with the ABSI model is presented.

8.3.2 ABSI model can be used with IUMSS methodology (ISO, 2008a)

The ABSI model can be used with IUMSS methodology (ISO, 2008a) for structuring and integrating MSS requirements, and to subsequently incorporate them into a MS via mapping, gap closure and verification of gap closure. After incorporating MSS requirements into a MS (the product of which could be referred to as a Standardized Management System, SMS), the interrelationships among components of the SMS can be examined using the ABA technique, as explained below.

8.3.3 ABA technique

The Accounting-based Assessment (ABA) technique allows the assessment of SMS-component interrelationships through the use of adapted financial ratios. A prerequisite for using the ABA technique is to have juxtaposed SMS components to I/S and B/S components, whether directly or indirectly as a result of having mapped the MS components to one or more MSS requirements which in turn may have been juxtaposed to the I/S and B/S components.

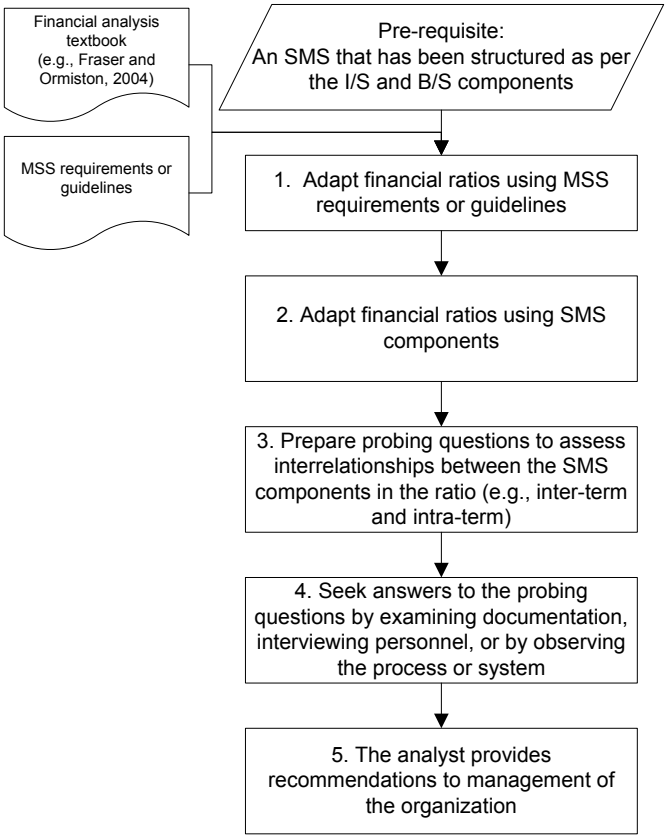


Figure 31 - ABA technique steps flowchart

8.3.3.1 *Adapt financial ratios using MSS requirements or guidelines*

The first step is to adapt financial ratios using the MSS requirements or guidelines that had been juxtaposed to the I/S and B/S components. Then, using the adapted financial ratios containing MSS requirements, financial ratios can also be adapted using the corresponding SMS components.

8.3.3.2 *Adapt financial ratios using SMS components*

Using the adapted financial ratios containing MSS requirements or guidelines as exemplars, financial ratios can also be adapted using SMS components. In other words, since the MSS requirements had been juxtaposed to I/S and B/S components, adapted financial ratios containing MSS requirements in the numerator and denominator can be used as guidance to prepare adapted financial ratios with SMS components. Figure 32 shows an example of an adapted financial ratio, namely "Net profit margin" in two variations: the first variation shows the ratio with ISO 10002 (2014) components, i.e., the MSS; while the second variation shows the adapted ratio with components from the CSO's PCRP (CSO, 2009a), i.e., the SMS. Additional examples of adapted ratios are available in the third column of Table 86 to Table 89 of Appendix G.5.

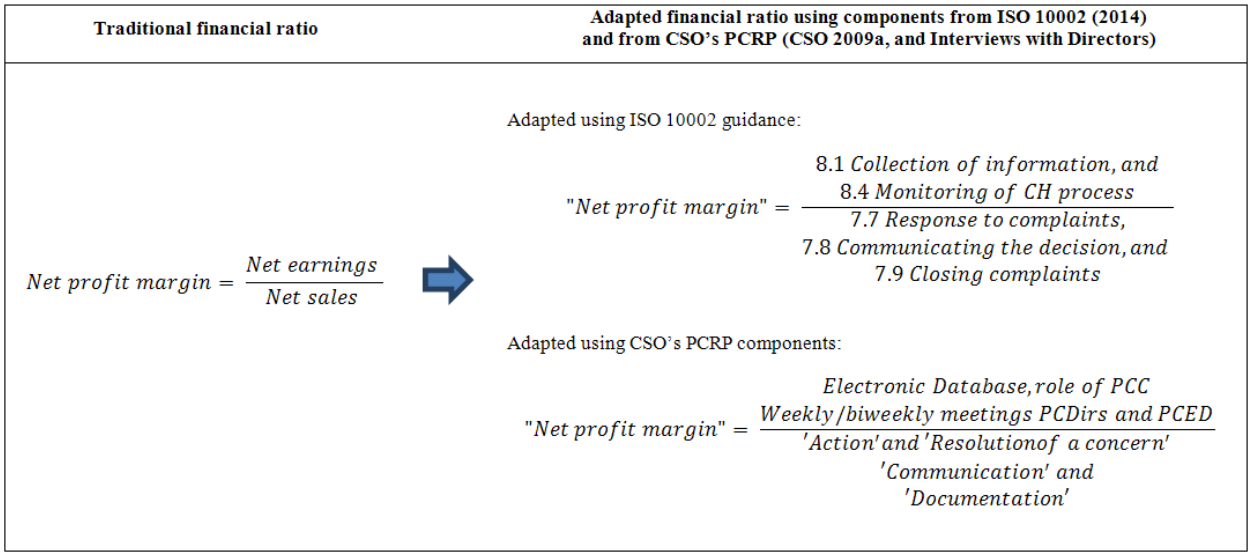


Figure 32 - Adapted financial ratio example

Even though the ABA technique intends to prepare and use assessment questions that examine interrelationships amongst SMS components, it was found helpful to also use MSS components to prepare 'interim' adapted financial ratios so as to provide the analyst with ratios containing "common terms" or names, especially for MSSs organized as per the HLS (ISO/IEC, 2015), as

opposed to having to rely solely on organization-specific SMS component names, which may be less descriptive. For example, if the analyst sees *8.1 Collection of information* and *8.4 Monitoring of CH process* (ISO 10002, 2014, as shown in Figure 32) being used in an adapted ratio, probing questions could be more appropriate than if he/she only sees 'Electronic database' and 'Weekly/biweekly meetings between directors', where the latter two represent PCRP-specific components that address the former two, respectively (sources of PRCP data comprised by Interviews with CSO directors, and CSO, 2009a).

8.3.3.3 Prepare probing questions to assess interrelationships between SMS components

Having adapted the financial ratios, questions can be prepared to assess interrelationships between the components in the ratio. Two assessment possibilities include:

- Inter-term assessment: To assess how the SMS component or components in one *term* of the ratio (e.g., either the numerator or denominator) affect or enable the SMS component or components in the remaining *term* of the ratio.
- Intra-term assessment: To assess how a given SMS component or set of components within one *term* of the ratio (e.g., either in the numerator or the denominator) affect another MS component or set of components within the same *term*, for ratios that contain multiple MS components in the corresponding *term*.

Examples of 'inter-term' and 'intra-term' assessment questions are presented below, as pertaining to the adapted ratio "Net profit margin" in Figure 32.

a) One potential probing question could be "How do the Electronic database and role of PCC; and weekly/biweekly meetings between PCDirs and PCED enable the collection of information about last-mile steps of the PCRP process such as 'Action', 'Resolution', 'Communication', and 'Documentation' (CSO, 2009a)?" Such type of assessment examines how the SMS components in the numerator relate to those in the denominator (i.e., inter-term assessment).
b) Conversely, a question could be posed to assess the relationship amongst SMS components within the same term, e.g., the numerator, such as "How do the Electronic database and role of the PCC contribute information for use during 'Weekly/biweekly meetings between

PCDirs and PCED' (Interviews with CSO directors and CSO, 2009a)?" Such type of question is an example of 'intra-term assessment'.

Additional examples of assessment possibilities are provided in the fourth column of Table 86 to Table 89 of Appendix G.5. After questions have been prepared, the analyst collects evidence that helps him/her answer the questions, as explained in the next step.

8.3.3.4 Seek answers to the probing questions

The analyst could seek answers to probing questions by examining documentation including records of the process or system, by asking questions to the personnel from the organization, or by observing the performance of the process or system. Document review, interview and observation are common auditing techniques (e.g., ISO, 2011b; Russell, 2005) that can be used to collect evidence to answer the probing questions generated by the Accounting-based Assessment (ABA) technique.

Sample responses to the probing questions in a) and b) above could include:

a) "The Patient Concerns Consultant (PCC), during the PCRP, uses the Electronic database to record for each concern in the PCRP: the investigation process that was followed, the response to the concern, to save relevant attachments such as letters, faxes and emails, and also to record the level of satisfaction of the complainant with both process and the outcome. Then, during weekly or biweekly meetings between PCDirs and PCED, concerns and their progress may be reviewed, whose details can be consulted using the Electronic database" (Sample response prepared using data from Interviews with CSO Directors, closed complaints, and CSO, 2009a).

b) "Concerns that have not been resolved to the satisfaction of the complainant can be escalated to the Patient Concerns [Unit] Director (PCDir) for a review. Such escalation would be entered in the Electronic database, as will any subsequent communications between the PCDir and the complainant. The PCDir can discuss the concern during the weekly/biweekly meeting with fellow PCDirs and the PCED" (Sample response prepared using data from Interviews with CSO Directors, and CSO, 2009a).

8.3.3.5 The analyst provides recommendations to management of the organization

After finding answers to the assessment questions, the analyst could provide recommendations to management of the organization. The recommendations may include:

- To ensure that SMS components interact as intended, i.e., relationships among components should be documented (either textually or by means of flowcharts) and verifiable.
- To clearly cross-reference components amongst each other, for example, by explicitly mentioning in the organization's policy the use of tools such as management review and auditing for the purpose of continual improvement.
- To build redundancies where appropriate to ensure that outputs from one component are used by the next, so as to achieve that post-standardization, components remain in place and are effective, echoing the recommendations from subsection 3.6 of the IUMSS handbook, to *"regularly test the integrated management system for successful performance"* (ISO, 2008a, p. 132).
- To identify sub-sets of the SMS that could be strengthened by using component-specific MSS, i.e., AUG MSSs (Karapetrovic, 2005), since it may be possible that where MS component interrelationships are documented in detail, as a result of using the ABA technique and acting upon recommendations, an AUG MSS could be implemented more readily (i.e., since the 'micro' is as detailed as is the 'macro').
- To keep records of the frequency of interactions between select components, for example, the number of times, and which, audit findings have been discussed in the Management Review, or how often is personnel trained in matters pertaining to the corresponding MSs (i.e., a relationship suggested by the adapted "Debt ratio" which contains "5.3 Responsibility and commitment" in the numerator, and "6.4 Resources" in the denominator, sub-clauses of ISO 10002, 2014).

The ABA technique is a means to an end, not an end of itself. Potential benefits resulting from the use of the ABA technique to assess SMS component interrelationships could include:

- Explicit documentation of linkages between SMS components, as suggested by the systems approach
- Evidence of effective MSS implementation as a result of the non-ambiguous cross-references between components (e.g., the policy could mention management review and auditing as means of continual improvement; or operational sub-processes could be documented at a level of detail that mentions specific training or education as requirements pertaining to competence and awareness).

- The likelihood that the MS documentation will be updated more frequently as a result of having to update changes to training requirements (e.g., as required by sub-clause *6.4 Resources* of ISO 10002 and ISO 10003), in order to ensure accuracy of MS component cross-references, thus increasing the MS's 'liveliness' (i.e., under the assumption that 'live documentation' is a desirable characteristic within an organization).

The ABA technique could be augmented by making the original open-ended assessment more audit-like through the use of criteria to examine SMS component interrelationships. Such possibility, outside the scope of the current research, is superficially explored in Appendix G.6.

8.4 Summary

A model for structuring and integrating management system standard requirements was designed, pre-tested, and verified. The ABSI model allows to structure one or more MSSs requirements or guidelines as per the I/S and B/S components for the purpose of enriching the analyst's understanding of MSS components and their interrelationships. Flowcharts and tables were prepared to aid the analyst in using the ABSI model, in addition to a "Guide for juxtaposition".

From 8.2.3 Verification, it could be concluded that the ABSI model is suitable for structuring and integration (the latter aided by the IUMSS methodology, ISO, 2008a) of MSS requirements, and to accommodate the subsequent mapping of MS components.

Potential benefits of the ABSI model may include the enhanced understanding of the characteristics of resources, activities, and other (independent or integrated) SMS components, that could prompt the implementation of controls, redundant systems, or sought efficiencies, to ensure effective and efficient performance of the SMS.

In addition, an Accounting-based Assessment (ABA) technique was developed and verified. Such ABA technique utilizes the MS components, as mapped onto MSS requirements, themselves juxtaposed to I/S and B/S components; and adapts financial ratios by replacing the I/S and B/S numerical values with the corresponding SMS (and optionally MSS) components. Adapted financial ratios can be used to prepare assessment questions that examine how SMS components on one *term* (or half) of the ratio (e.g., numerator or denominator) affect or enable the other *term* (or remaining half), also referred to as 'inter-term assessment'; or to prepare

questions that examine how one or more SMS components within one *term* affect other SMS component or components within the same *term,* referred to a 'intra-term assessment' throughout this chapter. An assessor can find answers to the probing questions by employing traditional audit methods such as document review, interviews or observation to collect evidence that could help answer the probing questions. From the responses to the probing questions, areas of opportunity could be identified for which recommendations to Management could be presented.

Acting on ABA technique recommendations could yield potential benefits such as the explicit documentation of SMS relationships (either through cross-referencing in documented textual descriptions of the SMS components, or by means of flowcharts).

9 Conclusions

9.1 Contributions

9.1.1 Research Component 1. "Use of AUG MSS in a provincial health care org."

9.1.1.1 Anticipated benefits to the CSO

One of the benefits to the Case Study Organization is that the study found that the guidance from clause *8. Maintenance and improvement* was valuable to the CSO, in line with findings by Hughes and Karapetrovic (2006). Moreover, the guidance from the annexes was also of significant value to the CSO, just as it could also be valuable to other health care organizations even if they already have complaints handling processes in place.

After recommendations for gap closure would have been implemented and verified by means of an internal audit, the PCRP could be considered to be standardized for handling complaints. Since the process for managing commendations shared resources (e.g., personnel, equipment) and activities (i.e., "Intake", "Communication", and "Documentation") with the PCRP, achieving the standardization of commendation-management was attained by recommending to document certain aspects of the process for managing commendations (e.g., objectives, activities, responsibilities), and to augment the scope of certain components of the PCRP to accommodate the management of commendations (i.e., maintenance and improvement, performance monitoring, and auditing).

The CSO has improved their PCRP as a result of the study, for example by implementing certain changes that had been recommended such as ensuring consistency across communications (i.e., website and brochure consistently describing escalation alternatives). Furthermore, the CSO is currently planning the implementation of an audit of the PCRP, as recommended by the study.

9.1.1.2 Anticipated academic value of the results

Regarding academic value, the study was the first to examine the use of an AUG MSS such as ISO 10002 (2014) in a provincial health care organization for handling not only concerns but also commendations and suggestions. As for generalizable applicability, the augmented usage of an AUG MSS, e.g., using ISO 10002 for handling feedback, as opposed to handling solely complaints, could be implemented by other health care organizations (e.g., as presented by Khan

and Karapetrovic, 2014). One important (albeit perhaps obvious) consideration is that the organization should be capable to manage, or already managing, multiple types of feedback (e.g., negative, neutral, and positive).

The guidance from ISO 10002 (2014) was adaptable to handle commendations and suggestions in addition to complaints, i.e., for feedback handling, as shown by previous studies (e.g., Honarkhah, 2010; Khan and Karapetrovic, 2014). The standardization sequence followed, i.e., first apply ISO 10002 to the handling of complaints, and then to the handling of commendations, is one alternative; with another being the application of the guidance to handling negative and positive feedback concurrently from the start (Honarkhah, 2010; Khan and Karapetrovic, 2014). In this study, the approach followed (i.e., of first applying the guidance to the data regarding concerns management, and then on the data regarding commendations management) was a result of having significantly more data available related to complaints. Nevertheless, the approach proved useful since the resulting standardized (for complaints handling) PCRP incorporated the resources and processes (i.e., performance monitoring, maintenance and improvement, and auditing) suggested by ISO 10002, thus facilitating the subsequent adaptation of the guidance for the managing of commendations. As a result, only a handful of recommendations were provided to standardize the management of commendations.

Lastly, the use of the IUMSS allowed to identify components for subsequent research. Below, the contributions of the second research component are discussed.

9.1.2 Research Component 2. "Development of the Boundary Audit Method"

9.1.2.1 Anticipated benefits to the CSO

Benefits to the CSO regarding the Boundary Audit are quite palpable. The CSO is in the process of implementing the BAM. Personnel have been assigned for planning and implementing a program of audits, and are being trained in audits in general, and in the Boundary Audit in particular. The CSO will have access to the tool templates (e.g., IdPFD, OMT, AFST, and checklists); and also to the 'harmonized' criteria, a by-product of the BAM Validation work.

Another benefit is the availability of an audit-trail (or chain) that connects multiple PCRP documents to checklist questions by means of rigorously extracted, harmonized and referenced criteria that have been used to prepare probing checklist questions. As a result, future updates to

the CSO documentation could be more readily reflected in the audit materials (i.e., criteria and checklist questions) partly thanks to the documented audit-trail. The CSO has also mentioned the Boundary Audit to personnel from the Health Quality Council [of the Province] (HQCP) so that the latter considers audits as a part of the Patient Concerns Resolution Provincial Framework that will be 'refreshed' in the coming months.

In addition, CSO Directors who participated in the research, from their own words, have enhanced their skills and knowledge as a result of having collaborated in the study of the application of an AUG MSS (namely, ISO 10002:2014) in the CSO and more importantly, the detailed training received in the Boundary Audit Method.

9.1.2.2 Anticipated academic value of the results

As for academic value, the Boundary Audit Method (BAM), to my knowledge, is the first method for auditing interdepartmental processes through a focus on interactions. The designation "*1.5-party audit*" (first-and-a-half or one-and-a-half party audit) is another contribution, used to reflect the examination of a department's own involvement in a process in addition to that of other process partners.

Pertaining to generalizable applicability, the BAM could be used by those organizations that have processes that span over multiple departments. Since the BAM provides a methodology to map the process, identify interactions, and assess those interactions (as well as the process output) with regards to the applicable criteria, any organization that has an interdepartmental process could benefit from using the BAM. One important requirement is that the interdepartmental process is documented, so that such documentation can be used as criteria (alongside any applicable standards, regulations or legislation, to name a few) during the audit.

A 'conceptual framework' along with 'supporting concepts' were developed in order to provide context and support, respectively, to the Boundary Audit Method. In addition, tools were created or significantly adapted. Tools newly created included the Objective Mapping Template (OMT) and the Audit Finding Summary Template (AFST). The OMT is useful to document, and categorize objectives of different stakeholders, while the AFST allows to organize audit findings per location (i.e., one or another department or at the boundary) and type of finding (i.e., SWOT).

Tools significantly adapted included the Interdepartmental Process Flow Diagram (IdPFD), useful to map interdepartmental processes or track product/service flow; the Checklists (i.e., OPRC, OPIC, and IPIC) that allow to prepare and use questions during observation and interviews; the Finding Sheets for Opportunities and Strengths (FS (O/S)), to document such type of positive-type findings; and the Advancement Action Plan (AAP), to document plans to address positive-type findings. Such tools can be adapted to the needs of different organizations, for example, by adding additional departments as process partners; or by using different categorization systems to classify expected benefits from implementing recommendations in the FS (O/S), or to measure response action effectiveness in the AAP (e.g., Dimensions of Quality (DQ) as suggested by the personnel from the CSO).

In addition, sub methods for harmonizing criteria and for preparing assessment questions for the checklists were also developed, documented, and illustrated. Guidance pertaining to combined or separate reporting and responding is also provided, alongside tools for inter-auditee collaboration, such as the AFST and the Finding Sheet templates which allow classifying findings as belonging to one or another department or to the boundary, as well as response plans that allow to recognize the need for interdepartmental collaboration during response planning (e.g., AAP). For example, certain organizations that perform the Boundary Audit with collaboration from different departments (i.e., auditees), can use the AAP to recognize the need for, and extent of, inter-departmental collaboration when addressing shared findings (i.e., those classified as corresponding to the boundary in the AFST and Finding Sheet (O/S)).

The BAM is flexible, since it was applied to records with different degrees of information detail. For example, the BAM was applied on detailed records (i.e., files that contained copies of emails, letters, and faxes), and also to records solely containing summaries of the interactions that took place. Similarly, the use of ‘interactions’ as the basis for examination of the process was considered apt since they allowed to break down the process at an appropriate level of detail, and provide points in time and points of interest which to examine through interview questions or observation. Thus, organizations with different levels of interdepartmental process complexity (including different levels of details in their documents or records) may be able to use the BAM.

Certain BAM tools were used differently than originally expected, for instance, the IdPFD, the OPRC and the OPIC, whose original uses were augmented as follows:

- The usage of the IdPFD was enhanced from being initially used to model the process under study to also allowing the mapping of the flow of a product during individual instances of the process (i.e., when using records); while also enabling tracing back causes of deficiencies, such as delays. In other words, even though the IdPFD is used at the beginning of the BAM to document the sequence of steps that comprise the interdepartmental process, the IdPFD can also be used when performing the audit, i.e., when tracing the flow of a product (either in real time, or by looking at records).
- The OPRC, which allows for the examination of the process output (of which there is usually just one) was on occasions used more than once per record, for example, when a process output (i.e., response letter) was rejected due to customer refusal, thus prompting further investigation and a subsequent response letter. Also, the OPRC is flexible enough to accommodate custom questions probing the specific process output under examination.
- Similarly to the OPRC, unplanned interactions can also be examined using OPICs. For example, certain processes could on rare occasions contain extraordinary interactions (i.e., infrequent or unusual), which may also be examined by means of ad-hoc adaptations to the OPICs. For example, when an interdepartmental process experiences the involvement of an unusual party, such as when a government representative (i.e., MLA) is asked to be involved in the process due to a constituent's request (i.e., the original customer of the process who has grown dissatisfied), the interactions between a given department and the MLA can be probed by means of adapted OPICs, even when such interactions are extremely unusual.

Next, the contributions of the third research component are discussed.

9.1.3 Research component 3. "ABSI approach"

The third research component yielded an original model for structuring and integrating MSSs requirements, i.e., the ABSI model, which resulted from abstracting the I/S and B/S components and their interrelationships and using such a framework to organize (and integrate when multiple) MSS requirements. In addition, a novel assessment technique was proposed for examining MS component interrelationships (i.e., 'ABA Technique'). The 'ABA technique' adapts financial ratio analysis and substitutes the numbers in the ratios with the juxtaposed MS components to allow for the preparation of questions, subsequently seeking answers to those questions, followed by providing recommendations for improvement.

Regarding generalizable applicability, on the one hand the ABSI model could be used with MSSs that follow the old structure (e.g., ISO 10002 or ISO 10003) as well as those that follow the new structure (or HLS), such as ISO 9001 (2015c) and ISO 140001 (2015a). On the other hand, the ABA technique could be used with a SMS whose implementation was performed using the ABSI model, and for which juxtaposition of MS components to I/S and B/S components already exists (or could be done). In other words, a prerequisite of the ABA technique is having a SMS that has been structured (or can be structured) as per the I/S and B/S components, since the SMS components will be organized through the adaptation of financial ratios, for which such juxtaposition is necessary.

Potential benefits of using the ABSI model include the following:

- Identifying non-obvious characteristics of MSS requirements and MS components such as importance of operational activities that involve customers, operational activities that are performed 'variably' or are 'fixed', and recognizing that the value adding components of the MS are 'Management review' and 'Continual improvement', contrasting the view that such two components may solely be 'support'.
- Taking action based on the interpretations in the first bullet above to strengthen the SMS by ensuring cross-training of client-facing personnel, by building redundancies for operational activities that are performed in direct proportion to the number of customers served (or products and services delivered) by the SMS, and seeking efficiencies in deploying activities or resources that are not dependent on the number of customers served (or products or services delivered) by the SMS.
- Facilitating the identification of commonalities among MSS requirements as a result not only of the name, content or meaning of the sub-clauses themselves, but also of the inherent properties (as interpreted) that allowed the sub-clauses to be juxtaposed to one or another I/S or B/S component. For example, by identifying commonalities among MSS requirements such as *7.1 Communication* of ISO 10002 (2014) and *Annex D – Guide on accessibility* of ISO 10003 (2007) since they both refer to aspects regarding communication (even if one is a body clause and the other an annex).

Similarly, potential benefits of using the ABA technique include:

- Ensuring that SMS components interact as intended, so as to enable the organization to achieve the sought benefits of the implemented MSSs while increasing the likelihood of achieving objectives. Having an SMS whose components effectively relate to each other as per the implemented MSS, increases the likelihood of achieving MSS-intended benefits (as described in the corresponding text of the MSS) as well as the ability of the SMS to achieve its business objectives. For example, having assurance (i.e., evidence) of explicit descriptions connecting objectives and roles and responsibilities to general planning and activities of an organization's SMS (as per adapted 'current ratio' in Table 86), the likelihood that the organization will experience the benefits of the implemented MSS increases, as does the likelihood of meeting relevant SMS objectives, such as *"acknowledging complaints within three days"*.
- Building redundancies to ensure that outputs from one component are used by the next, so as to achieve that post-standardization, components remain in place and are effective. For example, an organization can choose to make sure that documentation of activities (perhaps through standardized operational procedures) explicitly references objectives and personnel responsible, while at the same time, ensuring that job descriptions (i.e., role descriptions) explicitly refer to activities for which each job is responsible.
- Facilitating the eventual incorporation of additional AUG MSSs, by means of detailed documentation of SMS components and their interrelationships, likely enabling a more readily incorporation of function- or component-specific MSSs. For example, AUG MSSs such as ISO 10004, Guidelines for [customer satisfaction] monitoring and measuring (2012) could be more easily implemented if an organization has ensured that relationships amongst components, such as '*8.1 Collection of information* and *8.4 Monitoring of CH process'* and '*6.1 General*, *6.3 Activities*, and *6.4 Resources'* (of ISO 10002, 2014 and as per the adapted "Return on Assets" ratio in Table 89, to give an example) have been explicitly documented, and are effective.

Next, the limitations of this research, organized under each of the three research components, are discussed.

9.2 Limitations

9.2.1 Research Component 1. "Use of AUG MSS in a provincial health care org."

Two main limitations involve the first research component. The first limitation is that it was a study of the application of an AUG MSS in a provincial health care organization, not an actual application.

The second limitation pertained to the challenging environment surrounding the CSO during the research. The CSO's PCRP was in flux during the study, due to its evolution as a result of organizational re-structuring. The PCRP documentation used in the study was updated regularly. The results of the study were updated once after newer documentation came out (2010). Subsequently, documents were again updated in 2012, but such update was not reflected in the study. Nevertheless, the updated documentation was used in subsequent research components (such as during the Validation of the Boundary Audit Method).

The time requirements for an organization that elects the augmented use of an AUG MSS is likely to be greater than using the AUG MSS solely for its initial intended purpose. For example, using ISO 10002 for handling commendations in addition to complaints, will likely require the additional step of planning how to adapt the guidance (which originally refers to complaints) for the purpose of handling commendations; as well as the additional step of collection and analysis of data on existing processes for handling commendations, if available; in addition to the actual implementation efforts (namely gap analysis, gap closure and verification, and maintenance). Notwithstanding the incremental costs (e.g., time and resources), immediate benefits could include having standardized processes that enable continuous improvement, plus any benefits that could arise if an integrative approach to standardization was chosen (e.g., minimizing redundancies and documentation, while benefiting from integrated audits, to mention a few).

The main cost of choosing the augmented use an AUG MSS could be expected to be related to time, rather than financial. The same human resources that would be in charge of implementing the AUG MSS for the original purpose, would need to devote additional time to plan, execute, and maintain the augmented implementation (be it individually or in an integrative fashion). Similarly, upkeep costs of having implemented an AUG MSS in an augmented manner, could also be expected to relate mostly to time, e.g., updating documentation, training new personnel,

and performing regular audits. Nevertheless, electing to perform the latter activities in an integrated fashion, especially audits (i.e., audits that examine different functions within a system) could help mitigate the impact of costs.

Below, the limitations of the second research component are presented.

9.2.2 Research Component 2. "Development of the Boundary Audit Method"

Limitations of the second research component could be grouped as those that relate to the data used, to changes that took place from Verification to Validation, to methodological implications, and to related expenses. Firstly, the limitations pertaining to the data used during the Development of the BAM are presented:

- The Boundary Audit Method was developed using interdepartmental process information from two departments within the same organization (i.e., the CSO and the PCO, within the POCSO). Moreover, the data examined originated from a single department (either the CSO or PCO), while the BAM aims to examine a process that spans across different departments.
- The selection of six closed complaints from the CSO which were used as data during the Verification of the BAM, was performed by generating random numbers, which in turn were used to select the closed complaints. Such random selection could perhaps have been improved by triaging the closed complaints based on some type of selection criteria.
- The tools and method were verified using a small sample of records (i.e., closed complaints); nevertheless, the BAM tools were applied to the data in three distinct occasions: i.e., firstly with data from a single concern to verify the tools; secondly with five concerns from the PCO; and thirdly with six concerns from the CSO. Thus, the cumulative number of times the tools were applied to the data mitigates the concerns regarding the limited sample size throughout the Verification.

Secondly, the limitations pertaining to changes that took place from Verification to Validation included:

- The criteria (i.e., "Code of Conduct" as adapted from POCSO, 2013a) used during the Verification to assess the closed concerns by means of the OPRC and OPIC were later deemed as inappropriate by the research participants during the Validation, and were ultimately discarded in favor of the criteria available from the participant-supplied

documentation (i.e., "Administrative fairness" (CSO, 2013), 'Pocket card' (POCSO, 2013b), and "Policy Suite" (POCSO, 2012a,b,c)). Therefore, the criteria used during Verification and post-Validation were not the same throughout. Nevertheless, a positive aspect of such variation is the confirmation that the tools (e.g., OPRC, OPIC) were usable with different types of criteria, i.e., "Code of Conduct" (as adapted from POCSO, 2013a) during Verification, and harmonized criteria from the documentation provided by the participants (i.e., CSO, 2013; POCSO, 2012a,b,c, 2013b) post-Validation.

- Similarly, as a result of the Verification, an action item was needed to address the challenge of classifying interactions. Therefore, an Interaction Classification System (ICS) was developed as a result of the Verification. However, during the Validation, such ICS was deemed as inappropriate by the research participants, and ultimately removed from the BAM. Such occurrence could be seen as a confirmation that the overall research approach (design, verification, and validation) was robust, and performed objectively.

Thirdly, methodological limitations of the Development of the BAM included the following:

- The BAM was not actually performed after being verified, but only validated through interviews with two members from the CSO and one member from the IAPOCSO. Nevertheless, such a small sample size was not so much a drawback, as an advantage, since the research participants contributed their subject-matter expertise (i.e., in complaints handling or auditing, respectively) and their valuable time to the validation of the BAM.
- The booklet used with the research participant from IAPOCSO was slightly different from the booklet used with the two CSO Directors, as a result of the participant from IAPOCSO expressing that he/she did not want to have to apply the audit method, but rather understand it and critique it. Thus, the booklet given to the participant from IAPOCSO contained modified questions related to the Process Ownership concept, and to the IdPFD tool. The changes to the questions still allowed to collect meaningful feedback regarding the effectiveness of the concept and tool respectively, thus no negative impact was identified from such participant-specific adaptation. Quite the opposite, the feedback provided by the member from IAPOCSO during the filling out of the booklet and the oral interview allowed to improve the BAM by adding new details regarding the determination of the scope, the potential use of 'checkpoints' to assess for roadblocks or challenges along the audit effort, as

well as the potential use of 'themes' to organize audit findings in the audit report. Therefore, the tradeoff between having to modify the booklet to accommodate the member from IAPOCSO and having such valuable feedback to improve the BAM was considered as overly in benefit of the research.

Lastly, regarding needed resources, the BAM does not require any significant costs in addition to time. The time requirements for performing the BAM, are expected to be greater than for a regular process audit and proportionally related to the complexity of the process (or to the chosen scope of the audit, for example, if only examining certain parts of the process or certain interactions), and are likely to be greater during the earlier implementations of the BAM, since the BAM would be done from scratch. In addition, as it pertains to the auditor or audit team, since the BAM involves multiple departments (i.e., auditees), the amount of audit performance activities (e.g., observation and interviews) will likely increase with the number of auditees. Similarly, as it pertains to the auditees, audit closure activities (e.g., response planning, review, implementation and verification) are likely to increase as well (due to the potential requirements to collaborate interdepartmentally) together with the number of auditees. Nevertheless, a successful BAM would be expected to yield improvements in the interdepartmental process as a result of having involved personnel from the different departments throughout the audit process, especially during response planning and implementation. Moreover, the cost of sustaining a program of Boundary Audits should not be significantly greater than sustaining a program of traditional audits.

Below, the limitations of the third research component are presented.

9.2.3 Research component 3. "ABSI approach"

One important limitation of the third research component is that the ABSI approach (i.e., model and technique) represents solely a theoretical exploration. Moreover, the ABSI model may not the most efficient way to structure and integrate MSS requirements because the 'juxtaposition' to I/S and B/S components may not be immediately obvious. The ABSI model and ABA technique depend on the interpretation of the analyst for their use. Therefore, a document called "Guidance for juxtaposition…" was developed to help the analyst juxtapose MSS requirements and is available in Appendix G.1.3. Notwithstanding such aiding guidance, an analyst with detailed knowledge of accounting or financial analysis may be able to use the ABSI approach more

advantageously than a person lacking such knowledge. Lastly, the ABSI model and the ABA technique were verified but not validated due to lack of time.

Limitations regarding resource requirements pertain mostly to time. The time needed for using the ABSI model when implementing one or more MSSs could be expected to be slightly greater than using approaches such as flowcharting or tabular. One reason for the additional time requirement is that the analyst planning the standardization or integration will need to understand the ABSI model. Nevertheless, this dissertation, including its appendices, provides guidance and examples on how to use the ABSI model. Conversely, the time needed for using the ABA technique would not be expected to be any greater than performing any other type of MS assessment.

Since the ABSI model would be used when implementing MSSs (which does not occur very often), there would not be any significant upkeep costs. Nevertheless, since the ABA technique could be expected to be performed more regularly, as means to assess the Standardized Management System, upkeep costs would relate to documentation and archiving, as well as the time and wages of an analyst performing the Accounting-based Assessment Technique (perhaps one or two days), as often as once or more per year.

Next, the possibilities for future research for each research component are discussed.

9.3 Future research

9.3.1 Research Component 1. "Use of AUG MSS in a provincial health care org."

Further research could be done by reviewing the actual implementation of ISO 10002 in the provincial health care organization (i.e., the CSO) and exploring the incorporation of additional AUG MSSs such as ISO 10001 and 10003 in the CSO.

Below, potential avenues for the second research component are mentioned.

9.3.2 Research Component 2. "Development of the Boundary Audit Method"

Further research related to the Boundary Audit Method could include the actual implementation of the Boundary Audit (including its tools), aiming to 'polish the rough edges'. Applying the BAM in a real context could contribute towards achieving the following goals:

- Further confirm that the BAM allows the auditing of an interdepartmental process.

- Allow the improvement of the BAM by identifying and subsequently addressing any issues that may have emerged (i.e., corrective actions to the design of the BAM).
- Make the Boundary Audit more efficient by identifying and removing unnecessary (or non-value adding) steps, or supporting concepts or tools.
- Examine the effectiveness of the BAM, especially with regards to process partner involvement.

Future work could be pursued pertaining to the classification of interactions. There may be an opportunity to identify an appropriate classification system that helps to facilitate the work of identifying and classifying interactions for their examination through audits or otherwise. Similarly, other rejected components (such as the RPEs and Test 3. Centrality) could also be further examined, improved if deemed appropriate, and perhaps re-incorporated into the BAM.

Furthermore, the conceptual framework of the BAM and its exploration of the interdepartmental process, including the definition (but not the classification) and prioritization of 'interactions' can serve as a baseline to continue exploring different aspects of interdepartmental processes such as information security of interdepartmental processes, and internal and external resolution of conflicts or disputes arising at interdepartmental processes, to name just a few.

Finally, managing complainant expectations remains an area of opportunity because there is no guidance in ISO 10002 (2014) regarding how to explain to the complainant that their demands may be outside the scope of the CH process.

Next, the possibilities for future research regarding the third research component are discussed.

9.3.3 Research component 3. "ABSI approach"

Potential paths for further research of the ABSI approach may include the use of the ABA technique with MSS requirements (i.e., to assess MSS requirement interrelationships), as well as the use of the ABA technique with criteria (i.e., to assess MS component interrelationships using requirements and objectives). An example of the former could entail using adapted financial ratios with MSS requirements, so as to compose questions that probe the relationships between MSS requirements, such as "how do *6.3 Objectives* and *5.3 Responsibility and authority* enable *6.1 General Planning* and *6.3 Activities of a complaints handling system*" (clauses of ISO 10002, 2014, describing the adapted "current ratio" shown in the first row of Table 86). An example of

the former, i.e., using the ABA technique with criteria to assess MS components interrelationships, could entail first establishing such criteria describing how MS components should interact amongst each other (i.e., requirements, such as “a matrix table should be prepared by the CSO in order to describe how PCRP objectives and PCRP roles and process descriptions should enable the creation of the PCRP document, algorithm and flowcharts), or what such interrelationships ought to accomplish (i.e., objectives, such as “an objective of the CSO is to have each activity of the PCRP unequivocally assigned to at least one PCRP role”). After criteria had been prepared, they could be used to compose questions that could examine whether the MS interrelationships meet the criteria (effectively transitioning the assessment to an audit).

Future research may also include the potential use of quantitative aspects related to adapted financial ratio analysis concerning SMS components. Were it possible to reliably quantify SMS-component interrelationships, such numerical data could be used as key performance indicators to track performance across time.

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Appendices

Outline of appendices

Appendix A - Ethics Approval Letter

Appendix B - Interview questions

- **Appendix B.1** - Interview questions with CSO Directors (First group of interviews)
- **Appendix B.2** - Interview questions for BAM Validation (Second group of interviews)

Appendix C - Supporting materials for "AUG MSS in health care"

- **Appendix C.1 -** PCRP components
- **Appendix C.2 -** Tabular approach for structuring ISO 10002 (2014)
- **Appendix C.3** - Example of mapping of clause 4. Principles (table and justification)
- **Appendix C.4** - Results from gap analysis
- **Appendix C.5** - Recommendations for gap closure
- **Appendix C.6** - Supporting details re: process for managing commendations at the CSO
- **Appendix C.7** - List of CSO and POCSO documentation used

Appendix D - Supporting materials for "BAM Development"

- **Appendix D.1** - Select components of conceptual framework and supporting concepts
- **Appendix D.2** - Method description (final version), including non-original components
- **Appendix D.3** - Supporting tools (templates and examples)
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Appendix E - Supporting materials for "BAM Verification"

- **Appendix E.1**- Verification of tools
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- **Appendix E.3** - Analysis of records and tool usage

Appendix F - Supporting materials for "BAM Validation"

- **Appendix F.1**- Planning
- **Appendix F.2** - Performance
- **Appendix F.3** - Analysis

Appendix G - Supporting materials for "ABSI approach"

- **Appendix G.1** - Design
- **Appendix G.2** - Pre-testing ABSI model with HLS
- **Appendix G.3** - Pre-testing ABSI model with ISO 9001 and ISO 14001
- **Appendix G.4** - Verification of ABSI model
- **Appendix G.5** - Verification of Accounting-based Assessment (ABA) technique
- **Appendix G.6** - Possible augmentation of the ABA technique

Appendix A - Ethics Approval Letter

Approval Form

Date:	August 30, 2011
Principal Investigator:	Stanislav Karapetrovic
Study ID:	Pro00024963
Study Title:	Development and testing of six methods related to unsolicited feedback handling in a Patient Concerns Department
Approval Expiry Date:	August 28, 2012
Date of Informed Consent:	Approval Date 8/30/2011 — Approved Document Information Letter.docx
Sponsor/Funding Agency:	REDACTED

Thank you for submitting the above study to the Health Research Ethics Board - Health Panel . Your application and your response submitted on August 30, 2011 has been reviewed and approved on behalf of the committee.

A renewal report must be submitted next year prior to the expiry of this approval if your study still requires ethics approval. If you do not renew on or before the renewal expiry date, you will have to re-submit an ethics application.

Approval by the Health Research Ethics Board does not encompass authorization to access the patients, staff or resources of REDACTED or other local health care institutions for the purposes of the research. Enquiries regarding Alberta Health Services administrative approval, and operational approval for areas impacted by the research, should be directed to the REDACTED REDACTED

Sincerely,

Doug Gross, PhD
Associate Chair, Health Research Ethics Board - Health Panel

Note: This correspondence includes an electronic signature (validation and approval via an online system).

Appendix B - Interview questions
Appendix B.1 - Interview questions with CSO Directors (First group of interviews)

Questions to [CSO] Directors

For Enrique: Make sure you have explained the study (voluntary character, confidentiality). Request participants and witnesses to read and sign the Consent Forms.

1. What are the strategic objectives of the [Case Study Organization, CSO]?
2. How does the CSO "market" their existence and the Concerns Resolution Process? How do they attract customers (complainants)? Where are the posters and brochures?
3. I remember that the CSO would like to see the number of complaints filed to increase. However, at some point the overall system ([POCSO]) would like to see the number of dissatisfaction go down… Is this true? (since "The ultimate goal is to improve the overall system")
4. **Regarding Stakeholders:**
   - 4.1. How are the expectations (of optimal resolution vs. balanced interests) fulfilled? The priority is resolution of complaints to satisfaction, or balance of interests?
   - 4.2. What are the metrics or key indicators to track the satisfaction of patients/family and other stakeholders?
5. Is the Patients Concerns Officer a part of the Patient Concerns Resolution Process? Or external to it?
6. **About resources:**
   - 6.1. How many people work in the Patient Concerns Department (how many Patient Feedback Intake Coordinators [PFIC], Patient Concerns Consultants [PCC]). Different areas (North, South, Rural/Suburban)?

	North	South	Rural/Suburban
PFIC			
PCC			

Others

   - 6.2. How is the workload assigned; how is team-work promoted?
   - 6.3. What are the skills or knowledge required for these jobs? Is there any training for the job, or continual development opportunities (crisis intervention as mentioned in p.12)?
   - 6.4. Status of Electronic Database? Are there any other systems, databases, or shared spreadsheets?
   - 6.5. Physical space for meeting with complainants?
   - 6.6. Are there any guidelines on "how to assess (and re-assess) risk", "how to verify accuracy of the details of the concern", "identify the need for potential quality improvement actions", "assess personnel or policy/procedures"? (p.8-9)
   - 6.7. Any other method for documentation of complaints apart from the Electronic Database? Manual?

Questions about the PCRP Document:

1. "The role of PCC can be fulfilled […also] by staff members with unrelated responsibilities" p. 13 (Ask for clarification)
2. Who is the Medical Administrator (p. 18)? (The manager in a hospital?)

Questions about the CSO

3. What procedures are used to collect the feedback from patients, families and other customers?
4. What procedures are used to collect the feedback regarding the service from other stakeholders?
5. How are compliments and other positive service feedback received, acknowledged and reviewed?
6. How are compliments and other positive feedback followed up on?
7. When and how are complaints-handling procedures reviewed for effectiveness and efficiency?
8. What procedures are used for external dispute resolution?
9. What tools, techniques, frameworks or standards are used to analyze concerns and commendations?
10. How are corrective and preventive actions based on concerns and commendations planned for implementation?
11. Who can provide ideas or methods for service improvements?

Space for comments and notes

Appendix B.2 - Interview questions for BAM Validation (Second group of interviews)

BAM Validation - Interview questions

Participant job title: _____ Date (MM/DD/YY): _____

Start time (HH:MM) : _____

1. In your opinion, what is the intended objective of the Boundary Audit Method (BAM)?
2. In your opinion, what does the method actually achieve?
3. If there is a difference between intended and actual results, what do you think is the reason?
4. What would you change in the method?
5. In your opinion, how would the [CSO] be affected by adopting this method?
6. Was the available documentation of the method clear enough? Please specify why or why not.
7. Are conceptual aspects of the method (i.e., "process ownership", "access and collaboration", "interaction/activity definitions", and "interaction classification system") clear? Are they appropriate to the method? Could the method be used without them?
8. Are the suggested interaction criteria (i.e., organizational communication guidelines, roles and responsibilities, and escalation procedures) appropriate when examining interfaces at interdepartmental processes? Why or why not?
9. With regards to the Audit Finding Summary Template, are Strengths, Weaknesses, Opportunities and Threats, appropriate categories to organize audit findings?
10. Please rate the effectiveness of the following BAM tools using the table below, and provide any suggestions for tool improvement using the last column.

Tool	**Objective**	**Rate [✓] the effectiveness of the tool from 1 to 5 ***					**Suggestions for tool improvement**
		1	2	3	4	5	
1. Objective Mapping Template (OMT)	To document relevant objectives						
2. Interdepartmental Process Flow Diagram (IdPFD)	To map the process and its components						
3. Observe Process Result Checklist (OPR)	To evaluate the process output						
4. Observe Process (Interactions) Checklist (OPIC)	To guide observation of interactions						
5. Interview Personnel (Interactions) Checklist (IPIC)	To ask questions about interactions						
1. Audit Finding Summary Template (AFST)	To summarize audit findings						
2. Finding Sheet (Opportunities/Strength)	To document positive findings						
3. Advancement Action Plan (AAP)	To plan response to positive findings						

* Effectiveness rating scale:
5 - Very effective
4 - Somewhat effective
3 - Neutral
2 - Not very effective
1 - Not at all effective

1. Is it clear how each tool enables or supports the audit method? If not, why.
2. Would you:

   ☐ Recommend the adoption of the method as is?

   ☐ Recommend the adoption of the method with changes? Please specify the changes.

   ☐ Recommend not to adopt the method. Please specify why.
3. Would you like to add anything else?

- - Thank you for your invaluable participation and feedback. - -

Space for comments and notes

Appendix C - Supporting materials for "AUG MSS in health care"
Appendix C.1 - PCRP components

System component	Evidence from documentation and/or interviews with CSO directors
1. Principles	1. Timely, 2. Collaborative, 3. Seamless/Coordinated, 4. Accessible, 5. Confidential, 6. Fair/Transparent, 7. Resolution close to the source, 8. Standardized process/flexible interpretation, 9. Responsive (CSO, 2009a, p. 5)
2. Goals and objectives	Excerpt from CSO, 2009a (p. 8): • To invite "the public to express concerns regarding their health care experience or services provided by [POCSO]" • To provide "an easily accessible and systematic approach for managing concerns related to health care services" • To have "collaborative relationships between patients, their families and health care providers in an effort toward providing safe, quality care" • To adhere "to relevant legislation and regulations to facilitate the reliability of processes and outcomes" • To acknowledge all complaints "in a timely manner, usually within 3 business days"
3. Service, market and customers	Service: CSO: Managing patient feedback PCRP: Managing patient concerns Market: Patient and family members (*patient/family*) who receive health care services in a Canadian province. Amalgamation of health regions birthed a CSO with provincial-wide responsibility for managing patient feedback. CSO communicated its existence through website, posters and brochures (POCSO, 2009c, d, e, f, g, h) Customers: Patient and family members (*patient/family*) who receive health care services in a Canadian province. A complainant was defined by the CSO as "a person who brings forward a concern/complaint [; who] may be the person directly impacted by the issue or someone else acting on behalf of that person or a member of the public" (CSO, 2009a, p. 33)
4. Stakeholders	• Patients of POCSO • Complainants and their families • Service providers and health professionals • Protection for Persons in Care • College of Physicians and Surgeons of [Province] • Senior Management of POCSO (e.g. CEO, Board, Minister of Health) • Patient Concerns Officer (PCO) • [Provincial] Ombudsman • Health Quality Council of [Province]
5. Organizational structure and resources	CSO was **organized** geographically in 3 units: North, South and Rural/Suburban. Main roles were: • One Patient Concerns Executive Director (PCED) at the top, and • For each geographical unit: one Patient Concerns Director (PCDir) plus several Patient Feedback Intake Coordinators (PFIC) and Patient Concerns Consultants (PCC). • One Patient Concerns Officer at arm's length of the CSO (who reported directly to the CEO) but interacted frequently with the CSO and its personnel when performing the "PCO review for administrative fairness" See Figure 33 for a graphic representation of the CSO's organizational structure.

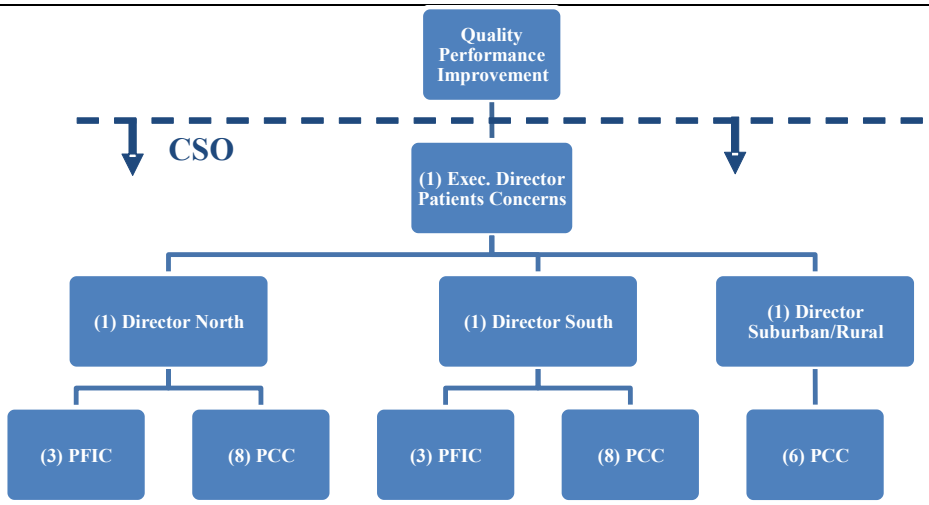
<table>
<tr><td></td><td> 

Figure 33 - CSO organizational structure
(in parenthesis number of people in each role)

The main resources used by the CSO were:
• Phone and email to communicate within the CSO and with patient/families
• Teleconferencing (and sometimes videoconferencing) for internal meetings across different regions
• Electronic database to track complaints
• Quarterly and annual reports for review by management
• Meetings with complainants were usually held in hospital facilities</td></tr>
<tr><td>6. Processes</td><td>Different processes allowed the CSO to manage feedback, most of which related to the management of concerns, as shown below.
1. The Patient Concerns Resolution Process (PCRP) was the main process for managing concerns; and depending on the characteristics of the concern (e.g., whether it involves a physician, or if the concern comes from the office of the CEO or the Minister of Health) could trigger supporting processes such as:
2. Process for addressing concerns regarding physician’s practice,
3. Process for urgent notification of an emerging issue,
4. Process for management of concerns received by CEO office, or
5. Process for concerns management of ministerial inquires.
Similarly, if the patient/family were dissatisfied with the process followed to resolve a concern, the following reviews could be initiated and progressively escalate as needed:
6. Patient Concerns Director’s (PCDir) Review
7. Patient Concerns Executive Director’s (PCED) Review
8. Patient Concerns Officer (PCO) Review for administrative fairness
In addition, there existed one process for managing commendations, namely:
9. Process for managing commendations</td></tr>
</table>

The PCRP was composed of the following sub-processes: Intake, Investigation, Determination, Action, Communication, Documentation, and Resolution of a concern. The description of these sub-processes is transcribed directly from the PCRP document (CSO, 2009a):

*- "**Intake (Initial contact with complainant):** Appropriate staff acknowledge and obtain details of the concern, gain appropriate consents, assess risk and may enter details into the electronic database.*

*- **Investigation:** Appropriate staff verify accuracy of the details of the concern, gather relevant information, and consult with appropriate staff including any staff member named in the concern.*

*- **Determination:** Appropriate staff re-assess risk issues, evaluate if there are personnel or policy/procedure implications, clarify [POCSO] responsibility in the concern, identify the need for potential quality improvement actions, and identify [POCSO] leaders who need to be informed.*

*- **Action:** Appropriate staff remedy the problem identified in the concern and/or take action based on the previous determinations. Collaboration with key stakeholders (e.g. legal, communications, etc.) may be required.*

*- **Communication:** Appropriate staff close all feedback loops by responding back to the patient/family member who expressed the concern, advise appropriate staff of the resolution, and review policy/procedures with staff as required.*

*- **Documentation:** Appropriate staff document actions (i.e. phone calls, meetings, etc.) taken towards resolution, the final decision and the complainant's response.*

*- **Resolution of a concern** is defined as the point at which the concern/complaint process is concluded and where there is a level of mutual understanding of the outcome between all involved parties. Resolution may differ with individual concerns/complaints, and could entail:*

- mutual acceptance of, and satisfaction with the outcome

- satisfaction with the review process but disagreement or non-acceptance with the outcome

- dissatisfaction with the review process and the outcome

- situations where no follow-up is possible" (CSO, 2009a, pp. 8,9)

Appendix C.2 - Tabular approach for structuring ISO 10002 (2014)

Inputs										Guideline	Output to								
										5. Complaints Handling Framework									
										5.1 Commitment	5.2	5.3							
								Applic. Reqmnts.	5.1	**5.2 Policy**	6.1	6.2							
									5.1	**5.3 Responsibility and authority**									
									5.1	**5.3.1 Top management should be responisble…**	6	6.2	6.4	7.1	8.6				
									5.1	**5.3.2 The ch management representative…**	6.3	6.4	8.4						
									Org. Personnel	**5.3.3 Other managers involved…**	6.3	6.4	7	7.1	7.7	7.9	8.1	8.4	
									Org. Personnel	**5.3.4 All personnel in contact with customers…**	Customer	6.4							
									Org. Personnel	**5.3.5 All personnel should…**	6.1	6.4	7.5						
									5.3	**6. Planning and design**									
								5.3	5.2	**6.1 General**	7	7.1							
								5.1	5.3	**6.2 Objectives**	6.4								
									5.3	**6.3 Activities**	7								
							5.3	6.1	6.2	**6.4 Resources**	7								
								8.6	8.7	**7. Operation of the c-h process**									
									5.3	**7.1 Communication**	Customer	Complainant	Other interested parties						
								7.1	Complainant	**7.2 Receipt of complaint**	7.3	8.1							
			7.9	7.8	7.7	7.6	7.5	7.4	7.2	**7.3 Tracking of complaint**	Complainant	8.1							
									7.2	**7.4 Acknowledgement of complaint**	Complainant	7.3							
								7.2	5.3	**7.5 Initial assessment of complaint**	7.3	7.6							
									7.5	**7.6 Investigation of complaints**	7.7								
								7.6	5.3	**7.7 Response to complaints**	Org. Processes	7.6	7.8	7.7	External resolution	7.3			
									7.7	**7.8 Communicating the decision**	Org. Personnel	Complainant	7.3						
								Complainant	7.8	**7.9 Closing the complaint**	7.7	External resolution	Complainant	7.3					
										8. Maintenance and improvement									
						6.4	7.9	7.3	5.3	**8.1 Collection of information**	8.2								
								7.3	8.1	**8.2 Analysis and evaluation of complaints**	8.6	Org. Processes							
								Complainant	7	**8.3 Satisfaction with the c-h process**	8.6								
				8.2	8.1	5	6	7	5.3	**8.4 Monitoring of the c-h process**	8.6								
							5	7	6	**8.5 Auditing of the c-h process**	8.6								
									5.3	**8.6 Management review of the c-h process**									
								Applic. Reqmnts.	7	**8.6.1 Top management…**	Org. Processes	Org. Products/Serv.	6	7	5.2	6.2			
5.2	6.2	8.3	8.4	8.5	8.7	Ext. factors	Org. structure	Resources Avail.	Org. Products/Serv.	**8.6.2 The input to mgmt review…**									
										8.6.3 The output from the mgmt review…	7	Org. Products/Serv.	Resources Avail.						
							7	Ext. factors		**8.7 Continual improvement**	7								
										MENTIONED COMPONENTS									
									5.3	**Customer**									
						7.8	7.1	7.4	7.3	**Complainant**									
									7.7	**Org. Processes**									
									7.7	**External resolution process**									
									7.8	**Org. Personnel**									
								7.7	7.9	**Responses**									
										Applic. Reqmnts.	5.2								
									8.6	**Org. Products/Serv.**	8.6								
									8.6	**Org. structure**	8.6								
										Resources Avail.	8.6								
										Ext. factors	8.6	8.7							

Appendix C.3 - Example of mapping of clause 4. Principles (table and justification)

The principles outlined in clause 4. Guiding Principles of ISO 10002 (2014) were mapped against the principles under the section called Patient Concerns Resolution Framework Principles (Inner Circle) from the PCRP (CSO, 2009a, p. 5). In order to do this, the title and description of each principle on the MSS were compared against the title and description of the ones found in the MS. In the case where a principle from ISO 10002 had a strong correspondence (i.e. similar words or ideas) to a principle in the PCRP then a match was considered to exist. Table 33 was created listing the principles from ISO 10002, next to which the matching principles from the PCRP are also identified. When no match was found, it was noted as N/A (non applicable).

Table 33 - Mapping of clause 4. Guiding Principles

ISO 10002:2014	Patient Concerns Resolution Process
4. Guiding Principles	**Principles (CSO, 2009a, p.5)**
4.1 General	
4.2 Visibility	4. Accessible[5]
4.3 Accessibility	4. Accessible 6. Fair/Transparent
4.4 Responsiveness	1. Timely 3. Seamless/Coordinated
4.5 Objectivity	6. Fair/Transparent
4.6 Charges	N / A
4.7 Confidentiality	5. Confidential
4.8 Customer-focused approach	2. Collaborative 9. Responsive
4.9 Accountability	7. Resolution close to the source
4.10 Continual Improvement	N / A

Principle **4.2 Visibility** states that "Information about how and where to complain should be well publicized to customers, personnel and other interested parties" (ISO 10002, 2014, p. 2) and can be mapped against principle 4. Accessible of the PCRP which asserts that "The patient concerns resolution process is simple, clear, and available to all through a variety of methods" (CSO, 2009a, p. 5).

Principle **4.3 Accessibility** reads "A complaints-handling process should be easily accessible to all complainants. Information should be made available on the details of making and resolving complaints. The complaints-handling process and supporting information should be easy to understand and use. The information should be in clear language. Information and assistance in making a complaint should be made available (see Annex B), in whatever languages or formats that the products were offered or provided in, including alternative formats, such as large print, Braille or audiotape, so that no complainants are disadvantaged" (ISO 10002, 2014, pp. 2-3). This could be connected with two principles of the PCRP, namely 4. Accessible, and 6. Fair/Transparent which read, respectively "The patient

[5] The numbers used for the PCRP's principles were adopted by the author for easier analysis; since they are not numbered in the document.

concerns resolution process is simple, clear, and available to all through a variety of methods" and "The patient concern resolution process is open, clear and plainly evident to everyone including staff, patients, physicians and the public. Concerns/complaints are managed in an equitable, objective, and impartial manner" (CSO, 2009a, p. 5).

The next principle, **4.4 Responsiveness** reads "Receipt of each complaint should be acknowledged to the complainant immediately. Complaints should be addressed promptly in accordance with their urgency. For example, significant health and safety issues should be processed immediately. The complainants should be treated courteously and be kept informed of the progress of their complaint through the complaints-handling process" (ISO 10002, 2014, p. 3). It could be mapped against principle 1. Timely and principle 3. Seamless/Coordinated of the PCRP, which respectively say that "Concerns/complaints are acknowledged and managed efficiently without unnecessary delays" and that "Complainants will be aware of hand-off/transition between service providers/organizations resolving their concerns/complaints, but will not be affected by it or experience delays" (CSO, 2009a, p. 5).

The fourth principle, **4.5 Objectivity** suggests that "Each complaint should be addressed in an equitable, objective and unbiased manner through the complaints handling process" (ISO 10002, 2014, p. 3), and can be mapped against principle 6. Fair/Transparent of the PCRP which says that "[…] Concerns/complaints are managed in an equitable, objective, and impartial manner" (CSO, 2009a, p. 5).

Principle **4.7 Confidentiality** states that "Personally identifiable information concerning the complainant should be available where needed, but only for the purposes of addressing the complaint within the organization and should be actively protected from disclosure, unless the customer or complainant expressly consents to its disclosure" (ISO 10002, 2014, p. 3) and can be mapped against principle 5. Confidential of the PCRP that reads "Information is managed in a way that protects patient/family privacy and results in no adverse consequence to the complainant" (CSO, 2009a, p. 5).

The seventh principle, **4.8 Customer-focused approach** recommends that "The organization should adopt a customer-focused approach, should be open to feedback including complaints, and should show commitment to resolving complaints by its actions" (ISO 10002, 2014, p. 3) and could be connected with two principles of the PCRP, 2. Collaborative, and 9. Responsive: the first one reads "The patient concerns resolution process is an extension of [POCSO] commitment to partner with patients and families to ensure the provision of quality care. This commitment includes partner organizations, professional regulatory bodies and contracted agencies" and the second one "Patient/family feedback is valued. Recommendations arising out of the patient concerns resolution process are taken seriously and acted upon when appropriate" (CSO, 2009a, p. 5).

The principle **4.9 Accountability** suggests that "The organization should ensure that accountability for and reporting on the actions and decisions of the organization with respect to complaints handling is clearly established" (ISO 10002, 2014, p. 3) and could be mapped against principle 7. Resolution close to the source of the PCRP which reads "Concerns/complaints will be resolved as close to the point of service as possible and will involve others in the organization as appropriate regardless of where the feedback is received" (CSO, 2009a, p. 5). In this example, the PCRP seeks accountability through the resolution close to the source.

Appendix C.4 - Results from gap analysis

Table 34 - Gap analysis results (clauses)

Clause from ISO 10002 (2014)	Correspondence with CSO's PCRP (cited pages from CSO, 2009a, unless otherwise noted)	Identified gaps
3. Terms and definitions	Matching definitions available in document CSO (2009a, p. 33-34)	None
4. Guiding Principles	Matching principles available in document CSO (2009a, p. 5)	Principle 10. Continual improvement had no match
5. Complaints-handling framework	- 5.1 Commitment: realized by having PCRP in place (incl. documentation) - 5.2 Policy: addressed by elements in documentation ("Overview" and "Foundational tenets" in CSO, 2009a) - 5.3 Responsibility and authority: satisfied with role and process descriptions in (pp. 12-14)	None
6. Planning and design	- 6.1 General: evidenced by the PCRP document (CSO, 2009a) including the PCRP algorithm (p. 17) and the supporting flowcharts (pp. 18-21) - 6.2 Objectives: results on select few objectives of the PCRP were identified in the 2008-2009 POCSO Annual Report (POCSO, 2009a) - 6.3 Activities: evidenced by the effort made by the CSO's three sub-units to understand each other's processes and to harmonize them (from interviews) - 6.4 Resources: addressed by the fact that the CSO exists with facilities, people, equipment to operate the PCRP; in addition to the training and education that staff receive.	Lack of measurable objectives and the frequency in which they should be established as per sub-clause 6.2.
7. Operation of complaints-handling process	- 7.1 Communication: satisfied by online media such as the "Patient Concerns & Feedback", "Contact us", "Frequently Asked Questions", and "Patient Feedback Form" websites (POCSO, 2009c, d, e, f); as well as the brochure and poster available online (POCSO, 2009g, h); also during one-one-one communication between the PFIC/PCC and the complainant (CSO, 2009a, pp. 12-13) - 7.2 Receipt of complaint: addressed by subsection 'Communication' in the role descriptions of the PFIC/PCC (CSO, 2009a, p. 12); and in 'Concerns Intake & Data Team File Processes' (CSO, 2007a p.1) related to the electronic database. - 7.3 Tracking of complaint: addressed by "Patient Feedback Form", the use of the electronic database; and subsection 'Documentation' in the role description of the PCC (p. 13) - 7.4 Acknowledgement of complaint: addressed by subsection 'Communication' in the role descriptions of the PFIC and PCC (p. 12); and objective in place to acknowledge complaint within "3 business days" - 7.5 Initial assessment of complaint: addressed by subsection 'Initiation of follow-up' in the role descriptions of the PFIC who "initiates follow up to concern by notifying PCC or PCDir of any associated urgency/risk" (p. 12) - 7.6 Investigation of complaints: addressed by subsection 'Coordination' in the role description of the PCC who "assist in coordinating the efforts of POCSO staff/leaders involved in a specific patient concerns resolution process […] but do not themselves conduct the investigation" (p. 13) - 7.7 Response to complaints: addressed under 'Action' and 'Resolution of a concern' of the section 'Fundamental Activities of the PCRP' (p. 9); and in 'Documentation' of the role description of PCC (p. 13)	- Some of the information required in sub-clause 7.1 Communication of ISO 10002 was not provided to patients and families: for instance, the time periods associated with various stages of the process, the complainant's options for remedy, and how to obtain feedback on the status of the complaint. This lack of public information could have been a result of how the PCRP was designed: i.e., where the initial assessment of the PCC was essential to determine the potential options for remedy as well as timelines involved for each particular concern. Regardless, the then-existing gaps were recognized: - Information regarding the time involved (other than the "within 3 business days" response after a complaint is submitted) was not available online. - Information on how to require a fairness review to external parties was inconsistent: i.e., the Patient Concerns & Feedback website mentioned that the [Provincial] Ombudsman was at reach for cases where

	- 7.8 Communicating the decision: addressed under 'Communication' of the section 'Fundamental Activities of the PCRP' which requires that "Appropriate staff close all feedback loops by responding back to the patient/family member who expressed the concern, advise appropriate staff of the resolution, and review policy/procedures with staff as required" (p. 9) - 7.9 Closing the complaint: addressed under 'Documentation' in the section 'Fundamental Activities of the PCRP' in p. 9; and in the roles of the Patient Concerns Officer; and the possibility of involvement of the [Provincial] Ombudsman	the complainant was not satisfied with the fairness of the process (POCSO, 2009c); while the Patient Feedback Brochure mentioned the Patient Concerns Officer as the resource in case the complainant believed "the concern was handled unfairly" (POCSO, 2009h, p. 2).
8. Maintenance and improvement	- 8.1 Collection of information: addressed by Electronic Database (CSO, 2007a); role description of the PCC in p. 12; and by results on the objectives of the PCRP identified in the POCSO Annual Report (POCSO, 2009a) - 8.2 Analysis and evaluation of complaints: evidenced by the use of Categories table (Measurement & Reporting of Feedback) in p. 31; and 'Reporting and Trending' subsection in the role description of the PCDirs in p. 14; and under 'Determination and Action' of the 'Fundamental Activities of the PCRP' section in p. 9 - 8.3 Satisfaction with the CH process: evidenced by second screen shot in p. 3 of the Concerns Intake & Data Team File Processes document (CSO, 2007a); and under 'Resolution of a concern' of the 'Fundamental Activities of the PCRP' section in p. 9 - 8.4 Monitoring of the CH process: evidenced by weekly or biweekly meetings between PCDirs and the PCED; performance indicators and targets pertaining to the PCRP in the POCSO Annual Report p. 32; and by reports generated every quarter for Top Management (according to interviews with directors) - 8.5 Auditing of the CH process: Not audits of the PCRP were yet in place - 8.6 Management review of the CH process: partially evidenced by performance indicators and targets pertaining to the PCRP as reported in the POCSO Annual Report (POCSO, 2009a, p. 32); and by reports generated every quarter for Top Management (according to interviews with directors) - 8.7 Continual improvement: partially addressed in section 'Overview: The Provincial Patient Concerns Resolution Process' in p. 8; under 'Determination' of the 'Fundamental Activities of the PCRP' section in p. 9; and under 'Purpose' of the section Patient Concerns Resolution Framework in p. 4	- Sub-clause 8.5 required audits to be performed regularly, but the available information showed no evidence of audits of the PCRP being performed. - Sub-sub-clause 8.6.1 required top management "to assess opportunities for improvement and the need for changes to the complaints-handling process and products offered" (ISO 10002, 2014, p. 9), however, these responsibilities were not documented in the CSO's PCRP document (CSO, 2009a). - Sub-sub-clause 8.6.2 suggested several inputs to management review, none of which appeared to be considered by the CSO (except for 'legislation') - Sub-sub-clause 8.6.3 suggested several outputs from the management review, none of which appeared to be considered by the CSO - Sub-sub-clause 8.7 suggested activities for continual improvement, many of which appeared not to be followed by the CSO, such as "explor[ing], identify[ing] and apply[ing] best practices in complaints handling, foster[ing] a customer-focused approach within the organization, encourage[ing] innovation in complaints-handling development, and recognize[ing] exemplary complaints-handling behaviour" (ISO 10002, 2014, p. 9).

Table 35 - Gap analysis results (annexes)

Annex from ISO 10002 (2014)	Correspondence with CSO's PCRP (cited pages from CSO, 2009a, unless otherwise noted)	Identified gaps
B. Form for complainant	- Matching fields in "Patient feedback form" (POCSO, 2009f) - Patient feedback form also allowed to submit compliments and commendations	None
C. Objectivity	- C.1 General: evidenced in the subsections 'Principles', 'Operational values', 'Fundamental activities' of CSO (2009a), and websites and brochures (POCSO, 2009b, c, d, e, f, g, h). - C.2 Objectivity for personnel: evidenced in the subsections 'Principles', 'Operational values', 'Fundamental activities' of CSO, 2009a. - C.3 Separating CH from disciplinary procedures: evidenced in subsections 'Investigation', 'Determination', 'Action' and 'Communication' of the 'Fundamental Activities of the PCRP' (CSO, 2009a, p. 9) - C.4 Confidentiality: evidenced in subsections 'Investigation' and 'Determination' of the 'Fundamental Activities of the PCRP' (CSO, 2009a, p. 9) - C.5 Objectivity monitoring: evidenced in subsection 'Resolution of a concern' of the 'Fundamental Activities of the PCRP' (CSO, 2009a, p. 9)	-The principle of Impartiality (under Section C.1 General) suggested that "If a complaint is made about personnel, the investigation should be carried out independently" (ISO 10002, 2014, p. 13). The PCRP recognized that the investigation must be performed by "Appropriate staff" but it did not specify that such personnel must be independent of those who may have been involved in the complaint. - Section C.4 Confidentiality required that "in addition to ensuring complainant confidentiality, the complaints-handling process should ensure confidentiality in the case of complaints against personnel" (ISO 10002, 2014, p. 14). This does not seem to be addressed in the available documentation. - Regarding section C.5 Objectivity monitoring of ISO 10002, the 'Resolution of a concern' activity (CSO, 2009a, p. 9) gathered and documented the level of satisfaction with the review process of every complaint that is received, however, it did not yet explicitly collect information on the objectivity with which the process was performed.
D. Complaint follow up form	Mapped against document "Concern Intake & Data Team File Processes" related to the electronic database (CSO, 2007a), with the following results: 1. Details of complaint receipt: evidenced by fields in Maintain encounter / 'New' screen 2. Details of complainant: evidenced by electronic database 'Intake form' 3. Details of complaint: evidenced by fields in Maintain encounter / 'New' screen; and in Maintain encounter / 'Event comment' screen 4. Problem encountered: evidenced by fields in Maintain Encounter / "New" screen; and in Maintain Encounter / "Event" screen / "Event Issues" screen; and under 'Concerns - Level Definitions' (CSO, 2008b) 5. Complaint assessment: Partially addressed in Maintain Encounter / "Event" screen / "Event Issues" screen 6. Complaint resolution: Partially addressed in Maintain Encounter / "Event" screen / "Event Comment" screen 7. Tracking complaint: evidenced by Maintain Encounter / "New" screen	- The following elements of the Complaint assessment section of ISO 10002: severity, complexity, and impact of complaint, need for immediate action, availability of immediate action, and likelihood of compensation (ISO 10002, 2014, p. 17), were not being addressed by the then-current electronic database (CSO, 2007a). - The field to document whether a remedy was requested by the complainant, suggested in section 6. Complaint resolution, seemed to be lacking in the then-current electronic database (CSO, 2007a).

E. Responses	- E.1 The organization's policy on the provision of responses […]: was partially addressed in subsection 'Action' of Fundamental Activities of the PCRP (CSO, 2009a, p.9); and responses such as 'quality improvement actions' which could include: clinical performance review, interpersonal performance review, environmental improvements, development of patient education, process review/redesign, and policy review/redesign, as reported in CSO, 2009c (p.1) - E.2 Issues to be considered may include […]: addressed under subsections 'Determination' and 'Communication' of Fundamental Activities of the PCRP (CSO, 2009a, p.9)	- The PCRP document (CSO, 2009a) did not provide a list of the responses (such as the one in section E.1 of the standard) that could be provided to the complainant. This may have been a result of the uniqueness of each case. By looking at the sample Electronic Database report available (CSO, 2007b), it was noticed that responses (or outcomes) were usually a combination of actions, which included "information", "apology", "indication of changes in process, policy or procedure", "other assistance", and "financial compensation", among others. - Section E.2 of ISO 10002 suggested to consider "whether it is appropriate to offer remedies to others who may have suffered in the same way as the complainant but did not make a formal complaint" (ISO 10002, 2014, p. 19). This was not addressed by the PCRP. However, since the high demand of the provision of health care, paired with the uniqueness and complexity of each case, along with the case by case treatment of concerns by the CSO, may complicate the implementation of such a practice.
F. Escalation flowchart	- First level resolution: addressed by subsections 'Intake', 'Investigation', 'Determination', 'Action', 'Communication', and 'Resolution of concern' of the Fundamental activities of the PCRP (CSO, 2009a, p. 9) - Further level resolution: Evidenced by the possibility to trigger a Patient Concerns Executive Director's (PCED) review, and subsequently a Patient Concerns Officer (PCO) review. - External resolution: Evidenced by the possibility to escalate to the [Provincial] Ombudsman	None
G. Continual monitoring	- G.1 General *[Introductory text only]* - G.2 Management responsibility: partially addressed by section 'Operational values' (p. 8); role description of PCDir; weekly or biweekly meetings between PCDirs; and evidence from electronic database reports - G.3 Performance measurement monitoring:: addressed in 'Concerns Intake & Data Team File Processes' (CSO, 2007a) pertaining to the electronic database as well as electronic database reports; performance indicators and targets pertaining to the PCRP in the POCSO Annual Report (POCSO, 2009a, p. 32); and CSO annual activity report 2007-2008 (CSO, 2008a)	- No evidence of responsibilities of top management related to "defin[ing] the monitoring responsibilities, [… and] ensur[ing] that improvements are implemented [among others]" (ISO 10002, 2014, p. 20). - No evidence that 'other managers involved in the complaints in the organization' work to ensure, within their area of responsibility "that adequate monitoring of the complaints-handling process is undertaken and recorded, corrective action is taken and recorded, and adequate complaints-handling data are available for the top management review of the monitoring process" (ISO 10002, 2014, p. 22). - Most of the proposed 'performance-monitoring criteria' in subsection G.3.2 were not yet used in the PCRP [e.g., letters *a* to *l* and *o*], yet they could benefit the CSO, and should be considered. - No evidence of use of monitoring data such as the alternatives presented under section G.3.3, [i.e., *b, c, e, f, g*] which should be considered by the CSO.
H. Audit	- No match; although 'assessing conformity to procedure' could be deemed as partially addressed by the PCDir's, PCED's and PCO's reviews of administrative fairness (CSO, 2009a, pp. 15, 16, 23); as well as 'assessing opportunities for improvement' is part of the role description of the PCO (CSO, 2009a, p. 23)	- No evidence was found of performance of audits of the CSO's PCRP

Appendix C.5 - Recommendations for gap closure

Table 36 - Recommendations for gap closure (clauses)

Clause from ISO 10002 (2014)	Recommendations
3. Terms and definitions	N/A
4. Guiding Principles	To include principle called "Continual improvement" and make it an objective of the CSO
5. CH framework	N/A
6. Planning and design	To include, perhaps in the Overview or Operational Values of the PCRP, that the CSO will regularly set measurable objectives, and that they will be aligned with the complaints-handling policy. This would satisfy sub-clause 6.2. Some objectives that were identified by looking at the POCSO Annual Report were "Percent of patient concerns investigations initiated within three business days of receipt of concern"; "Level of satisfaction with patient concerns investigative process"; and "Level of satisfaction with patient concerns investigative process outcome" (POCSO, 2009a, p. 32). However, they still need to be mentioned in the PCRP document (CSO, 2009a).
7. Operation of CH process	- To provide information through the different online media on the timelines associated during the resolution process, as well as on the different options for remedy available to the complainant. In case the PCRP did not permit to identify feasible timelines or options for remedy, it was recommended to communicate these limitations and their justification to the patients and their families. - To establish consistency on the information provided about the fairness review process, because one source talked about the [Provincial] Ombudsman (POCSO, 2009c), while another about the Patient Concerns Officer (POCSO, 2009h). It was known that both of these resources were accessible to an unsatisfied complainant, but first the PCO must have performed the administrative fairness review; while the Ombudsman was the last resort (CSO, 2009a, pp. 23-24). - To include in the documentation, likely CSO, 2007a that the PFIC or the PCC should also record the "immediate action taken (if any)" when entering a concern into the electronic database.
8. Maintenance and improvement	- To include in the PCRP a regular audit to evaluate the performance of the complaints-handling process regarding conformity to the documented procedures and suitability to achieve the objectives of the PCRP. - To include in the role description of the PCED that he/she should "assess opportunities for improvement and the need for changes to the complaints-handling process and products offered" (ISO 10002, 2014, p. 9), to comply with sub-sub-clause 8.6.1. - To add a subsection to the role of the PCED called management review and specify that inputs to the management review should include those from sub-sub-clause 8.6.2. (ISO 10002, 2014) - To add to the proposed subsection called management review of the PCED the outputs from sub-sub-clause 8.6.3. (ISO 10002, 2014) - To add activities to the PCRP (or document those already existing) that allow it to "explore, identify and apply best practices in complaints handling, […;] encourage innovation in complaints-handling development[;] and recognize exemplary complaints-handling behaviour"(ISO 10002, 2014, p. 9), to comply with sub-clause 8.7.

Table 37 - Recommendations for gap closure (annexes)

Annex from ISO 10002 (2014)	**Recommendations**
B. Form for complainant	N/A
C. Objectivity	- To add in the PCRP that the "Appropriate staff" (CSO, 2009a, p. 8-9) "should be independent of those who might have been involved in the concern/complaint", aiming to satisfy the principle of Impartiality of the standard (ISO 10002, 2014, p.12) - To add, perhaps under principle 5. Confidential of the PCRP (CSO, 2009a, p.5), that "the details of complaints against personnel are known only by those directly concerned, thus ensuring confidentiality of personnel too." - To make sure that in the Resolution of a concern activity, the "objectivity" of the review process is understood and assessed by the complainant. In this way, the thorough documentation of the complaint files will offer information regarding satisfaction with the objectivity of the process.
D. Complaint follow up form	- To establish criteria for assessing severity, complexity and impact; and to include these fields in the electronic database (perhaps in the Event screen), in order for the PFIC and PCC to be able to enter these details when filing a concern. - To also include, perhaps in the Event Issues screen, whether there is need for immediate action, availability of immediate action, and likelihood of compensation. - To include, perhaps in the Event Issues screen, a check box to document whether a remedy is requested by the complainant.
E. Responses	Even when the responses are usually dependant on the case (and the determination activity), a list of possible responses would be helpful. It is recommended to include a section in the PCRP describing the most frequent responses, for example: "information", "apology", "indication of changes in process, policy or procedure", "other assistance", and "financial compensation", among others.
F. Escalation flowchart	N/A
G. Continual monitoring	- To document the existing process for monitoring the PCRP (including the weekly review meetings with PCDirs and the PCED, and the quarterly reports to Top Management). Additionally, as per section G.2, to describe management responsibilities regarding monitoring. For example, that top management (perhaps the PCED) should "define the monitoring objectives and responsibilities, conduct reviews of the monitoring process, and ensure that improvements are implemented"; that the complaints-handling management representative (perhaps the PCDirs) should "establish a process of performance monitoring, evaluation and reporting, and to report to top management so that necessary improvements can be made"; and that other managers involved in the complaints in the organization (likely the PCCs and PFICs), ensure within their area of responsibility "that adequate monitoring of the complaints-handling process is undertaken and recorded, corrective action is taken and recorded, and adequate complaints-handling data are available for the top management review of the monitoring process" (ISO 10002, 2014, p. 20). - To strongly consider using the performance-monitoring criteria suggested under subsection G.3.2 [assigned letters] *a, c, d, e, f, g, h, k, l, o,* of ISO 10002 (2014) - To assess if the criteria in G.3.2 [assigned letters] *b, j, i,* is worth implementing - To use the indicators under subsection G.3.3 [assigned letters] *b, f, g,* of ISO 10002 (2014) as part of the process for monitoring the PCRP.
H. Audit	- To plan and implement audits of the CSO's PCRP

Appendix C.6 - Supporting details re: process for managing commendations at the CSO

Information about the management of commendations at the CSO was notably less than that for managing concerns. According to section *Commendations* of the CSO Annual Activity Report (CSO, 2008a), commendations were received from the public and circulated to the staff and management. Commendations were gathered through comment boxes located at various sites and online forms available on the organization's website. "In addition to circulating commendations to staff and management, this feedback is tracked in the [Electronic Database] and reported annually to stakeholder groups" (CSO, 2008a, p. 5).

Commendations were classified "according to the same primary and secondary categories as concerns [i.e., complaints]. However, commendations tend to be narrower in scope. Most commendations received […] [were] for the excellent care and services provided or for the high degree of emotional support provided" (CSO, 2008a, p. 5).

Level 1 (Primary type)	Level 2 (Secondary categories)
Access	Availability, postponement, wait times
Communication	Feedback, inquiry, non-verbal, verbal
Delivery of care	Continuity of care, diagnosis, discharge, **emotional support**, physical comfort, physical contact, policies & procedures, **practice standards**
Environment	External, food, housekeeping, internal, parking
Finance	Billing, funding, loss and damage

Table 38 - Commendation Classification - Summarized from CSO, 2008a (p. 13)

The PCRP document (CSO, 2009a) mentioned the term *commendations* only three times: the first two under the subsections *Communication* and *Documentation* of the role description of the PFIC, stating that the PFICs were responsible of gathering and recording "details of suggestions, commendations or concerns voiced by patients/families [… and to document them by entering them] into an electronic database" (CSO, 2009a, p. 12). The third time commendations were mentioned was under subsection *Definitions*, where the term *commendations* was defined as "an expression (verbal or written) of satisfaction with care or services delivered, that may be received by [the CSO], site manager, corporate leadership or is outlined in public communications" (CSO, 2009a, p. 33).

Appendix C.7 - List of CSO and POCSO documentation used

CSO (Case Study Organization) documents

CSO, 2007a Concerns Intake & Data Team File Processes
CSO, 2007b Sample Electronic Database Report
CSO, 2008a CSO Annual Activity Report, April 1, 2007 - March 31, 2008
CSO, 2008b Concerns, level definitions
CSO, 2009a POCSO Patient Concerns Resolution (2009 edition)
CSO, 2009b Patient Concerns Resolution Process (Final Algorithm)
CSO, 2009c Quality improvement definitions
CSO, 2010 POCSO Patient Concerns Resolution (2010 edition)
CSO, 2013 Administrative Fairness: The Fine Art of Fairness

POCSO (Parent of CSO) documents

POCSO, 2009a POCSO Annual Report, April 1 2008 - March 2009
POCSO, 2009b POCSO Homepage [website]
POCSO, 2009c Patient Concerns & Feedback [website]
POCSO, 2009d Patient Concerns & Feedback: Contact us [website]
POCSO, 2009e Patient Concerns & Feedback: Frequently Asked Questions (FAQ) [website]
POCSO, 2009f Patient Concerns & Feedback: Patient Feedback Form [website]
POCSO, 2009g Patient feedback: we value your feedback [online poster]
POCSO, 2009h Patient feedback: we want to hear from you [online brochure]
POCSO, 2009i POCSO Strategic Direction, 2009-2012
POCSO, 2012a PCRP Policy
POCSO, 2012b PCRP Procedure
POCSO, 2012c Medical Staff Guideline
POCSO, 2013a POCSO Code of Conduct
POCSO, 2013b 'Pocket card'
POCSO, 2014 Primary/Secondary Category Definitions

Appendix D - Supporting materials for "BAM Development"
Appendix D.1 - Select components of conceptual framework and supporting concepts

Appendix D.1.1 From criteria to probing questions

This section presents guidance on how to identify, organize, and utilize audit criteria to formulate questions to assess process interactions and process output in the BAM. The section is structured in three main subsections:

1. Identifying, organizing, and harmonizing criteria from available documentation
2. Using the criteria to prepare questions to assess:
    a. Interactions, and
    b. Process output
3. Transferring questions to checklists

D.1.1.1 Identifying, organizing, and harmonizing criteria from available documentation

There are different types of criteria, including requirements and objectives of the process overall, of the interactions, and of the process output. Process requirements and objectives may refer to characteristics or targets of the overall process (i.e., without distinct attribution to certain steps of the process). Interaction criteria would include characteristics that process steps that involve members from different departments should possess or seek to achieve. While process output requirements and objectives would refer to attributes that the process output has to possess, or sought-after targets, respectively. Definitions and examples of criteria pertaining to the process overall, interactions, and process output are presented in the table below.

Table 39 - Audit criteria, definitions, and examples

	Criteria	Defined or interpreted as...	Examples
Process (overall)	Process requirements	Attributes or characteristics that the process overall has to possess (or should not have)	"2.5 Concerns involving Medical Staff care or conduct shall be managed in accordance with the [POCSO] Medical Staff Bylaws and Rules and the [POCSO] PCRP Policy and [Medical Staff Guideline']" (PCRP Procedure, p. 3).
	Process objectives	Targets or aims that the process overall seeks to achieve	"1.1 [POCSO] shares responsibility and accountability with Medical Staff…" (Medical Staff Guideline, p. 1) Implied objective: To have shared responsibility and accountability between [POCSO] and Medical Staff of programs and services involving Medical Staff that are offered by [POCSO]
Interactions	Interaction criteria	Requirements or guidelines of characteristics of interactions (i.e., process steps that involve members from different departments, or the customer, or external organizations)	"2.4 [letter a, bullet point] The Complainant shall be informed of the supervisor's involvement" (PCRP Procedure, p. 2).
Process output	Process output requirements	Attributes or characteristics that the process output has to possess (or should not have)	Substantive fairness, letter a) "Decision cannot require anyone to do something that is illegal or not authorized by law" (Administrative fairness, p. 2).
	Process output objectives	Targets or aims that the process output seeks to achieve	Substantive fairness, letter b.3) "...- from the [POCSO] PCRP perspective, in collaboration with the reviewer, it is essential to ensure the 'correct' decision was made" (Administrative fairness, p. 2).

The goal of identifying requirements and objectives for both interactions and process output is to use the appropriate type of criteria when assessing 'compliance' and 'effectiveness'. Requirements, both for interactions and for process output, will be used as criteria when assessing 'compliance'; while objectives, will be used when assessing 'effectiveness'.

Some criteria may fall within both categories (i.e., requirements or objectives), while other criteria could be applicable for both interactions and the process output. Since the BAM is considered an 'internal audit', more emphasis should be placed on making sure that the criteria is ultimately used for the purpose of examining interactions and/or the process output, than on striving for perfect categorization (or being delayed by uncertainties arising from doubts regarding criteria categorization).

The flowchart in the next page graphically depicts the process used for identifying, organizing, and harmonizing audit criteria. The contributions of this research, which have been highlighted in the flowchart by means of dashed-line rectangles and circled letters, relate to the methods for:

A. Organizing criteria (including extracting implied objectives and breaking up compound statements),

B. Harmonizing criteria, and

C. Reviewing the harmonized criteria,

Next, details are presented on the above-outlined contributions, starting with A. Organizing criteria

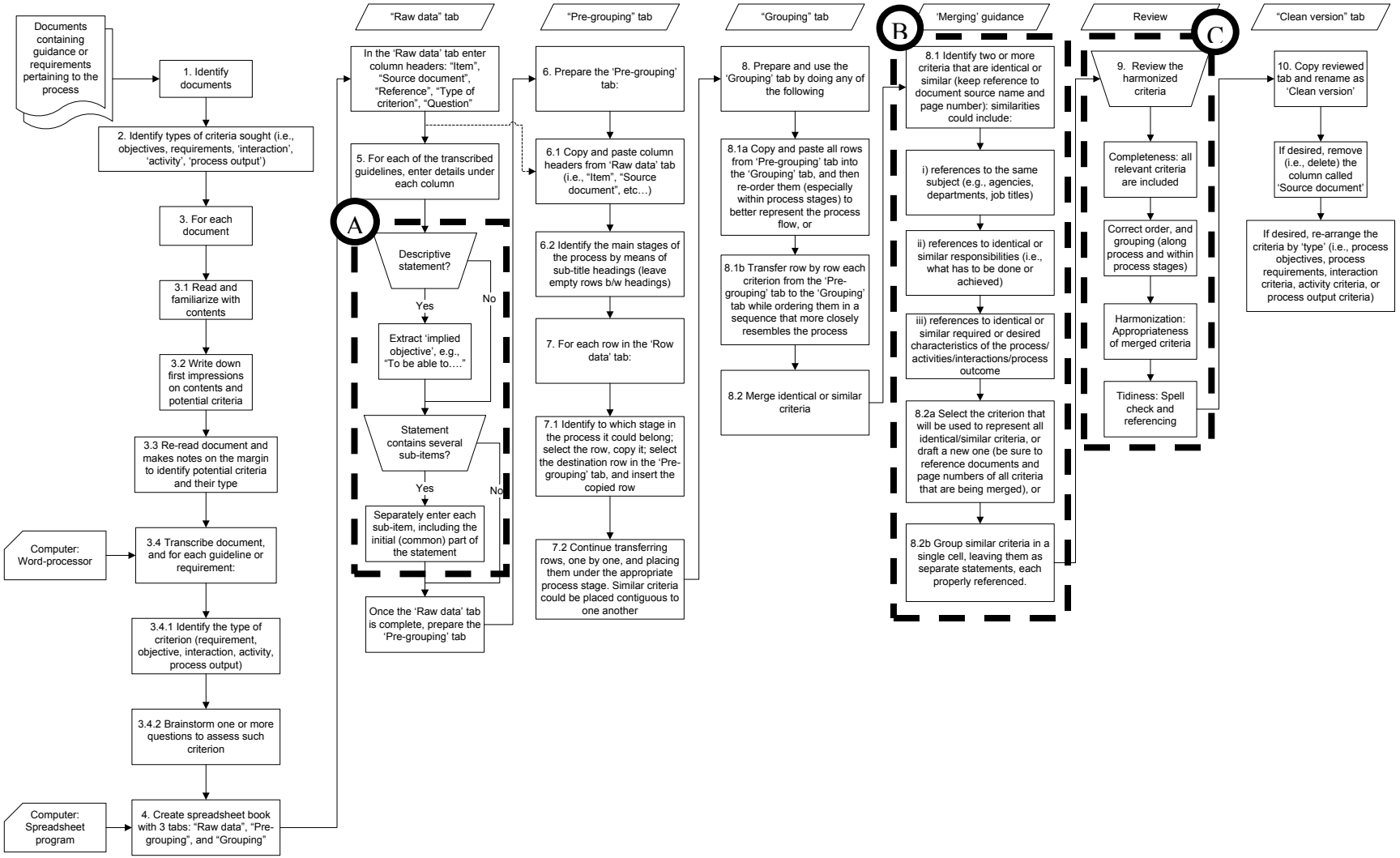


Figure 34 - Flowchart of sub-method for organizing and harmonizing audit criteria

D.1.1.1.1 A. Organizing Criteria

Some statements in the process documentation may be descriptive rather than prescriptive, and imply a certain objective. Such implied objective can be extracted from a descriptive statement by reframing the statement to state the intended ability of the organization or department to allow for handling the 'described' issue. Often times the implied objective can be formulated by using "To be able to…" plus the described issue, for example:

> Descriptive statement: "1.1 Complainants may at any time raise Concerns with [POCSO] about their health care experience or that of a Patient …" (p. 1)
>
> Proposed implied objective: "To be able to receive concerns at any time"

Other statements may contain several sub-items (i.e., bullets or letters), all of which contain relevant criteria and would be better to handle at the lowest level, to be able to later combine or merge with similar requirements from other documents. Thus, it is advisable to enter the sub-bulleted requirements one per row, including the initial common statement; for example, the following multi-bulleted clause:

> "3.1 The person managing the review of the Concern shall:
>
> a) conduct the review in a timely and respectful manner for all individuals involved, in compliance with applicable privacy legislation;
>
> b) conduct the review in a manner that gives all stakeholders a fair opportunity to present the full details of the Concern;
>
> c) determine if there is a need to inform a supervisor…" (PCRP Procedure, pp.3-4),

can be entered in the spreadsheet at the bullet-level, by making sure to also include the initial (common) part of the statement, which identifies the person responsible, for example:

> a) "3.1 The person managing the review of the Concern shall: a) conduct the review in a timely and respectful manner for all individuals involved, in compliance with applicable privacy legislation […]" (PCRP Procedure, pp.3-4),
>
> b) "3.1 The person managing the review of the Concern shall: […] b) conduct the review in a manner that gives all stakeholders a fair opportunity to present the full details of the Concern […]" (PCRP Procedure, pp.3-4),
>
> c) "3.1 The person managing the review of the Concern shall: […] c) determine if there is a need to inform a supervisor…" (PCRP Procedure, pp.3-4).

By extracting implied objectives from descriptive statements and by breaking down compound requirements into the sub-bullet level, criteria should be clearer and at a lower level for the

purpose of facilitating harmonization and the subsequent preparation of audit questions. A method for harmonizing criteria is presented next.

D.1.1.1.2 B. Harmonizing Criteria

After criteria had been extracted and organized, the auditor or analyst can harmonize it. For example, statements from different documents may refer to identical requirements of the process, or to requirements sharing similarities with minor differences, or to aspects that, although not similar, could be related with each other. The IUMSS handbook (ISO, 2008a) provides guidance regarding commonalities between requirements belonging to one or more MSS; where 'commonality' is defined as: "share[d] purpose, meaning and content" (p. 98). The IUMSS handbook (ISO, 2008a) suggests that requirements that are "common in intent but not identical content" can be harmonized through "incorporating either the most comprehensive or the minimum shared level of detail as the basis to integrate the requirements" (p. 98). When process documentation is used (as opposed to MSS requirements or guidance), it can happen that relevant requirements and objectives are scattered through the documentation and multiple references are made to similar or identical requirements. Therefore, it is important for auditors to harmonize the criteria, in order to avoid redundancies, while maintaining a good audit trail that will allow in the future to update the criteria when documentation is updated. Harmonizing criteria from process documentation can be done in the following fashion:

1. Identify the two or more criteria that are identical or similar, including their source (i.e., document name and page). Similarities between criteria could be recognized from one, or a combination, of the following:

    i) references to the same subjects involved (e.g., agencies, departments, job titles or the customer),

    ii) references to identical or similar requirements (i.e., attributes or characteristics) of the process (e.g., interactions or activities) or of the product or service (i.e., the process outcome), or

    iii) references to identical or similar objectives (i.e., aims or targets) of the process or process outcome.

2. Select the criterion that will be used to represent all identical or similar criteria, i.e., the 'harmonized' criterion, and indicate next to the criterion the source documents and pages of the merged criteria. For example, the following five criteria:

- "1.9 All information related to Concerns received from Complainants shall be managed in accordance with [POCSO] policies and applicable legislation, including but not limited to, those regarding privacy and confidentiality" (PCRP Policy, p. 2)

- "3.12 All communications will be subject to the limits and parameters of applicable legislation" (Medical Staff Guideline, p. 3).
- Relational fairness, letter b) "The reviewer is approachable, respects confidentiality and is transparent" (Administrative fairness, p. 2).
- Questions under "How?": "Have we been confidential when we can?" (Administrative fairness, p. 3).
- "Respect the dignity and privacy of the patient/family" ('Pocket card').

can be combined into the following all-encompassing statement:

> Information related to Concerns received from Complainants shall be managed in accordance with [POCSO] policies and applicable legislation, including but not limited to, those regarding privacy and confidentiality (PCRP Policy, p. 2; Medical Staff Guideline, p. 3; Administrative fairness, pp. 2-3; 'Pocket card')

3. Alternatively, a decision could be made to just group the similar criteria in a single cell of the spreadsheet, leaving them as separate statements, each properly referenced, for instance, cell C27 in Figure 35:

	A	B	C	D
1	**No.**	**Items**	**Reference (Requirement / Objective)**	**Question**
2	**INTERACTION CRITERIA**			
3	**STAGE 0: PREPARATORY**			
24				
25	**STAGE 1: COMMUNICATION**			
26	21	89, 90	"1.5 [POCSO] shall keep Complainants informed throughout the review process regarding the status of their Concern" (PCRP Policy, p. 2) **Implied objective:** To keep the complainant informed throughout the review process regarding the status of their concern	How often were updates provided to the complainant, and why? Were there any delays in communication between departments; if so, what was the potential reason?
27	22	98, 99, 159, 160, 14, 26, 50	"1.9 All information related to Concerns received from Complainants shall be managed in accordance with [POCSO] policies and applicable legislation, including but not limited to, those regarding privacy and confidentiality" (PCRP Policy, p. 2) "3.12 All communications will be subject to the limits and parameters of applicable legislation." (Medical Staff Guideline, p. 3) Relational fairness, letter b) "The reviewer is approachable, respects confidentiality and is transparent" (Administrative fairness, p. 2) Questions under "How?": "Have we been confidential when we can?" (Administrative fairness, p. 3) "Respect the dignity and privacy of the patient/family" ('Pocket card')	How were dignity, privacy and confidentiality of the patient/family ensured during the review process? "Have we been confidential when we can?" (Administrative fairness, p. 3)
28	23	104	"1.4 Concerns may be communicated by the Complainant verbally or in writing" (PCRP Procedure, p. 2) **Implied objective:** To be able to receive complaints orally or in writing	How are complaints received by the department? Are there sufficient resources available to allow the proper recording of concerns?

Figure 35 - Example of grouped criteria using a spreadsheet

After harmonizing the criteria, it is a good practice to review the result. The next subsection briefly presents details regarding how to review the harmonized criteria.

D.1.1.1.3 C. Reviewing results of harmonization

Once all criteria has been ordered and harmonized where applicable, the next step is to review the spreadsheet for completeness, correctness, appropriateness and tidiness. Each of these yardsticks is explained next:

a) Completeness: verify that all relevant documents, and all relevant requirements, guidelines, and objectives, have been considered when extracting, organizing, and harmonizing the audit criteria.

b) Correct order and grouping: confirm that criteria had been organized in the order that matches the process flow, and when possible, organize per process stages. Also verify that where decisions were made to group criteria, such grouping is consistent and appropriate.

c) Appropriateness of harmonization: Verify that resulting harmonized criteria (e.g., statements resulting from merging similar criteria) contain all relevant details of the original criteria (i.e., that the result of the merger accurately represents the original components).

d) Tidiness: Run a spell check on the spreadsheet, and make sure that all references to documents and page numbers have been included and are accurate.

Post-review harmonized criteria can be used to prepare questions to assess interactions and process output with respect to the audit objectives (e.g., Compliance, Effectiveness, Risks, and Improvement Opportunities). A thorough criteria-harmonization process will likely produce the following benefits:

- reduce the risk of having redundant questions as a result of having redundant criteria,

- enable an efficient audit,

- ensure completeness (i.e., that all relevant requirements and objectives have been included in the preparation of the audit questions),

- minimize the impact of future revisions and updates to procedures and processes, thanks to the resulting audit-trail that allows to trace back the linkages between: Questions, Harmonized criteria, Raw statements, and Source documents.

The next subsection describes the method used to formulate questions for the purpose of assessing interactions on one hand, and process output on the other.

D.1.1.2 Using criteria to prepare questions to assess interactions and process output

Questions can be prepared to examine process interactions and process output against audit criteria with respect to the applicable audit objectives (e.g., Compliance, Effectiveness, Risks, and Improvement Opportunities). The resulting questions could subsequently be incorporated into the checklists for interviewing personnel (interactions), for observing the process (interactions), and for observing the process output.

Figure 36 presents a flowchart of the method for preparing assessment questions. The flowchart represents two main pathways: preparation of assessment questions for process interactions, and preparation of assessment questions for process outputs.

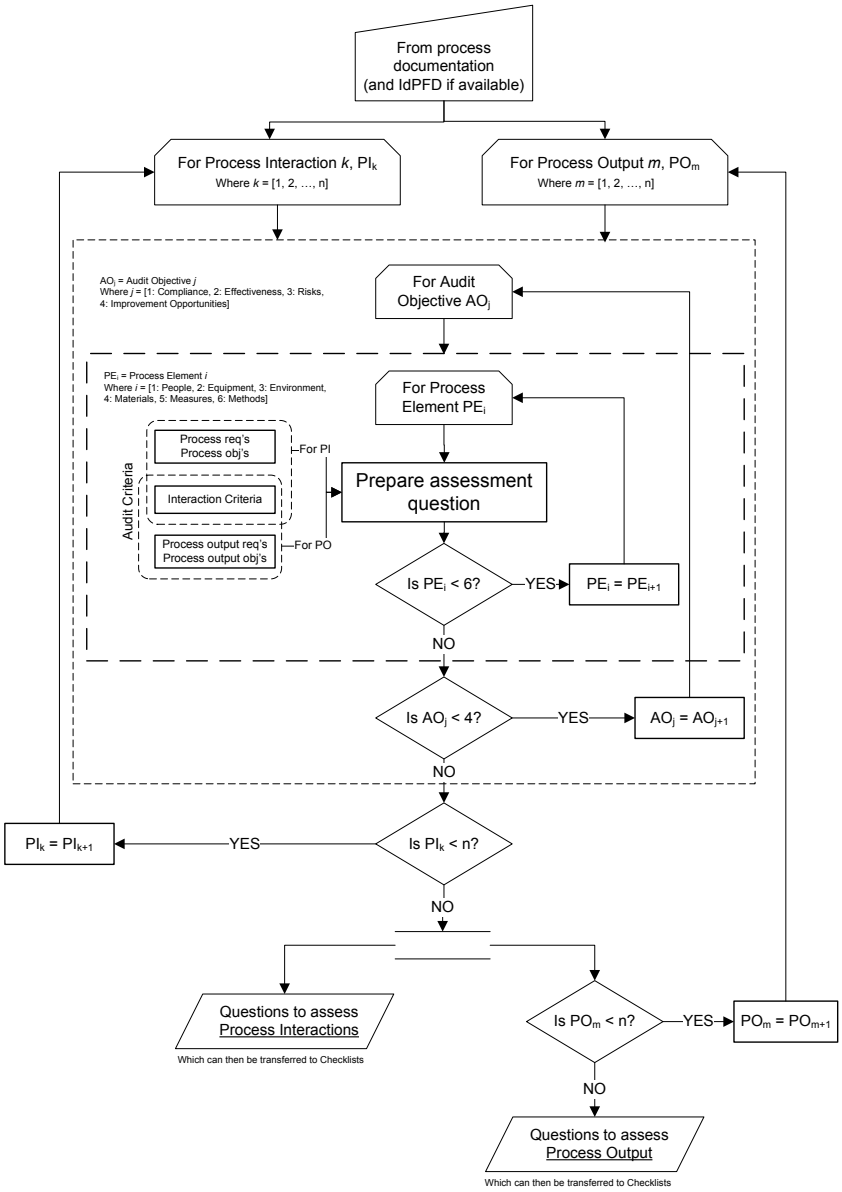


Figure 36 - Flowchart of process for preparing assessment questions

For each process interaction that comprises the process, and for each audit objective that was included in the audit (e.g., Compliance, Effectiveness, Risks, and Improvement Opportunities), questions are prepared for each process element (i.e., PEEMMM) using the corresponding audit criteria. For example, for process interactions, Process requirements, Process objectives, and Interaction criteria can be used as criteria. Table 40 connects how different types of audit criteria (i.e., process requirements and objectives, interaction criteria, and process output requirements and objectives) can be used to assess interactions or process output and in relation to which audit objective (i.e., Compliance, Effectiveness, Risks, and Improvement Opportunities).

Table 40 - Linkages between types of audit criteria, audit objectives, and target of assessment

Criteria type	Audit Objective				TO ASSESS
	Compliance	Effectiveness	Risks	Improvement Opportunities	
Process requirements	✓		✓	✓	**Interactions and/or process output**
Process objectives		✓	✓	✓	
Interaction criteria	✓	✓	✓	✓	**Interactions**
Process output requirements	✓		✓	✓	**Process output**
Process output objectives		✓	✓	✓	

Once questions for each of the six process elements, under each applicable audit objective, had been prepared for each process interaction, the process is repeated for the process output.

For the process output (or for each process output where more than one process output exist), and for each audit objective, questions are prepared for each process element using audit criteria such as Interaction Criteria, Process output objectives, and Process output requirements. Once questions for each of the six process elements, under all applicable audit objectives, had been prepared for each process output, questions can be transferred to the respective checklists (i.e., OPIC and IPIC for questions regarding process interactions, and OPRC for questions regarding the process output).

Table 41 provides guidance to help the auditor or analyst to prepare questions to assess the process interactions (with the guidance for assessing process output being almost identical)

Table 41 - Guidance for question formulation (per audit objective, per process element) to assess interactions

Process Element	Compliance (does the interaction meet requirements?)	Effectiveness (does the interaction achieve objectives?)	Risks (what could go wrong in the interaction?)	Improvement Opportunities (how can the interaction be improved?)
People	Training received?	Appropriate personnel?	What could hamper performance?	Better training / communication?
Equipment	Equipment available?	Appropriate equipment?	How could equipment be rendered useless/damaged?	Improved use of equipment / new equipment?
Environment	Values or principles sought?	How are principles / values displayed?	What could cause principles / values be disregarded / undermined?	Improve adherence to principles/values?
Materials	Information collected?	Completeness, appropriateness of information needed?	What could cause information be altered / corrupted?	Faster/better collection of information?
Measures	Categories, targets used?	Effectiveness of categories, targets used?	What could cause incorrect use of information?	Better categories, targets?
Methods	Procedures available?	Effectiveness of procedures?	How could procedures be unlawfully altered / disregarded?	Additional guidance, standards?

Table 42 and Table 43 illustrate how questions were prepared for one process interaction and for the process output, respectively, by using the corresponding criteria to formulate questions for each of the six process elements (i.e., PEEMMM) under each of the applicable audit objectives (e.g., Compliance, Effectiveness, Risks, and Improvement Opportunities).

Once questions had been prepared to assess process interactions and process output, respectively, they can be transferred to the appropriate checklists (i.e., OPIC or IPIC for assessing interactions and OPRC to examine the process output) that will be used by the auditor or audit team to examine the process.

Table 42 - Example of interaction-specific questions, as prepared from applicable criteria (Excerpt)

Process Steps (i.e., 'Events' as per IdPFD), Interaction Criteria, and Assessment Questions (Compliance, Effectiveness, Risks and Improvement Opportunities)

No.	Type of event	Process step (i.e., 'event')				
IC No.	ITEMS	INTERACTION CRITERIA (IC)	COMPLIANCE QUESTIONS	EFFECTIVENESS QUESTIONS	RISKS QUESTIONS	IMPROVEMENT OPPORTUNITIES QUESTIONS
1	**Interaction**	**Intake of complaint brought forward by a complainant either verbally or in writing**				
23	104	"1.4 Concerns may be communicated by the Complainant verbally or in writing" (PCRP Procedure, p. 2) **Implied objective:** To be able to receive complaints orally or in writing	[P] What training did you receive in complaint intake? [Eq] What equipment is there available to record complaints? [En] How can you establish rapport with the complainant or recognize their perspective? [Mat] What details are important to gather when receiving a complaint? [Meas] How are complainants encouraged to raise concerns as close to the time and place of occurrence as possible? [Meth] What procedures are applicable to the process of receiving concerns?	[P] If concern involved Medical Staff care or conduct, was it managed in accordance to relevant procedures? [Eq] What resources are available to employees and Medical Staff to support intake of concerns? [En] What are examples of [POCSO] values and were they adhered to during concern management? How is shared responsibility and accountability evidenced when managing concerns? [Mat] How effectively are concerns resolved at local level? [Meas] How is it determined if a concern needs follow up investigation and communication to complainant? [Meth] What procedures are applicable to managing concerns that involve Medical Staff?	[P] How can the receipt of concern (verbally or in writing) be disrupted or affected? [Eq] How can the equipment used to record complaints be damaged? [En] What could hinder building rapport or empathizing with the complainant? [Mat] How can the integrity of the details (i.e., complete description of concern) provided by the complainant be compromised? [Meas] How can classification of a complaint (i.e., suited for immediate resolution or needing follow up) be poorly done? [Meth] How can the procedures (e.g., PCPRP Policy Suite, RELATE/RESPOND) be accidentally or perniciously altered?	[P] How would interpersonal and communication techniques help staff better receive complaints? [Eq] What changes in the equipment would make the reception of complaints more effective? [En] How could the ability to establish rapport be increased in personnel? [Mat] How can receiving a concern be made easier, faster or more reliably? [Meas] How can the complainant be further encouraged to raise concerns as close in time and place to the alleged occurrence as possible? [Meth] How can the procedures for receiving concerns be improved through communication theory, behavioral psychology, technological innovations, etc.?
32	82, 83	"1.2 Complainants shall be encouraged to raise their Concerns as close to the time and place of the alleged occurrences as possible" (PCRP Policy, p. 2)				
37	56, 57	"Recognize the complainants' perspective" ('Pocket card') "Establish rapport with the complainant" ('Pocket card')				
46	120a1, 120a2	"3.2 The following steps shall be undertaken during a review: a) Ensure there is opportunity for the complainant to provide, either verbally or in writing, a complete description of the Concern and a response to the outcome of the review." (PCRP Procedure, p. 4)				
3	74, 75, 76, 105, 106, 81, 102, 103	"Complainants have a right to raise Concerns with [POCSO] regarding their health care experience or that of a Patient about whom they are concerned" (PCRP Policy, p. 1) "1.5 Complainants may express their Concerns to various individuals within the organization…" (PCRP Procedure, p. 2) "1.1 Complainants may at any time raise Concerns with [POCSO] about their health care experience or that of a Patient …" (PCRP Policy, p. 2; PCRP Procedure, p. 1)				
5	109, 110, 112, 112f,g, 113, 116, 116b, 143, 144, 136, 137, 145a, 145b 79, 80, 100, 101, 132, 133,	"2.2 Concerns received, shall whenever possible, be managed by the Staff and/or manager and/or Medical Staff as close as possible in time and place to the alleged occurrence." (PCRP Procedure, p. 2) "2.4 […] Staff and Medical Staff shall manage Concerns within their level of comfort, skill level, and scope of responsibility." (PCRP Procedure, p. 2) "2.4 [letter b] Best attempts are to be made by the supervisor to resolve the Concern at the local level." (PCRP Procedure, p. 2) "2.5 Concerns involving Medical Staff care or conduct shall be managed in accordance with the [POCSO] Medical Staff Bylaws and Rules and the [POCSO] PCRP Policy and 'Management of Patient Concerns Involving a Member of the Medical Staff Guideline'." (PCRP Procedure, p. 3; identified as 3.1 in Medical Staff Guideline, p. 2)) "1.2 Concerns regarding any individual Medical Staff, service or program shall be reviewed, and where possible managed…" (Medical Staff Guideline, p. 1) "3.2 if a Medical Staff Leader receives a Concern which has a clear solution and does not require a follow up Concern investigation…" (Medical Staff Guideline, p. 2) Implied objective: "To have concerns managed by the Staff and/or manager and/or Medical Staff as close as possible in time and place to the alleged occurrence, and within their level of comfort, skill level and scope of responsibility (i.e., at the local level)" "Compliance with these policies and procedures is required by all [POCSO] employees…" (PCRP Policy, p. 1; PCRP Procedure, p. 1; Medical Staff Guideline, p. 1)				

Table 43 - Example of process output questions, as prepared from applicable criteria

Process Output Criteria and Assessment Questions (Compliance, Effectiveness, Risks and Improvement Opportunities)

TYPE		Nos.	ITEMS	PROCESS OUTPUT CRITERIA	COMPLIANCE QUESTIONS	EFFECTIVENES QUESTIONS	RISKS QUESTIONS	IMPROVEMENT OPPORTUNITIES QUESTIONS
REQUIREMENTS	1	82	126	"5.1 Within the parameters of applicable legislation, at the completion of a review, the person designated to manage the review shall provide the Complainant and relevant [POCSO] supervisors/ Medical Staff with a written notice of the decision..." (PCRP Procedure, p. 5)	[P] "Are we available to answer questions from the complainant once a decision has been made?" (Administrative fairness, p. 4) "Was the complainant advised of any opportunities for improvement at the completion of the PCRP?" (Administrative fairness, p. 4)	[P] "Does the complainant know when to expect a decision?" (Administrative fairness, p. 3) When applicable, did the Complainant receive an apology? "Is the policy/legislation explained to the person affected?" (Administrative fairness, p. 4)	[P] What human factor could cause an incomplete preparation or wrongful delivery of the written notice to the complainant and relevant staff (including not providing an apology when due)?	[P] What skills could be taught to the personnel to improve empathy and relatability; as well as their ability to prepare or delivery the written notice of the decision?
	2	83	6a, 6b	Substantive fairness, letter a) "Decision cannot require anyone to do something that is illegal or not authorized by law" (Administrative fairness, p. 2)	[Eq] "Is there a clear link between all the documentation and: (a) identification of the concerns as discussed with the complainant? (b) the decisions made? (c) who made the decisions? (d) how legislation, regulations, policies, or procedures were applied to the complainant's circumstances?" (Administrative fairness, p. 4)	[Eq] How does the equipment contribute to communicating decisions so that they are timely, understandable, and correct?	[Eq] How could equipment fail to contribute to documenting concerns, decisions made, decision-maker, and applicable legislation and regulations? How could equipment hinder communicating the decision?	[Eq] How could equipment be used differently or better (or what new equipment could be procured) to better document and establish linkages between concerns, decisions made, decision maker, and applicable legislation and regulation? How could equipment contribute to a speedier or more reliable communication of the decision?
		88	28	Questions under "How?": "Is the decision made consistent with previous decisions on similar matters by relying on existing policies, guidelines and procedures?" (Administrative fairness, p. 3)				
		89	29	Questions under "How?": "If discretion is exercised can any inconsistencies with previous decisions on similar matters be explained and supported by decision-maker?" (Administrative fairness, p. 3)		[En] "Have the decisions been made in a timely manner?" (Administrative fairness, p. 3)	[En] What could cause a notice to include 'unclear or inflammatory language', or be biased (i.e., 'non-neutral')?	
	3	66	33	Questions under "Who?": "Has neutral, non-inflammatory language been used?" (Administrative fairness, p. 4)	[En] "Has neutral, non-inflammatory language been used?" (Administrative fairness, p. 4)	[Mat] What evidence is there that the Complainant understood the reasoning for the decision?	[Mat] How could information be poorly collected and analyzed so as to fail to contribute to connecting concerns, decisions made, decision-maker, and applicable legislation and regulations?	[En] How could timeliness of communications be improved, or the reasonableness of the decision be clarified?
		68	40, 41	Questions under "Why?": "Has the decision to the complainant been provided in clear language?" (Administrative fairness, p. 4)	"Has the decision to the complainant been provided in clear language?" (Administrative fairness, p. 4)	How is it shown that there is a 'rational connection between evidence and conclusions reached'?		
	4	67	37	Questions under "Why?":"Are we available to answer questions from the complainant once a decision has been made?" (Administrative fairness, p.4)	[Mat] Does the notice of the decision meet the following requirements: "communicates clearly", "addresses each Concern the Complainant raised", "identifies the decision maker", and "provides the outcome and, if appropriate, the rationale for any decision made"?	[Meas] What supporting evidence is there that the 'correct' decision was made?	What could cause rationale behind a decision fail to support fairness of the decision' or 'the correct' decision to be made?	[Mat] How could information be more speedily and reliably collected, analyzed and synthesized? How could rationale behind decisions be more clearly expressed, documented and transmitted? How could the number of 'correct' decisions be increased?
	5	69	45a, 45b	Questions under "Where?": "Is there a clear link between all the documentation and: (a) identification of the concerns as discussed with the complainant?" (Administrative fairness, p. 4)		How is it exemplified that 'the rationale supports a fair decision'? "What is the complainants' level of satisfaction with process and outcome?" (Administrative fairness, p. 4)	[Meas] What could cause a decision fail to be consistent with previous decisions on similar matters? If discretion was exercised, what could cause the inconsistencies be hard to be explained or supported? What could cause satisfaction with process and outcome to be wrongfully measured or recorded?	[Meas] How could consistency of decisions (or the ability to explain and support any deviations) be enhanced or improved? How could measurement of satisfaction with process and outcome be more efficiently performed?
		70	46a, 46b	Questions under "Where?": "Is there a clear link between all the documentation and: (b) the decisions made? (Administrative fairness, p. 4)	[Meas] "Is the decision made consistent with previous decisions on similar matters by relying on existing policies, guidelines and procedures?" (Administrative fairness, p. 3) "If discretion is exercised can any inconsistencies with previous decisions on similar matters be explained and supported by decision-maker?" (Administrative fairness, p. 3)	[Meth] "What is the policy/legislation that backs a decision?" (Administrative fairness, p. 4) "Does the policy/legislation ensure the complainant's need have been addressed?" (Administrative fairness, p. 4)		
		71	47a, 47b	Questions under "Where?": "Is there a clear link between all the documentation and: (c) who made the decisions?" (Administrative fairness, p. 4)				
		72	48a. 48b	Questions under "Where?": "Is there a clear link between all the documentation and: (d) how legislation, regulations, policies, or procedures were applied to the complainant's circumstances?" (Administrative fairness, p. 4)			[Meth] What could cause procedures or guidelines for preparing or communicating the written notice of the decision to become out-of-date or no longer accurate (i.e., obsolete)? What could cause legislation and regulation to be wrongfully interpreted when making or communicating a decision?	[Meth] What new standards or procedures could be adopted or implemented to improve the preparation and delivery of the written notice of the decision?
	6	73	42, 43	Questions under "Why?": "Was the complainant advised of any opportunities for improvement at the completion of the PCRP?" (Administrative fairness, p. 4)	[Meth] Are decisions made in compliance with laws and regulations?			
OBJECTIVES	7	63	7a. 7b	Substantive fairness, letter b.1) "Decision must be reasonable which means: the reasoning is understandable by the people affected and considers all the evidence and supporting documentation" (Administrative fairness, p. 2)				
		84	8a, 8b	Substantive fairness, letter b.2) "Decision must be reasonable which means: there is a rational connection between the evidence and conclusions reached" (Administrative fairness, p. 2)				
	8	87	23	Questions under "How"?: "Have the decisions been made in a timely manner?" (Administrative fairness, p. 3)				
		65	31	Questions under "When?": "Does the complainant know when to expect a decision?" (Administrative fairness, p. 3)				
		64	16, 17	Relational fairness, letter d) "The person affected receives an apology as applicable" (Administrative fairness, p. 2)				
	9	85	9a, 9b	Substantive fairness, letter b.3) "...- from the [POCSO] PCRP perspective, in collaboration with the reviewer, it is essential to ensure the 'correct' decision was made." (Administrative fairness, p. 2)				
		86	10a, 10b	Substantive fairness, letter b.4) "from the [Provincial] Ombudsman's perspective, when reviewing a decision made by [POCSO] it is not about whether a decision is right or wrong, it is about how the rationale supports a fair decision" (Administrative fairness, p. 2)				
	10	90	34	Questions under "Why?": "What is the policy/legislation that backs a decision?" (Administrative fairness, p. 4)				
		91	35	Questions under "Why?": "Is the policy/legislation explained to the person affected?" (Administrative fairness, p. 4)				
		92	36	Questions under "Why?": "Does the policy/legislation ensure the complainant's need have been addressed?" (Administrative fairness, p. 4)				
	11	95	44	Questions under "Why?": "What is the complainants' level of satisfaction with process and outcome?" (Administrative fairness, p. 4)				

Once all assessment questions have been prepared for the process interactions that are of interest, the auditor or analyst will have to decide which questions will be used to guide the observation of the process interactions and which will be asked to the personnel during the interviews. There are two possible approaches, conjunctive and disjunctive:

1. Conjunctive approach, i.e., observation and interview for each process interaction

Prepare one OPIC and one IPIC for each interaction, so that evidence is collected visually, and also from interviews, therefore ensuring the collection of corroborating evidence with relation to any potential finding.

2. Disjunctive approach, i.e., observation or interview for each process interaction

Prepare either an OPIC or an IPIC for each interaction that will be examined during the audit. The disjunctive approach can be helpful when there is limited time available to audit the process and the auditor or analyst is interested in assessing numerous distinct interactions, as opposed to only a few. The disjunctive approach may also be helpful when access to the auditee is restricted, and the collection of audit evidence may be limited to interviewing personnel, with reduced or no ability to observe the process interactions.

Once the auditor or analyst has identified which interactions will be examined and how (i.e., via observation or interviews, or both), they can transfer the corresponding questions from the question bank (i.e., the spreadsheet containing the assessment questions) to the respective checklists (i.e., OPIC or IPIC, or both).

The Process Output is expected to be assessed through observation, and using the OPRC as guidance.

Next, the transfer of questions from the question bank to the checklists is described in brief.

D.1.1.3 Transferring questions to Checklists

The process for transferring questions from the question bank to the Checklists consists of:

1. Select the interactions to assess.

Depending on the time and resources available, the auditor or analyst will have to select which interactions will be assessed. For small processes, maybe all interactions can be assessed; but for larger, more complex processes, a sample of interactions, ideally selected on the basis of their criticality to the success of the process, could be selected.

2. Decide if the interaction will be assessed through observation, or interview, or both.

In addition to the judgment exercised by the auditor or analyst when selecting which interactions to assess, decisions have to be made on how the selected interactions will be examined: i.e.,

through observation, or interviews, or both. The more evidence that could be collected about a given interaction the better, since audit findings have to be supported by corroborating evidence; however, more resources will be needed in order to allow extensive data collection, likely making the process more onerous in terms of time and resources required.

3. Select and prepare the appropriate checklist template (i.e., OPIC for observation, and IPIC for interviews)

Once the auditor or analyst have determined the sample of interactions to assess, and how to do it, the next step is to prepare the corresponding checklists. The Observe Process (Interactions) Checklist (OPIC) will contain questions to guide the observation of a given interaction; whereas the Interview Personnel (Interactions) Checklist (IPIC) will provide the auditor with the questions to ask the personnel, whether in a script-like fashion, or by following a conversational approach.

For each checklist that will be used to assess an interaction:

a. Fill out the top section of the template, which has space to enter: Audit details (such as audit objectives, date, analyst and remarks), and Process details (e.g., process name, interaction name, and interaction description).

b. Transfer the questions previously prepared for the chosen interaction from the question bank to the Checklist template. The checklist template contains four sections (one for each audit objective: Compliance, Effectiveness, Risks, and Improvement Opportunities); each with six placeholders to accommodate questions to assess each of the six Process Elements (i.e., PEEMMM) of the interaction being examined.

c. Questions from the question bank may need to be adapted for the checklist, for example, if it is a checklist for observation (i.e., OPIC), or for interview (i.e., IPIC). One way to adapt the questions is to change the question format from the 2nd person to the 3rd person (or vice versa, depending on the sub-method and checklist that will be applied). A couple of examples of question adaptation from 2nd to 3rd person are presented below:

Example 1:

> From: "How were you trained in identifying who to contact from other departments, and how to do it?"
>
> To: "What evidence is there of training of personnel on who to contact from other departments and how to do it?"

Example 2 (adapting question from 2nd to 3rd person):

> From: "How do you determine if there are already other programs or departments involved?"

To: "How is it determined if there are already other programs or departments involved?"

If the specific information that is sought is difficult to collect by observation, the auditor could use interview as evidence collection method as opposed to observation. Just because certain specific information is not easily observable, does not mean it does not exist, and it may be better to ask and get an answer, than to rely on observation and make a definitive (and likely wrongful) assessment.

d. The checklists can accommodate tailored questions, regardless of their origin being the question bank, or formulated in an ad-hoc fashion by the auditor or analyst. Moreover, the checklists also provide default questions, which although generic in nature, can help the auditor when custom questions may not have been prepared beforehand.

4. Lastly, an Observe Process Result Checklist (OPRC) should also be prepared, so as to guide the observation of the process output and allow the collection of written notes by the auditor or analyst.

The next section presents the concept of 'process ownership' and explains how it can be determined.

Appendix D.1.2 - Process ownership

An interdepartmental process is defined as a process performed by two or more departments. "Process ownership" is a term used to represent the greater interest of a department in the success of the process and it is a consequence of organizational structure. Process ownership can be determined by examining incrementally until the process owner is identified, the following characteristics responsibility for the process and workload distribution. Figure 37 presents an algorithm depicting how to identify process ownership. The steps are described in the following subsections.

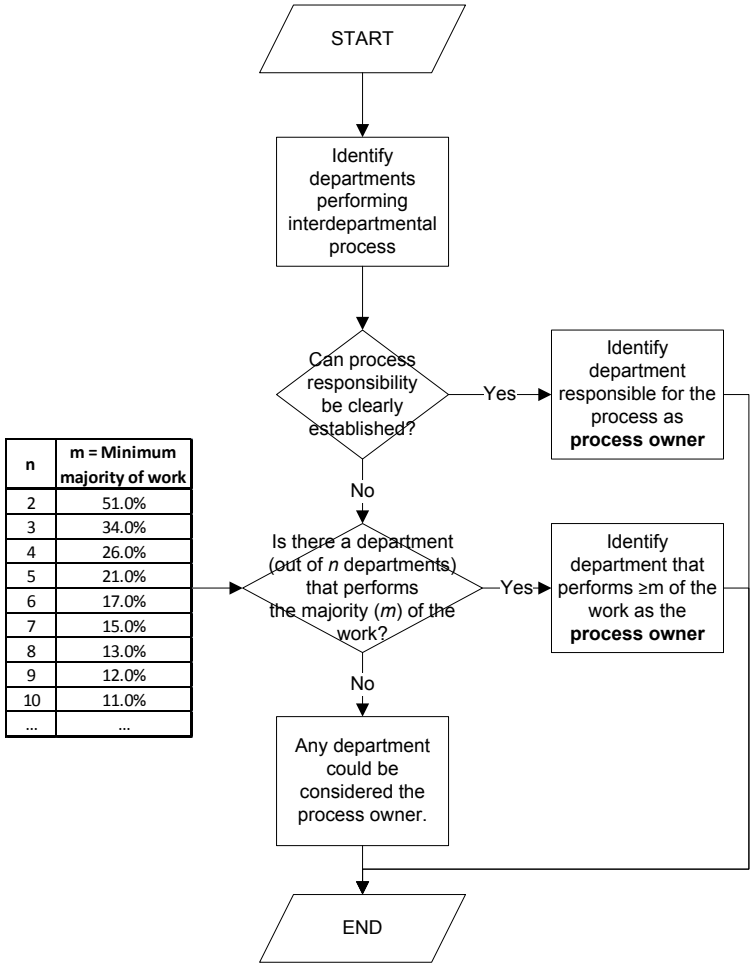


Figure 37 - How to identify the process owner

Responsibility for the process

The first aspect to help determine process ownership is related to responsibility. A department with a clear and explicit responsibility for the success of the process makes it the process owner. Responsibility can be determined by senior management, or exist in the form of procedures, managerial objectives, and job descriptions. The following questions can help to identify process ownership as a result of explicit responsibility:

- What manager is responsible for the success of the process?
- What department's evaluation is greatly affected by the level of performance of the process?

The Patient Concerns Resolution Process (PCRP) is an example where process ownership can be determined using the first test, because the department is responsible for the success of the process as evidenced by the use of measures related to 'satisfaction with resolution process' and 'satisfaction with resolution outcome' to monitor departmental performance.

Not always is responsibility for a process formally assigned, other times responsibility may be shared. If responsibility for the process is shared by the departments, the determination of process ownership could be assigned to the department that performs the majority of the process activities, in other words, by looking at work distribution, which is explained next.

Work distribution

When responsibility for the process is not exclusive to one department, either because it has not been officially determined, or because it is shared by the different departments involved; it is helpful to look for the department that performs the greater amount of work within the process. A department that performs the majority of work within a process clearly must have an interest in the success of said process, even when official responsibility may not have been assigned. Thus, the second test to determine process ownership is "work distribution". The top right section of the IdPFD called "Summary" (see **D.3.2.1 IdPFD Template**) could help identify work load by comparing the total number of activities performed by each department during the interdepartmental process. A department that performs the minimum majority of the activities within an interdepartmental process could be considered as the process owner. The calculation of the "minimum majority of work [m]" per number of departments is presented below:

Table 44 - Minimum Majority per number of Departments

n = # departments	e = Equal distribution of work *(100%/n)*	m = Minimum majority of work *RoundDown(e) + 1*
2	50.0%	**51.00%**
3	33.3%	**34.00%**
4	25.0%	**26.00%**
5	20.0%	**21.00%**
6	16.7%	**17.00%**
7	14.3%	**15.00%**
8	12.5%	**13.00%**
9	11.1%	**12.00%**
10	10.0%	**11.00%**
...	...	...

Legend
n = number of departments involved in an interdepartmental process
e = percentage of work per department were it equally distributed
m = minimum majority of work as a % according to n number of departments

Table 44 was built to find the minimum majority (as a function of the number of departments involved in the interdepartmental process) that should be used as a criterion when determining process ownership by means of the second test, i.e., work distribution. First, the equal distribution of work (e) per growing number of departments were calculated, to identify the amount of work (as a percentage of the total interdepartmental process work) that each department would perform were work evenly distributed. Then, *e* was rounded down and 1 was added to prevent tie-ins for certain number of departments (i.e., n = 2, 4, 5, 10). The resulting number is the 'minimum

majority of work' and is identified with the letter 'm'. An example of the use of the work distribution test to identify process ownership is presented next.

Since the PCRP cannot be used as an example to describe the performance of the second test because process ownership at the PCRP is determined thanks to the first test as seen previously, an example related to manufacturing is presented instead. An interdepartmental process that needs to utilize the second test to determine process ownership is "Releasing a machine for production in the manufacturing floor". 'Releasing a machine for production' refers to the process of verifying that the output of a newly-installed machine meets design specifications and authorizes that the machine be made available for production. Two departments interact: engineering and quality. The engineering department is in charge of installing the machine and setting it up, while the quality department is in charge of verifying that the machine outputs comply with specifications. The process of releasing the machine for production is the responsibility of both departments. Thus, the second test, "work distribution" takes place by examining the number of activities that each department needs to perform and identifying the department that performs the majority of the work. On one hand, the engineering department needs to prepare the machine for the 'release' run (i.e., make sure it is available and ready), supply operators to run the machine (who need to have been trained on the correct operation of the machine, including safety), pre run the machine to 'warm it up', run the machine according to the release schedule, and deliver the output to the quality department; on the other hand, the quality department needs to verify that the output of the machine complies to specifications, and if so, grant a 'release', or provide comments regarding the nonconformances and schedule another 'release run'. The calculation of work load can be done as follows: 4 activities are performed by the engineering department, and 2 activities are performed by the quality department, for a total of 6 activities within the interdepartmental process. Comparing work distribution is next: 4/6 activities or 67% of the work is performed by the engineering department, vs. 2/6 activities or 33% of the work that the quality department performs. Using the minimum majority criterion (m, 51%) for two departments (n, 2) it can be found that the engineering department (66% > 51%) can be considered as the process owner of the 'releasing a machine for production process'.

If neither 'responsibility for the process' nor 'work distribution' can be used to determine process ownership, then the auditor (or analyst) can use their judgment to determine who the process owner is.

Note: A third test was originally included in the BAM, called "Test 3. Centrality", but was removed post-validation since it was concluded that the 'Test 3. Centrality' was not appropriate to identify the department with the greatest interest in the success of a process (i.e., process ownership). Details about the removed test are presented in the Appendix D.4 for archival and information purposes.

Importance of process ownership during the boundary audit

The process owner can be considered as an internal customer of the interdepartmental process since it has a greater interest in the success of the process, either because it is responsible for the process, or because it performs the majority of work related to the process. As a result, the process owner's objectives and requirements need to be addressed by an interdepartmental process. Therefore, the ability in meeting process owner objectives will be part of the objective called "effectiveness" during a boundary audit. In addition, the following list presents a series of assumptions regarding the benefits of identifying the process owner for the purpose of the boundary audit:

1. It is expected that the process owner is the interested party more likely to push for the audit and its expected benefits (i.e., the process owner could be an internal 'champion' or enabler).
2. The process owner may also play a role in convincing the process partner to be part of the boundary audit and to actively collaborate in it.
3. Getting buy-in from the process owner during the audit may increase auditee collaboration, including availability of resources, and ease of access.
4. The process owner will likely be very interested in planning and implementing individual and joint responses to the boundary audit (i.e., corrective actions, preventive actions, and advancement actions) because it is in their best interest to do so.
5. Identifying the process owner and the process partner will help classify audit findings (via the Audit Finding Summary Template), and expected benefits of improvement recommendations.
6. Identifying the process owner helps not only during planning, execution and closure; but also helps the auditors understand the relative importance of the process to both departments, in order to be aware of potential "invisible" aspects such as power-struggles, politics, or agenda-pushing motivations, all of which may end up affecting interdepartmental interactions.

Notwithstanding the above potential benefits of identifying the process owner (and the process partner), it is important to also acknowledge potential risks of such categorization.

Limitations and risks of identifying process ownership

There are clear limitations of determining process ownership. For example, the second test, namely 'work distribution', can be manipulated by using different criteria for breaking down the activities of the two departments. For example, breaking down one department's activities at a larger level of detail than the other will produce a greater number of activities for the one, thus misguiding the determination of "majority of work load" and the subsequent determination of process ownership. This weakness can be minimized by requesting that another auditor or

independent reviewer verifies that the breakdown of activities in the IdPFD is done at the same level of detail for all departments, thus preventing any bias toward a given department.

Even when the identification of the process owner and the process partner in an interdepartmental process is an effort to model reality so as to facilitate the boundary audit, the auditors need to be aware of the following risks of categorization:

1. Perceived favoritism: Personnel from the process partner (including management) may feel that the boundary audit is a critical inspection of their work aiming to benefit the process owner.
2. Prejudiced (or biased) analysis: Management of the process partner may have the perception that process owner objectives and requirements are more important than those of the process partner.
3. Alienation: As a result of the previous adverse reactions, management or personnel from the process partner may disengage from the boundary audit, for example, by ignoring requests for interviews, limiting resource availability, or not following up with response requests such as corrective, preventive, and advancement action.
4. Lack of trust in the audit conclusions: Another potential negative consequence of perceived favoritism or bias is that personnel from the process partner may consider audit conclusions to be flawed, thus deciding to ignore them, or politely shelve them.

It is important that auditors recognize the above risks, and try act to minimize them or mitigate them. Some auditors may decide to use the categorization model (i.e., using the labels “process owner” and “process partner”) internally, and avoid using them when referring to the auditees.

The work during the boundary audit will depend on the number of departments involved and extent of access granted to the audit team. Apart from access, the level of collaboration by the departments during the audit will have an impact on the way the audit is performed. More information regarding access and collaboration is presented in the next subsection.

Appendix D.1.3 - Access and collaboration

The boundary audit aims to assess activities and interactions of an interdepartmental process across the departments that perform said process. Access to all departments may not always be possible, either because of geographical limitations, time constraints, or as a result of other considerations. Notwithstanding that one of the departments may not be accessible; a boundary audit can still be performed because evidence of interactions will still be available to be examined (i.e., electronic records such as emails, minutes, and documents). Even when both departments may be accessible, the level of collaboration expected throughout the audit will not always be the same. Collaboration represents the level of joint-work performed by personnel from different departments throughout the boundary audit, and may include receiving a joint audit report, and

planning and executing response to audit findings. Three levels of collaboration are possible, i.e., low, medium and high (which are explained on next page). The specific performance of the audit may vary as a result of both access and collaboration. Figure 38 presents a decision tree diagram with the different possibilities for access and collaboration, followed by an explanation of how the audit will be shaped as a result of these conditions.

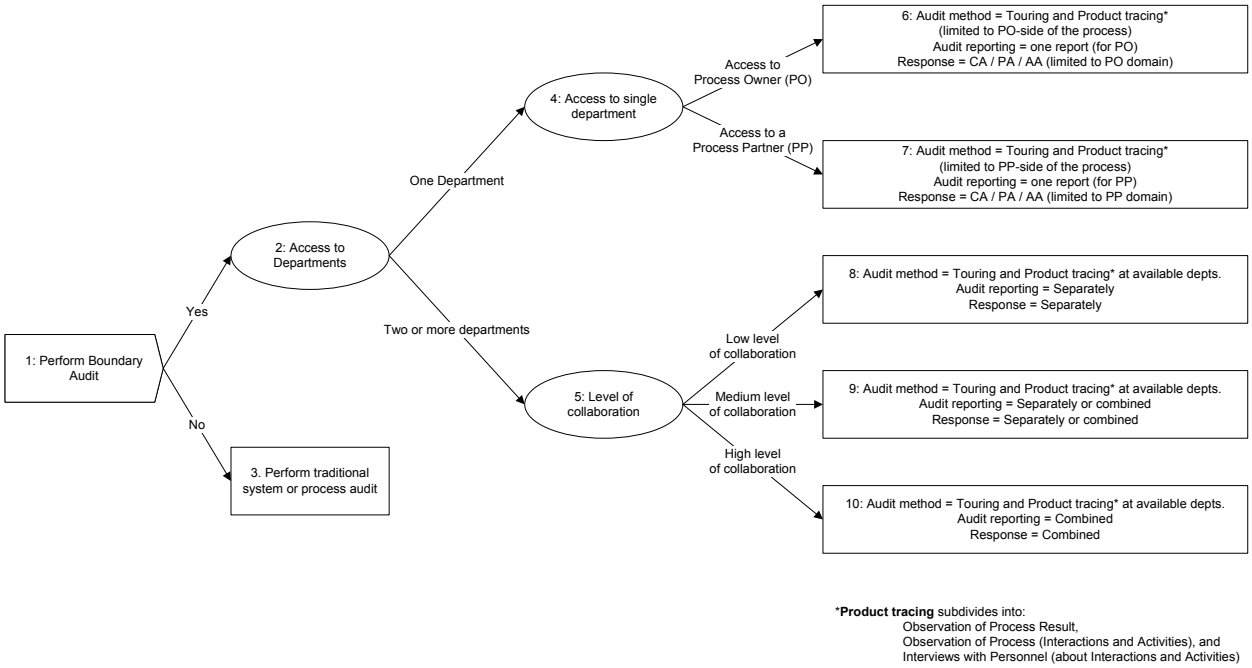


Figure 38 - Decision tree for access and collaboration during the boundary audit

On one hand, when only one department is accessible, audit performance activities (such as touring and product tracing), audit reporting, and response-related activities will only be performed for that one department. For example, when only the Process Owner (PO) is accessible, only process activities performed by personnel of the PO will be observed, while only personnel from the PO would be interviewed. Similarly, only one report will be prepared and delivered (for the PO), while the subsequent auditor-related response-activities (such as response review, and subsequent implementation and effectiveness verification) will only be required for the corresponding department.

On the other hand, when two or more departments are accessible, the impact on the audit would be a function of how collaborative the departments are throughout the audit. For example, three levels have been identified: low, medium, and high. *Low level of collaboration* happens when even though access to all or some departments will allow activities and interactions to be observed and personnel from all or some departments to be interviewed; audit reporting will take place separately (i.e., department-specific reports would be prepared), and the responses to boundary-related findings would be planned and implemented separately. Opting for such an approach could obey to the desire to keep results confidential, and the response planning separate, for each department due to legal or confidentiality considerations. A m*edium level of*

collaboration occurs when reporting is either separate or combined (i.e., one report contains findings pertaining to all or some departments, including requests for action), and the subsequent response (i.e., corrective action, preventive action, or advancement action) can be planned and implemented independently or jointly. In other words, one of the phases (either reporting or taking action) is performed jointly by all the departments. Finally, a *high level of collaboration* would occur when the departments not only receive one report with findings corresponding to all departments, but they also plan and implement responses pertaining to the departmental relationship (or the boundary) all together.

During the BAM Validation, research participants were asked to provide potential drawbacks of 'combined reporting' and 'combined responding', their summarized responses are presented below.

Potential drawbacks of 'combined-reporting'

Table 45 is comprised of two columns; the first of which outlines the potential drawbacks of combined-reporting as identified by research participants, while the second one provides possible mitigation strategies to address each corresponding drawback.

Table 45 - Potential drawbacks of combined-reporting (from participants) and possible mitigation strategies

Item	Potential drawback of 'combined-reporting' (as provided by)	Possible mitigation strategy (proposed by author)
1	"Departments may be sensitive to 'negative' findings about their departments being shared with another department" (Participant 1)	(Re-)educate auditees on the goals and potential benefits of the audit (department-specific as well as inter-departmental), stressing focus on system and process improvement.
2	Within a department, maybe only one person is involved in the interdepartmental process, and the Boundary Audit could appear as an investigation of that individual's performance (Participant 1)	Same as Mitigation Strategy 1, (Re-)educate…
3	"It could be difficult to coordinate meeting times for multiple departments, especially if geography is a barrier" (Participant 1)	Planning and scheduling with enough time in advance. If need be, Tele-conferencing could help bridge geographical distance. Last resort, asynchronous meetings with shared meeting minutes.
4	There could be potential perception of unevenness of findings if more findings related to process owner than to process partner (Participant 2)	Such possibility and its likelihood could be explained to auditees anticipating that number of audit findings could be directly related to the amount of work done by each department (e.g., a department doing a greater proportion of work may receive a greater proportion of the audit findings)
5	Possibility that "the value of the report might be diminished for secondary stakeholders [i.e., process partners] who have little impact in the process", versus 'customized' or stakeholder-specific reports, which may be more appropriate (Participant 2)	During audit planning, auditor together with auditees could determine, based on the amount of interdepartmental interaction, whether combined or customized reporting would be more appropriate, aiming to increase value to auditees.

Notwithstanding the potential drawbacks of combined reporting, the benefits could be greater, as exemplified by the following quote by one of the research participants: "I actually see combined reporting making much more sense as it provides the biggest picture and suggests areas of concern requiring improvement. It is an interactive, collaborative system whereby each needs to know what the findings are and address them. Usually one area impacts another and any gaps identified will be addressed thru a synthesized analyzed report so that actions can be identified for improvements" (Participant 3)

Another stage of the Boundary Audit which can benefit from collaboration between auditees relates to *responding* to audit findings. Potential drawbacks of combined-responding were also collected from research participants and are mentioned next.

Potential drawbacks of 'combined-responding'

Potential drawbacks or limitations of combined responding, as provided by BAM Validation research participants consisted of the following:

Table 46 - Potential drawbacks of combined-responding (from participants) and possible mitigation strategies

Item	Potential drawback of 'combined-responding' (as provided by)	Possible mitigation strategy (proposed by author)
1	Combined responding "may result in a 'blame-game' rather than taking the findings as relevant for learning and improvement" (Participant 1)	(Re-)educate auditees on the goals and potential benefits of the audit (department-specific as well as inter-departmental), stressing focus on system and process improvement.
2	Combined responding "may [cause a given department to] think it applies to 'them', and not to 'us'" (Participant 1)	Well documented audit findings that provide detailed evidence can help auditees identify root causes that need to be addressed and the appropriate department and people to implement the response (i.e., CA, PA, or AA).
3	Combined responding "may result in less ownership of the results – there may not be a clear area/individual responsible to facilitate the change" (Participant 1).	It is important to assign unambiguous responsibility or accountability to implement a response. Templates (i.e., CAP, PAP, AAP) require such clear responsibility identification.
4	"As a principle, you should only have one stakeholder responsible or accountable to implement a solution; when you have more than one, the sense of accountability gets dismissed" (Participant 2).	Same as Mitigation Strategy 3, "It is important to assign unambiguous…"
5	"There might be no value for a secondary business owner to see responses that pertain to another department" (Participant 2).	A department that is part of an interdepartmental process may still benefit from knowing what other departments are doing to improve the process in which they collaborate.

Research participant 3 indicated that her opinion regarding combined responding was the same as for combined reporting, namely that it "makes more sense" since "usually one area impacts another and any gaps identified will be addressed [through collaborative] improvement actions."

The relevance of identifying potential drawbacks of combined reporting and responding is to identify subsequent mitigation strategies that could be implemented to increase the probability of success of the Boundary Audit. Notwithstanding the potential drawbacks, which can be mitigated with appropriate countermeasures, the expected benefits of the Boundary Audit are expected to tilt the balance towards interdepartmental process improvement.

Additionally, research participants were asked to provide challenges that could arise 'when attempting to perform an audit of an interdepartmental process' as well as corresponding mitigation strategies, results which are presented next.

Potential challenges of an interdepartmental process audit

Table 47 presents the answers given by the research participants when asked to provide "challenges that may arise when attempting to perform an audit of an interdepartmental process" as well as the corresponding "mitigation strategies" also by them provided.

Table 47 - Potential challenges when attempting to perform an audit of an interdepartmental process

Item	Challenge (as provided by)	Mitigation strategy (as provided by)	Classification (proposed by author)
1	"Getting the access to the right people in a timely manner" (Participant 1)	"Advance planning, scheduling times and coordinating the right people to be there" (Participant 1)	Access
2	"Obtaining buy in for the audit" (Participant 1)	"As part of the planning phase, identify the learning that is looked for, ensure there is clear understanding of a learning vs. blame focus, highlight the joint responsibility for addressing concerns shared by all" (Participant 1)	Buy-in
3	"Obtaining relevant feedback from people knowledgeable about the process" (Participant 1)	"Part of the planning is collaborating with the department to identify who best to involve" (Participant 1).	Relevant feedback
4	"There is a risk that the scope of audit work becomes difficult to manage, i.e., too big" (Participant 2)	"Develop a well-defined scope of audit work that is manageable from a project management perspective with a clear plan and timeline" (Participant 2).	Scope creep
5	"There is a risk that the volume of interactions with various individuals becomes difficult to manage and translate into inefficiencies when conducting the audit; at the end, everyone will expect add-value to their respective parts of the process" (Participant 2).	"Share plan with all stakeholders for input and communicate clearly what should be expected at the end for various groups" (Participant 2.)	Manage expectations
6	"Reliability of answers provided by interdepartmental staff " (Participant 3)	"Ensure questions are clear, simple and concrete examples provided to provide context" (Participant 3).	Reliability of answers
7	"Workload and time constraints" (Participant 3)	"Short and quick questionnaires and interview" (Participant 3).	Time constraints

The potential challenges that were provided were quite varied: from getting access to the right people in a timely manner, to obtaining buy in, to managing the scope of the audit and its workload, to ensuring reliability of responses. The suggested mitigation strategies included, respectively, advanced planning and scheduling, maintaining a culture of learning as opposed to blame focus, developing a well-defined scope of the audit, in addition to short and quick questionnaires and interviews with clear and simple questions.

A successful interdepartmental audit would therefore require not only careful considerations by the auditor or analyst (e.g., properly defining the scope of the audit as well as working documents such as questionnaires, interviews, including the questions therein), but also effort and commitment by auditees to achieve successful collaboration, e.g., combined reporting and responding. When accessing multiple departments, different approaches are possible, for example, concurrently and sequentially. Details about such potential approaches are presented next.

Appendix D.1.4 - Concurrent and sequential approach

During the 'performance' stage of the boundary audit, activities could be done concurrently or sequentially for the departments involved. The preferred approach when two or more departments are accessible is the concurrent one, in other words, the steps (from opening meeting to closing meeting, including product tracing, analysis and conclusions) are performed for all departments at the same time (or as close as possible). Conversely, a sequential approach means that all audit performance steps will be performed for one department, and then repeated for the other departments (refer to Figure 39 for a graphic representation of the two approaches).

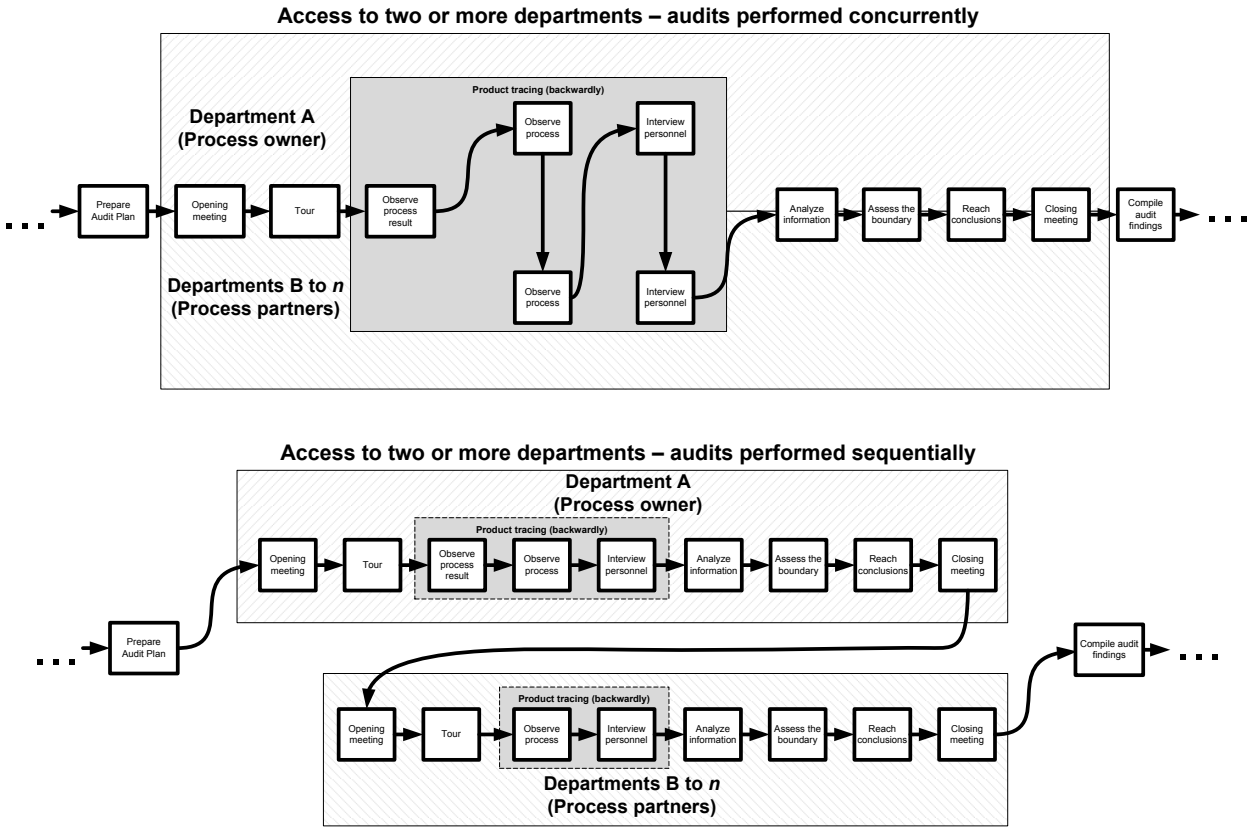


Figure 39 - Audit performance activities for two departments: concurrent vs. sequential approach

Deciding on what approach to follow could be a result of specific conditions, such as whether the departments are accessible (i.e., that a department has agreed to allow the audit visit), or whether the departments are located close to each other, or whether the time the interdepartmental process takes to be performed allows for an examination via observation and interviews, amongst others. On one hand, the closer the departments are located (such as being in the same building, or even the same floor) and the shorter the duration of the process (i.e., minutes or hours), the more appropriate it may be to select the concurrent approach. On the other hand, if the departments are situated at different locations, or if the interdepartmental process takes considerable time (for example, an investigative process that takes several days), the sequential approach would be a better option, since auditors can minimize travelling from one department to the other, while ensuring the audit takes place within the allocated time.

It is also possible to follow an approach resulting from a combination of concurrent and sequential. For example, opening and closing meetings may be held with members from all departments involved (as in the concurrent-approach), while the remaining activities could be performed sequentially (e.g., in tandem for one department, and then for another).

Appendix D.2 - Method description (final version), including non-original components

The boundary audit is a type of process audit because it is intended to examine an interdepartmental process in terms of one or more of the following objectives: compliance to requirements, effectiveness in achieving objectives, and identification of risks and improvement opportunities. The boundary audit method (BAM) is presented in Figure 40 and Figure 41 (distributed over two pages) and follows the overall structure suggested by current literature, i.e., clause 6 of ISO 19011 (2011b), Russell (2005), and Arter, *et al.,* (2013), while using a couple of "process auditing techniques" suggested by Russell (2003), and being supported by the use and adaptation of well-known concepts in novel ways (refer to next subsection for a list of the contributions of the method). First, the structure of the method is subdivided in four stages: Audit Planning, Audit Performance, Audit Reporting and Audit Closure (e.g., Arter *et al.*, 2013, Russell, 2005). In addition, the following process auditing techniques were adopted: (a) the use of a modified process flow diagram as a comprehensive audit planning and audit performance tool, (b) the adaptation and use of PEEMMM process elements (where PEEMMM is an acronym for people, equipment, environment, materials, measures, and methods) to guide audit methods such as observation and interviews; and (c) the inclusion of "Touring" (Russell 2003) as a technique prior to "Product tracing". Lastly, the method uses seemingly unrelated tools such as the SWOT framework, and the categories of the Balanced Scorecard (Kaplan and Norton, 1994) to guide auditors when documenting and organizing audit findings. The auditing method was then modified to accommodate for the variability in the number of departments to be accessed during the audit, (i.e., one, two, or more), as well as for the level of departmental collaboration where applicable.

The boundary audit utilizes a combination of tools, such as the Interdepartmental Process Flow Diagram (IdPFD), several checklists to help auditors observe and ask questions about the process, finding sheets templates to document findings, and response plan templates to document corrective, preventive, and advancement action plans. Next, the BAM is presented, starting with the first stage: audit planning.

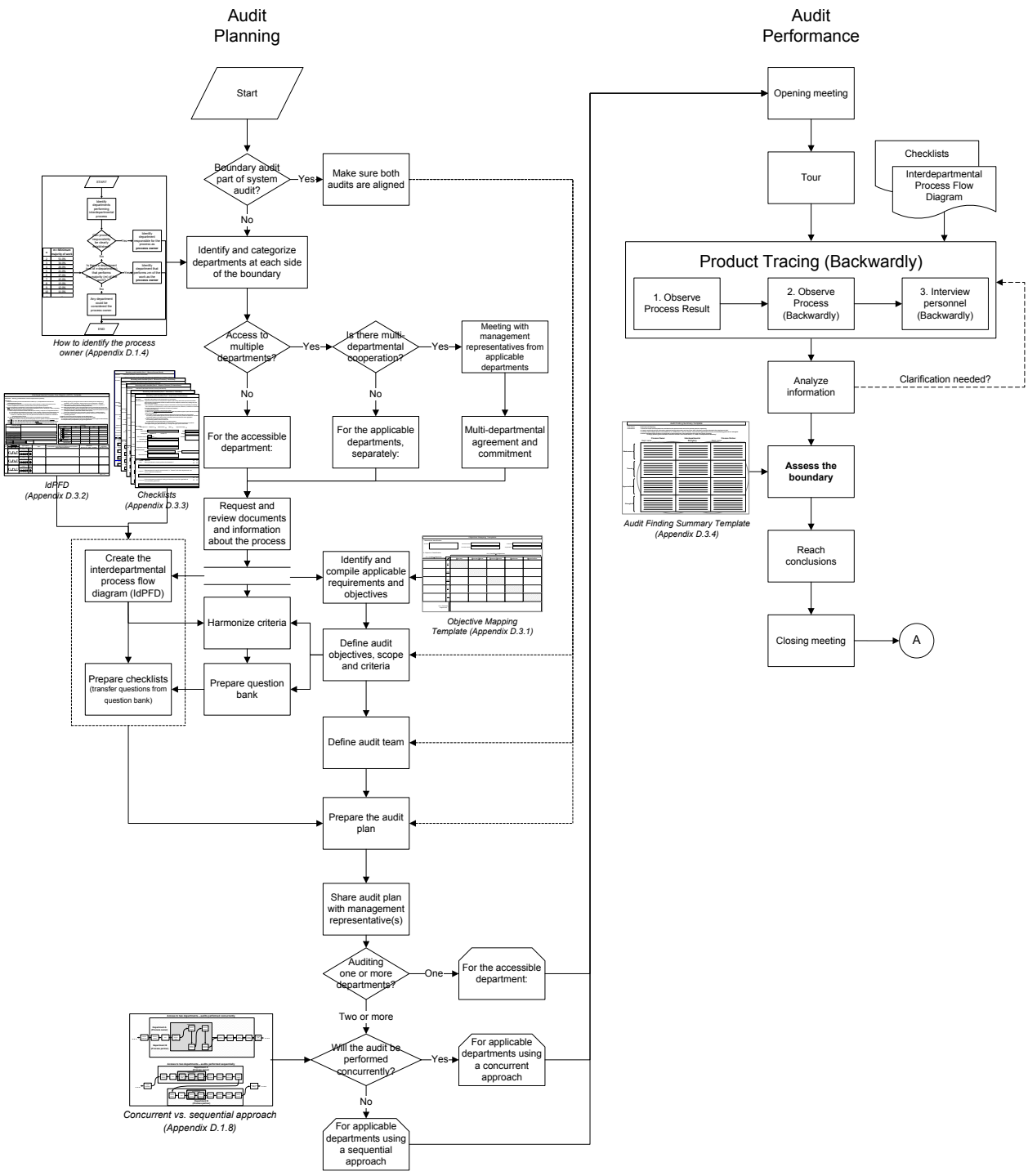


Figure 40 - Boundary audit method

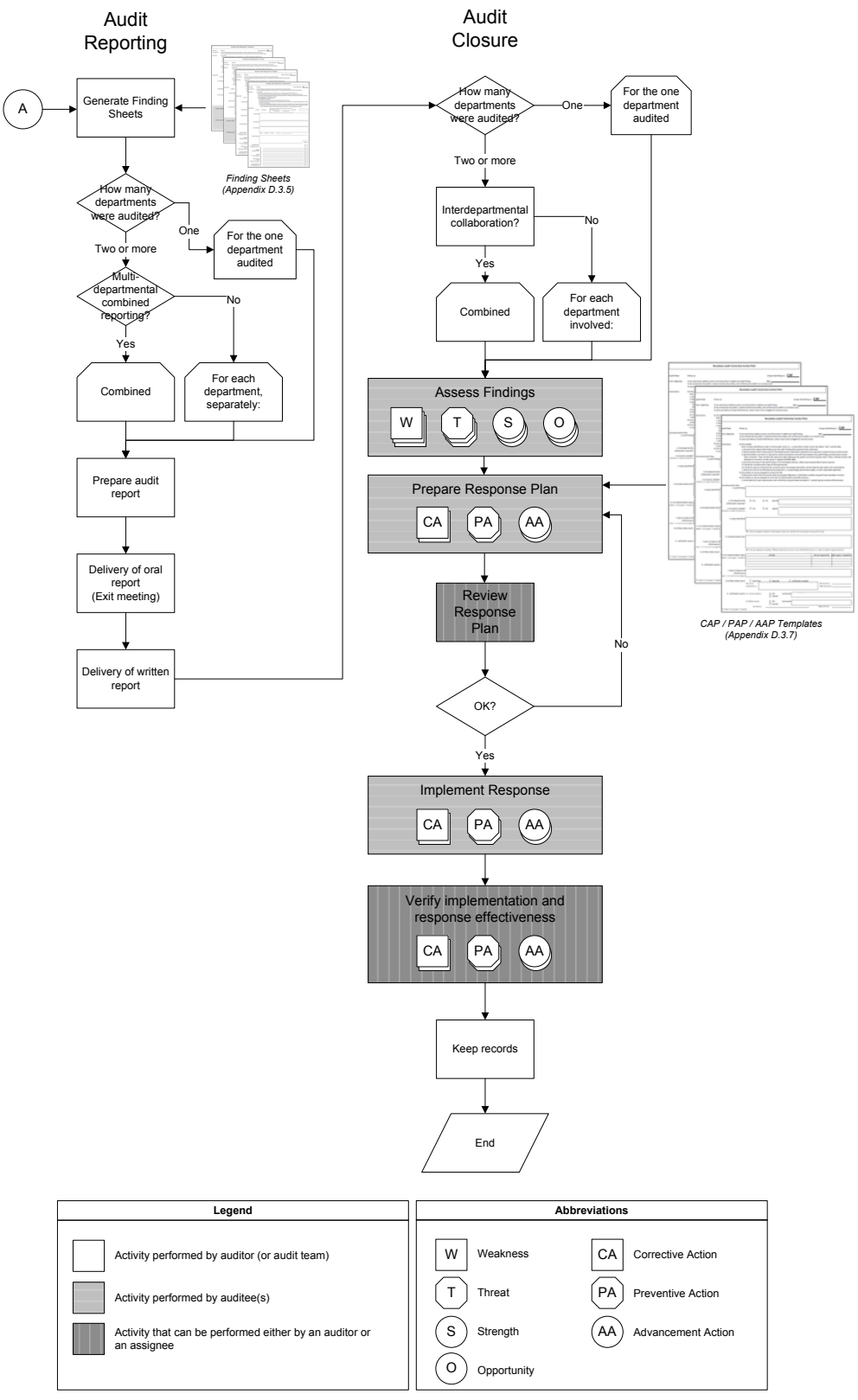


Figure 41 - Boundary audit method (continued)

Appendix D.2.1 - Audit planning

The first stage, Audit planning, deals with BAM-specific elements, such as identifying the departments involved, the level of collaboration expected throughout the auditing process, as well as conventional auditing-planning steps like requesting and reviewing documents (e.g., sub clause 6.3.1 of ISO 19011, 2011b; Russell, 2005, p. 70), defining audit objectives, scope, team, and audit plan (e.g., sub clause 6.2 of ISO 19011, 2011b; Russell 2005, pp. 60-73). More details about the first stage are presented below.

The first step of the audit planning stage is to assess whether the boundary audit is part of a larger system audit, in which case the system audit objectives, scope, audit team, and audit plan, need to be taken into account when planning the boundary audit. For example, if the objectives of the system audit include compliance, effectiveness, risks, and improvement opportunities, a conscious decision could be made to have the same type of objectives for the boundary audit so that the analysis and reporting work is consistent for the audit team, and so that the expected benefits of the audit are consistent at the macro- (system), and micro- (process) levels. Similarly, a sub-group of the system-audit team may be appointed to perform the boundary audit.

After making sure that the boundary audit is aligned to the system audit (where applicable), the next step is to identify the departments involved in the interdepartmental process, and to identify which department is the process owner. Identifying the process owner is important because the process owner is considered a customer of the interdepartmental process (i.e., their requirements are to be met and the satisfaction of the process owner is an important measure in determining process effectiveness). A more detailed explanation of the identification of the process owner (including an algorithm) is available in section “Process ownership” in Part 1 – Conceptual Framework.

Once the departments in each side of the boundary have been identified and classified, the level of access to and collaboration between the departments needs to be determined. Access and collaboration are important considerations because they will have an impact on subsequent audit stages (from performance to closure, including reporting). The effect of the level of access and extent of collaboration is further explained in section “Access and collaboration” in Part 1 – Conceptual Framework.

The next step is to request and review the following information from the department(s) that will be part of the audit (list adapted from Russell 2003, p. 23 and enhanced with examples relevant to the boundary audit):

1. “Work instructions or procedures”, for example internal documents detailing how specific steps of the process (i.e., activities) are to be performed by the departments involved in the process.

2. “Process description by flowchart or other means” which may be requested from one of the departments, perhaps the process owner, and contains a description (textual or graphic) of the interdepartmental process.
3. “Key characteristics and check points in the process”, for example, value adding activities uniquely provided by the organization such as compliance with provincial regulation; as well as any inspections that take place during the process, even those extraordinary, such as executive director reviews.
4. “Acceptance criteria and/or objectives”, such as achieving patient satisfaction with the complaint-resolution process of a complaints handling process (CSO, 2010)
5. “Identified bottlenecks (the capacity or output limiting step)”, for example the maximum number of complaints that a complaints-handling person can deal with at any given point.
6. “Constraints (market demand, storage space, labor)” such as the limited time that members from another department (i.e., a process partner) can devote to the interdepartmental process
7. “Process inputs” like information regarding a complaint.
8. “Process outputs”, for example, the response to a complaint.

In addition, the interdepartmental process audit (i.e., BAM) could also request and review:

1. Customer requirements and objectives, such as a patient’s request when lodging a complaint that the organization makes sure that a health-care-related error does not happen again. The customer objectives can be used as criteria during the boundary audit’s examination of process effectiveness.
2. Process owner and process partner requirements and objectives; such as a process owner’s desire to receive a prompt response from the process partner during an investigative process, and the consequent expectation of the process partner to receive a comprehensive request for information from the process owner that would permit a swift response in order to prevent unnecessary distractions. Both the process owner and process partner’s objectives are used as criteria during the boundary audit’s examination of process effectiveness.
3. Roles and responsibilities of the interdepartmental process, for example, documenting who performs the intake of the complaint, who is in charge of the investigation (both at the process owner and at the process partner), and who delivers the response to the complainant. Information of roles and responsibilities will principally serve as criteria when examining compliance and effectiveness.
4. Escalation procedures within an interdepartmental process, for example, if a member of the process owner is unable to obtain a response from the person responsible at the process partner, who can he/she resort to? Having this information available permits the examination of process effectiveness by identifying how the process strives to achieve objectives.

As Russell (2003) points out, not all requested information will be available, "but that in itself will be valuable information."

The auditors can use the Objective Mapping Template (available in Appendix D.3.1) to identify and classify objectives as unique, common, or potentially conflicting. Figure 42 presents an excerpt of an example of the use of the Objective Mapping Template (OMT) to document objectives of the relevant stakeholders involved in the Patient Concerns Resolution Process (PCRP). The identified stakeholders include: CSO as Process Owner, Operations as Process Partner 1 (PP1), POCSO as the overarching Organization to which the CSO and Operations belong, and the Patient/Family as the Customer.

Then, by using the spreadsheet where audit criteria was organized, grouped and harmonized, objectives can be extracted for the purpose of organizing them by means of the OMT. The documents from where criteria were extracted consisted of: PCRP Policy (POCSO, 2012a), PCRP Procedure (POCSO, 2012b), Medical Staff Guideline (POCSO, 2012c), Administrative Fairness (CSO, 2013), and 'Pocket card' (POCSO, 2013b). Objectives were subsequently categorized as per the stakeholder to whom they apply and as either "unique", "common", or "potentially conflicting", in the main table of the OMT.

Examples of unique objectives, entered under subsection 3.1 in the OMT, included:

for the CSO: To facilitate the PCRP as required by the PCRP Regulation, [….] to be the primary contact for the Complainant, […] and to serve as the final opportunity to review the Concerns process prior to a referral to the [Provincial] Ombudsman (POCSO, 2012c), and

for Operations: "To have concerns managed by the Staff and/or manager and/or Medical Staff as close as possible in time and place to the alleged occurrence; and within their level of comfort, skill level and scope of responsibility" (POCSO, 2012b, 2012c).

On occasions, objectives of one stakeholder may be in conflict with another stakeholder. Such objectives can be entered under subsection 3.2, at the intersection of the row to which the objective applies and the column of the stakeholder with which the objective potentially conflicts. For example, the following objective of POCSO: "From the (Provincial) Ombudsman's perspective, when reviewing a decision made by POCSO it is not about whether a decision is right or wrong, it is about how the rationale supports a fair decision" (CSO, 2013), may conflict with the Complainant because the latter would prefer a decision to be 'right' as opposed to only 'fair'.

The identification of a potentially conflicting objective can raise a flag that could have the auditors look for further evidence to identify whether the conflicting objective is having a negative impact on the organization. For example, the emphasis of the Provincial Ombudsman's review of the fairness of a decision, rather than whether it is the 'right' decision, should be noted and stressed to the Complainant prior to their requesting the Ombudsman Review. Potentially

conflicting objectives should serve as a first indication that a difference of expectations may negatively impact the performance (i.e., effectiveness) of the process being assessed, and attention should be paid during the audit performance on evidence corroborating such misalignment of expectations, so that audit findings are reported and acted upon.

Objectives shared by two or more stakeholders can be categorized as 'common' and entered at the bottom of the template, under subsection 3.3. For example the two objectives below are shared by the POCSO, CSO and Operations, since they involve all three stakeholders:

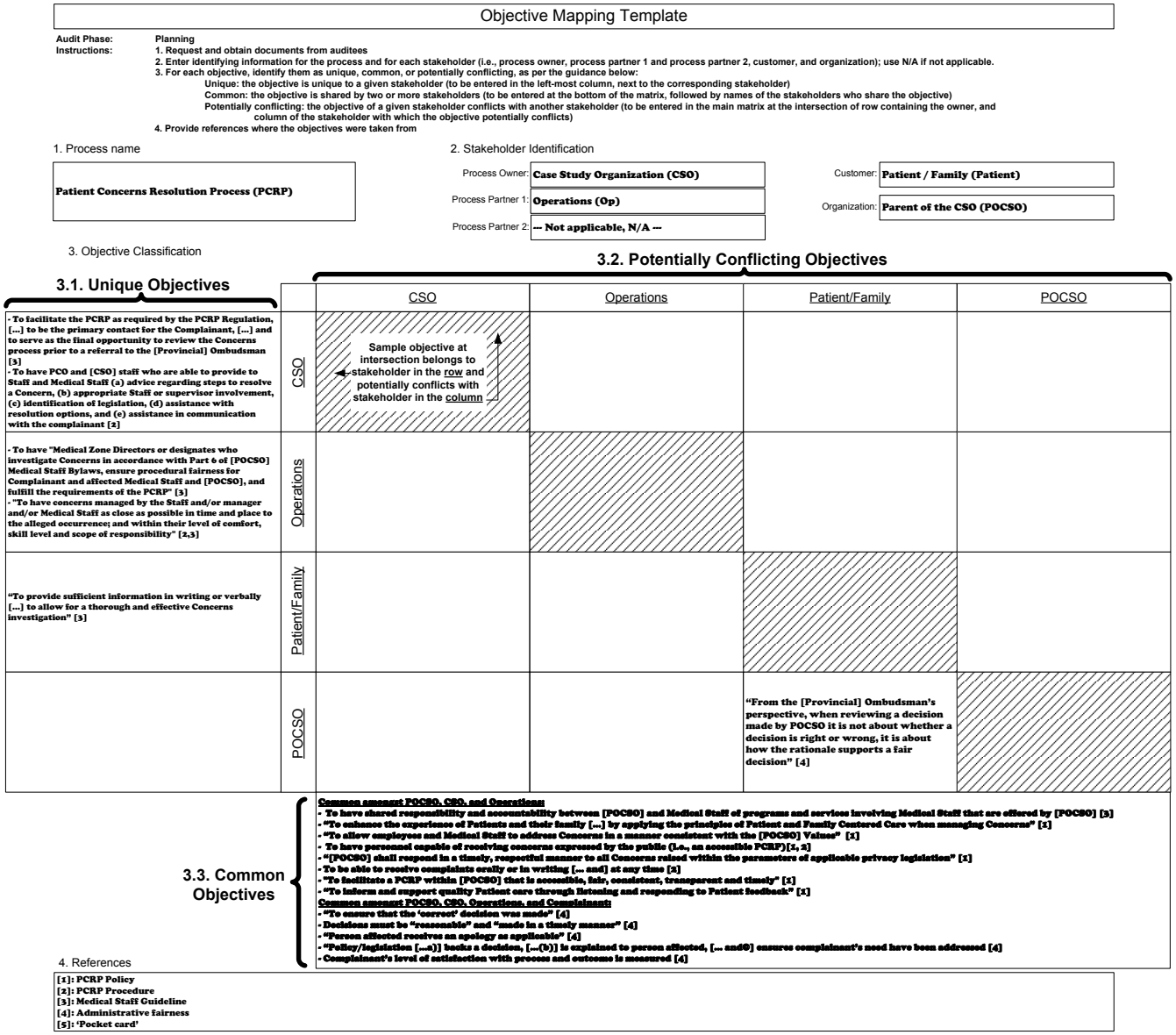
- To have shared responsibility and accountability between [POCSO] and Medical Staff of programs and services involving Medical Staff that are offered by [POCSO] (POCSO, 2012c), and

- "To enhance the experience of Patients and their family […] by applying the principles of Patients and Family Centered Care when managing Concerns" (POCSO, 2012a)

The objectives in the table are followed with numbers in square brackets to indicate the document where they were found, and a list of the source documents is included at the bottom of the template under section 4. References.

During the audit, lack of availability of documented objectives, can obey several reasons:

1. One of the departments (i.e., the process partner) is not available for the audit. When one department is unavailable, records can be still be used to assess interactions. However, care should be exercised when drawing conclusions pertaining to the unavailable department. Findings will not be definitive, which may decrease confidence in the audit conclusions or even hinder the effectiveness of response plans.
2. One of the departments is involved in the audit but no documentation exists. Such an occurrence is an audit finding itself, and should trigger a corrective action to the department to prepare the appropriate documentation.
3. No customer objectives have been documented. A benefit of the boundary audit is that customer objectives should be documented somewhere. If needed, they should be gathered through surveys or other means, in order to have this information available.



Objective Mapping Template

Audit Phase: Planning

Instructions:
1. Request and obtain documents from auditees
2. Enter identifying information for the process and for each stakeholder (i.e., process owner, process partner 1 and process partner 2, customer, and organization); use N/A if not applicable.
3. For each objective, identify them as unique, common, or potentially conflicting, as per the guidance below:
   - Unique: the objective is unique to a given stakeholder (to be entered in the left-most column, next to the corresponding stakeholder)
   - Common: the objective is shared by two or more stakeholders (to be entered at the bottom of the matrix, followed by names of the stakeholders who share the objective)
   - Potentially conflicting: the objective of a given stakeholder conflicts with another stakeholder (to be entered in the main matrix at the intersection of row containing the owner, and column of the stakeholder with which the objective potentially conflicts)
4. Provide references where the objectives were taken from

1. Process name

Patient Concerns Resolution Process (PCRP)

2. Stakeholder Identification

Process Owner: **Case Study Organization (CSO)**
Process Partner 1: **Operations (Op)**
Process Partner 2: **--- Not applicable, N/A ---**
Customer: **Patient / Family (Patient)**
Organization: **Parent of the CSO (POCSO)**

3. Objective Classification

3.1. Unique Objectives

3.2. Potentially Conflicting Objectives

		CSO	Operations	Patient/Family	POCSO
- To facilitate the PCRP as required by the PCRP Regulation, [...] to be the primary contact for the Complainant, [...] and to serve as the final opportunity to review the Concerns process prior to a referral to the [Provincial] Ombudsman [3] **- To have PCO and [CSO] staff who are able to provide to Staff and Medical Staff (a) advice regarding steps to resolve a Concern, (b) appropriate Staff or supervisor involvement, (c) identification of legislation, (d) assistance with resolution options, and (e) assistance in communication with the complainant [2]**	CSO	Sample objective at intersection belongs to stakeholder in the row and potentially conflicts with stakeholder in the column			
- To have "Medical Zone Directors or designates who investigate Concerns in accordance with Part 6 of [POCSO] Medical Staff Bylaws, ensure procedural fairness for Complainant and affected Medical Staff and [POCSO], and fulfill the requirements of the PCRP" [3] **- "To have concerns managed by the Staff and/or manager and/or Medical Staff as close as possible in time and place to the alleged occurrence; and within their level of comfort, skill level and scope of responsibility" [2,3]**	Operations				
"To provide sufficient information in writing or verbally [...] to allow for a thorough and effective Concerns investigation" [3]	Patient/Family				
	POCSO			**"From the [Provincial] Ombudsman's perspective, when reviewing a decision made by POCSO it is not about whether a decision is right or wrong, it is about how the rationale supports a fair decision" [4]**	

3.3. Common Objectives

Common amongst POCSO, CSO, and Operations:
- **To have shared responsibility and accountability between [POCSO] and Medical Staff of programs and services involving Medical Staff that are offered by [POCSO] [3]**
- **"To enhance the experience of Patients and their family [...] by applying the principles of Patient and Family Centered Care when managing Concerns" [1]**
- **"To allow employees and Medical Staff to address Concerns in a manner consistent with the [POCSO] Values" [1]**
- **To have personnel capable of receiving concerns expressed by the public (i.e., an accessible PCRP) [1, 2]**
- **"[POCSO] shall respond in a timely, respectful manner to all Concerns raised within the parameters of applicable privacy legislation" [1]**
- **To be able to receive complaints orally or in writing [... and] at any time [2]**
- **"To facilitate a PCRP within [POCSO] that is accessible, fair, consistent, transparent and timely" [1]**
- **"To inform and support quality Patient care through listening and responding to Patient feedback" [1]**

Common amongst POCSO, CSO, Operations, and Complainant:
- **"To ensure that the 'correct' decision was made" [4]**
- **Decisions must be "reasonable" and "made in a timely manner" [4]**
- **"Person affected receives an apology as applicable" [4]**
- **"Policy/legislation [...s)] backs a decision, [...(b)] is explained to person affected, [... and©] ensures complainant's need have been addressed [4]**
- **Complainant's level of satisfaction with process and outcome is measured [4]**

4. References

[1]: PCRP Policy
[2]: PCRP Procedure
[3]: Medical Staff Guideline
[4]: Administrative fairness
[5]: 'Pocket card'

Figure 42 - Objective Mapping Template Example (Excerpt)

It is critically important to identify applicable requirements and objectives because the audit methods explained in the next pages require the understanding of requirements and objectives in order to verify compliance and effectiveness. The process information collected above, including the compilation of applicable requirements and objectives will allow the auditor to define the audit criteria.

The next steps in the audit planning stage range from understanding the process (by means of creating an Interdepartmental Process Flow Diagram to model the process, to preparing the audit plan, including defining audit objectives, scope, criteria, and team. Figure 43 depicts an excerpt of an IdPFD example which was developed by using documentation from the PCRP (i.e., POCSO, 2012a, CSO, 2010, and POCSO, 2012c). The example is available in Appendix D.3.2 and its preparation followed the next steps: Firstly, details about the process were entered, including process name, process objective, output of the process, names of the departments involved (categorized as Process owner or Process Partner), the date the IdPFD was prepared, and the name of the analyst. Secondly, the main table was populated by entering, one per row, each step of the PCRP (as explained below). Thirdly, the summary table was populated by calculating the total number of activities and interactions per department. Below, more details about the second and third steps are described.

The main table of the IdPFD contains seven columns: (1) Number, (2) Performers and logic, (3) Type of event (Activity or Interaction), (4) Input, (5) Event description, (6) Resources, and (7) Person Responsible. Explanations of the information entered under each column are presented next.

The first column (i.e., “No.” for number) was used to enter unique consecutive numbers to show the sequence of the process steps; some steps that were not part of the sequence because they could occur “at any time” or because they were “ongoing” were entered at the end of the table after the sequential steps. As per the template instructions, decisions points in the process could have been entered “as sub-levels of the decision point, for example: If event 5. is a decision point, 5.10 is one path and 5.20 another one, whereas 5.11 would be a consecutive activity of 5.10” (IdPFD Template instructions, p. 316). For example, steps 1 to 16 are consecutive, yet there are 3 steps that are “ongoing” and 4 steps that can occur “at any time”.

“Performers and logic”, i.e., the second column, served to identify the department(s) performing the process step (or event). Some events are unambiguously performed by one department, while others can be performed by either of the departments involved, or by two or more in conjunction. Such conditions can be documented by means of (1) checkboxes to identify the departments involved (one to three), and (2) lines between the checkboxes where to identify the relationship between the performers (i.e., AND, OR, XOR; the difference between OR and XOR is explained in step 3.2 of the Template instructions on p. p. 316). For example, the first event in Figure 43, “Intake of complaint brought forward by a complainant either verbally or in writing” can be

performed by either the Process Owner or the Process Partner. As such, both checkboxes are ticked, and the word "OR" entered between them.

The third column, namely "Type of event (Activity or Interaction)", was used to classify, using conventional flow chart symbols, each process event as either an activity (and of which sub-type, i.e., Operation, Transport, Delay, Inspection, and Storage) or as an interaction (by means of a hexagonal symbol, traditionally used to represent Data Transfer). Event 1, "Intake of complaint…" was classified as an interaction because it involves a transfer of information since the complainant is providing information to the Process Owner or Process Partner (whoever is receiving the complaint).

"Input", the fourth column, allowed to specify the inputs to the event, in other words, the material or information that are required to perform the process step. For example, the inputs to event no. 1, "Intake of complaint…" is the "Generals of a complaint" which represents the information that the complainant provides when establishing first contact. The input is called "Generals of a complaint" because further down the process more information about the complaint, called "Complaint details" will be collected during the PCRP.

The fourth column, i.e., "Event description", served to record the name or description of the process step using one or two sentences. Where possible, verbatim descriptions from the available documents were used when entering each step and referenced appropriately (linking to the documents listed under references at the end of the template). Such an approach was followed in order to minimize the impact of interpretation from the auditor.

"Resources", the fifth column in the main table of the template, was used to document the relevant process elements needed to execute each process step. Process elements are classified as People, Equipment, Environment, Measures, and Methods (namely the PEEMMM process elements, as per Arter (2003) and Russell (2003),with the exception of *Materials* which were already recorded in their own column under "Inputs").

- "People" helps to identify the knowledge, training and skills the person needs to perform the activity or interaction;
- "Equipment" refers to the tools or hardware that are needed during the process step;
- "Environment" is used to identify the principles that the person performing the activity or interaction should care to promote or adhere to;
- "Measures" is used to recognize "data that are taken and the influences that measuring has on the activity being studied" (Arter (2003, pp. 14,15); and
- "Methods" helps to identify relevant documents and procedures.

Interdepartmental Process Flow Diagram (IdPFD) Template

Audit Phase: **Planning [or Performance if used to map the flow of a product]**

Instructions:

1. **Request and obtain process documents from auditees (i.e., the departments involved in the interdepartmental process)**

3.3. Identify (by filling in) the type of event as either an Activity and its subtype (e.g., Operation - Circle, Transport – Arrow, and so on) or an Interaction - Hexagon.

3.4. Under Inputs (i.e., fourth column), identify the inputs to the event (i.e., material or

Process name:	**Patient Concerns Resolution Process (PCRP)**
Process objective:	**To receive, review, and respond to concerns raised by complainants [1]**
Output of the process:	**Response to concern**
Process Owner [PO]:	**[CSO]**
Process Partner [PP1]:	**Operations (Op.)**
Process Partner [PP2]:	***N/A***

Date:	**February 3, 2014**
Analyst:	**Enrique Fernandez**

Remarks:

Summary

Event		PP2 [N/A]	PO	PP1	Total by type
Activity	Operation	-	2	3	5
	Transport	-	-	-	-
	Delay	-	-	-	-
	Inspection	-	2	3	5
	Storage	-	1	-	1
Interaction		-	13	11	24
Total by Dept.		**-**	**18**	**17**	**35**

No.	[✓] performers & logic [AND / OR / XOR] PP2 N/A	Process Owner	PP1	Type of Event (Activity or Interaction)		Input	Event description (include date or time reference if mapping flow of a product during Audit Performance)	Resources (Ppl, Eq.., Env., Meas., and Meth.)	Person responsible (Job title or role)
1	☐	☑ OR	☑	Activity (select sub-type) ○ ⇨ D □ ▽	Inter-action ⬢	Generals of a complaint	Intake of complaint brought forward by a complainant either verbally or in writing	Ppl: Descalation, crisis mgmt Eq: Phone or email or web-form Env: Accessibility, timeliness, confidentiality, responsiveness Meas: Type of concern Meth: POCSO 2012b	@PO: PFIC or PCC or @P1: Staff and/or Manager and/or Medical Staff
2	☐	☑ OR	☑	Activity (select sub-type) ○ ⇨ D □ ▽	Inter-action ⬢	Generals of complaint Process for managing the concern	Acknowledge complaint, and advise complainant of the process for managing the concern including contact person	Ppl: Knowledge of PCRP Eq: Phone, email Env: Fairness, timeliness Meas: Within 3 days Meth: POCSO 2012b	@PO: PFIC or PCC or @P1: Staff and/or Manager and/or Medical staff
	☐	☑ OR	☑	Activity (select sub-type) ○ ⇨ D □ ▽	Inter-action ⬢	Available review options	- - At any time - - "At any time during the concern resolution process or after a decision has been made, regardless of the outcome, those responsible for managing the concern shall advise the complainant of relevant options available to them for a further review such as the PCO, the [CSO], and other external bodies who conduct reviews." [1]	Ppl: Crisis mgmt, Communication skills Eq: Email or phone Env: Accessibility, fairness, relevance Meas: Ongoing basis Meth: POCSO 2012a,b	@PO: PCC or @P1: Staff manager or Supervisor or Medical staff lead

Abbreviations

PFIC = Patient Feedback Intake Coordinator
PCC = Patient Concerns Consultant
FOIPP = Freedom of Information and Protection of Privacy Act
HIA = Health Information Act
[P]EHRR = [Provincial] Electronic Health Record Regulation
PPCA = Protection for Patients in Care Act
HPA = Health Professions Act
MHA = Mental Health Act

References

[1] : PCRP Policy (POCSO , 2012a)
[2] : PCRP Process (CSO, 2010)
[3] : Medical Staff Guideline (POCSO, 2012c)

Figure 43 - IdPFD Example Excerpt

For example, for Event no. 1, “Intake of complaint…”, “People” includes “Descalation and crisis management” because the person receiving the complaint needs to be capable of handling situations where the complainant is upset or threatening; “Equipment” contains “Phone or email or webform” because those are the means by which a complaint can be submitted to the PCRP; “Environment” consists of “Accessibility [because the complainant should be able to complaint at any point of the service provision], timeliness [since the intake of the complaint should be quick], confidentiality [because the complainant should have assurance that the process will be confidential], and responsiveness [because the PCRP should aim to provide a resolution to the complaint]”; “Measures” include “Type of concern”, since the concern can be classified in one of the several categories and subcategories used in the PCRP (e.g., “Access” and “Delivery of Care” as per CSO, 2010), “Method” refers to POCSO (2012b), i.e., the document outlining the PCRP procedure.

The last column, namely “Person responsible” was used to enter the job title or role of the person or persons in charge of performing the activity or interaction for each of the departments marked as performers in the second column. For example, since Event no. 1, “Intake of complaint…” can be performed by either the PO or PP1, roles for each of those departments need to be specified under the seventh column, such as: “@PO: PFIC or PCC; or @PP1: Staff and or Manager and/or Medical Staff”. Worth mentioning is that the abbreviations are explained at the end of the template, i.e., PFIC stands for Patient Feedback Intake Coordinator, and PCC stands for Patient Concerns Consultant. In addition to abbreviations, references were also entered at the end of the template to acknowledge the documents used to fill out the IdPFD.

Once the main table of the IdPFD was filled with all the steps of PCRP, the Summary table (middle right of the first page of the template) was prepared by counting the total number of activities and interactions per department. For example, the PO performed 2 Operations, 13 Interactions, 2 Inspections, and 1 Storage; while the PP1 performed 3 Operations, 11 Interactions, and 3 Inspections. In addition, totals per department, per event type, and grand total were computed. The summary table could be used to identify Process Ownership, had it been necessary, by identifying the department that performs the majority of the work (refer to the “Work Distribution”, the second test to identify Process Ownership, as explained in p. 252).

After the IdPFD has been used to represent the process in a detailed manner, the audit team can then prepare the checklists that will be used to examine the interdepartmental process. The number of checklists that will be required for the boundary audit will depend on a few aspects:

1. How many departments will be accessed?
2. How many activities will be examined through observation and through interviews?
3. How many interactions will be examined through observation and through interviews?

There are five types of checklists, one to observe the process output, two to examine activities (through observation and interviews), and two more to assess interactions (also through

observation and interviews, respectively). The checklists are called: Observe Process Result, Observe Process (1. Activities), Observe Process (2. Interactions), Interviews (1. Activities), and Interviews (2. Interactions).

Questions in the question bank (which had been prepared on the basis of the categorized and harmonized audit criteria) can be transferred to the checklists to better guide the examination of the process output and of the process interactions; the former through observation, and the latter through observation and interviews. For example, questions that refer to specific process elements with relation to specific interactions could be more valuable than using generic or default questions.

The auditors can prepare the required checklists by transferring questions from the question bank, when available, or by composing brand new questions based on the applicable audit criteria. As a last alternative, the checklist templates provide default questions, which even though generic in nature, can still help the auditor during observation or interviews.

In parallel to the creation of the IdPFD and the procurement and adaptation of checklists; audit objectives, audit scope, audit criteria, and audit team need to be determined and documented in an audit plan. Audit objectives in a boundary audit can range from assessing process compliance and effectiveness, to the identification of process risks and improvement opportunities. Audit scope should include, whenever possible, all departments involved in the interdepartmental process; nevertheless, there may be occasions when access to only one or fewer departments will be allowed, in which case, the boundary audit method can still be used. Audit criteria will be determined according to the objectives and the scope, in other words, the criteria will depend on *what* the audit aims to examine, and *where* it plans to do so. Finally, the audit team needs to be assembled by taking into account the previously defined objectives, scope and criteria, aiming to ensure that the team is capable of completing the audit effectively. After determining the above four elements, i.e., objective, scope, criteria and team, they are then documented in an audit plan which will also include logistics details pertaining to the dates on which to perform the audit. The audit plan needs to be shared (not necessarily approved) with management representatives of the departments that will be audited (or just the one department when applicable).

The next step is to determine how will the audit be performed, Appendix D.1.3 provides details on access to, and collaboration amongst, departments during the audit; while and Appendix D.1.4 describes potential approaches when accessing more than one department (e.g., concurrent and sequential). The second stage of the boundary audit, audit performance, is explained in detail next.

Appendix D.2.2 - Audit performance

The main activities of the audit performance stage include: holding an opening meeting, touring, product tracing, analyzing information, assessing the boundary, reaching conclusions, and holding a closing meeting (e.g., as adapted from sub clause 6.4 of ISO 19011, 2011b; or 'Performance' of Russell, 2005, pp.86-105, for the examination of interactions).

Audit performance activities can take place for one or more departments (depending on accessibility), and when for two or more, possible approaches are concurrently, sequentially, or a combination of the two. The types of audit objectives will determine the type of questions that need to be asked, and the evidence that will be sought during observation and interviews. The remaining of the appendix is described assuming that the boundary audit is performed with access to two departments, following a concurrent approach, where objectives include compliance, effectiveness, risks, and improvement opportunities. In other words, the method is described under comprehensive circumstances.

The first step in the audit performance stage is holding an opening meeting between management representatives from both departments and the audit team. Introductions are made, and the audit plan is reviewed. Any limitations and/or changes are acknowledged and recorded in the audit plan (Russell 2003).

Then, the audit team tours the process, in order to get better-acquainted and verify their understanding of the process. Russell (2003) suggests that touring is particularly helpful for "complex or external process audits", and "to become familiar with the layout, identify changes since the last audit, and align what you see with your expectations (the [Id]PFD)" (p. 47). It is important to have access to both departments and when feasible, see how personnel from one department interact with personnel from the other department.

The next step is product tracing (also known as product tracking) which is defined as "following the chronological progress of something as it is processed" (Russell 2005 p. 80 improving on Arter 2003's definition on p.71). Product tracing can be performed forwardly (i.e., starting at the beginning of the process and proceeding chronologically) or backwardly (starting at the end of the process and moving back). This step is comprised of three audit sub-methods: (1) observe the process result, (2) observe the process, and (3) interview personnel. Russell (2005) points out that "backward tracing can be more revealing than forward tracing because the auditor examines the process from the perspective of seeing the results (product or service) of the preceding activity" (p. 80). Thus, for the boundary audit, activities and interactions are to be examined after having looked at the outputs, aiming at enabling auditors to focus on relevant aspects when observing the process, and to ask better-informed questions during the subsequent interviews.

Next, the three audit sub-methods used during product tracing, i.e., Observe the process result, Observe the process, and Interview Personnel, are presented and explained.

D.2.2.1 Observe the process result

The audit team needs to look at the process result (adapted from 'Observe activity result' from Arter et al., 2013, p. 98), for instance a finished or unfinished product, or a service, and compare it against process output requirements and process output objectives. The information being sought during this audit sub-method will depend on the audit objectives, which can range from compliance to improvement opportunities, including effectiveness, and risks. As could be expected, the more complex the objectives of the audit, the more aspects that need to be examined of the process result.

The checklist "Observe Process Result" (OPRC) can be used to guide the observation of the process output. The checklist allows the auditor to fill out details of the audit and of the process. The auditor can then transfer questions from the question bank to the checklist, or add new questions, or use default questions. The body of the checklist is divided in four subsections, one for each audit objective (i.e., Compliance, Effectiveness, Risks, and Improvement Opportunities), with questions, in turn, addressing each of the six process elements (i.e., PEEMMM).

Select excerpts of an Observe-Process-Result checklist are presented in Figure 44 (note that the full example is available as an Appendix starting on p. 328). The example was prepared in the following way:

1. Obtained and secured an output record: one closed complaint was selected from a sample of closed complaints provided by the CSO for verification purposes (subsequently, the example was updated to reflect changes to the OPRC template that arose as a result of the validation). The criteria for selecting the closed complaint used for the example was:
    a. The closed complaint should not be too long (some complaints files contain more than 100 pages, while the one that was selected was 61 pages long).
    b. The closed complaint should provide all the information requested by the checklist (e.g., response letter and information regarding satisfaction)
2. Entered details of the audit, including audit objectives, the record that was reviewed in order to fill out the checklist, the criteria used (i.e., process objectives and process requirements from harmonized criteria), as well as the date and the name of the analyst.
3. Entered details about the process, such as process name, process objective, output of the process, customer of the process (and whether it was external or internal), as well as the names of the process owner, and of the process partner.
4. Transferred questions from the question bank to the OPRC template into the appropriate subsections (i.e., per audit objective, and for each corresponding process element). Additional questions from the question bank prepared to assess the process output were entered under 'custom questions', the last subsection of the OPRC template.
5. Examined the output record by using the checklist, i.e., by checking Yes/No where applicable, and by providing responses to each open-ended question.

Boundary audit checklist (Part 1 - Observe Process Result)

Audit Phase Performance (Sub method 1. Observe Process Result)

Method objective To observe process result or output, and assess (depending on the audit objectives) its compliance, effectiveness, risks, and improvement opportunities

Instructions
1. Secure access to process result or output (be it a product, or output records if a service or intangible)
2. Fill out audit details (incl. audit objectives, product / lot number or record reviewed, and criteria used)

Audit details

Audit objectives: Compliance ☑ Effectiveness ☑ Risks ☑ Improvement Opp. ☑

Product / lot number, or record reviewed:	**CC1A Concern, CSO Review, Response letter July 2011**	Date:	**02-May-16**
Criteria used:	**Process objectives and process requirements from harmonized criteria (i.e., PCRP Policy, PCRP Procedure, Medical Staff Guideline, Administrative fairness, and 'Pocket card')**	Analyst:	**Enrique Fernandez**

Process details

Process name:	**Patient Concerns Resolution Process (PCRP)**	Remarks:	
Process objective:	**To "receive, review, and respond to concerns raised by complainants" (POCSO, 2012b)**		
Output of the process:	**Response to concern**		
Customer of the process:	**Patient/Family (Complainant)** Internal ☐ External ☑		
Process Owner [PO]:	**Case Study Organization (CSO)**		
Process Partner 1 [PP1]:	**Operations (Op.)**		
Process Partner 2 [PP2]:	***N/A***		

Compliance

No.	PEEMMM	What to observe (Enter own question in space provided, or use default question)	Yes	No
1	People	"Are we available to answer questions from the complainant once a decision has been made?" (Administrative fairness, p. 4)		
	~~Default Q.~~	~~Are personnel doing what they should (with regards to the process output)?~~	☑	☐
		Yes, the complainant is given the contact details of the CSO Director to contact in case of further questions		
2	Equipment	"Is there a clear link between all the documentation and: (a) identification of the concerns as discussed with the complainant? (b) the decisions made? (c) who made the decisions? (d) how legislation, regulations, policies, or procedures were applied to the complainant's circumstances?" (Administrative fairness, p. 4)		
	~~Default Q.~~	~~What equipment is available to produce, deliver or communicate the process output?~~	☑	☐
		Yes (from examining record and response letter): concerns were documented, decisions explained, decision makers consulted with (i.e., Operational reviewers), and legislation/regulation/policy considered when providing the		
...	...	...		

Effectiveness

No.	PEEMMM	What to observe (Enter own question in space provided, or use default question)	Yes	No
...	...	...		
3	Environment	"Have the decisions been made in a timely manner?" (Administrative fairness, p. 3)		
	~~Default Q.~~	~~How are relevant principles or values displayed when preparing or delivering the process output?~~	☑	☐
		Yes, the concern involved several operational reviewers and different concerns, which had to be dealt with separately. The decision is considered timely, because it was a complex concern.		
4	Materials	What evidence is there that the Complainant understood the reasoning for the decision?		
	~~Default Q.~~	~~Is the information needed for preparing or delivering the process output complete and appropriate?~~		
		Reasoning for the decision was not understood. Complainant was not satisfied with outcome or process. Complainant wanted to have trespass order removed, which was not under the control of CSO, and discouraged by		
...	...	...		

Figure 44 - Observe-Process-Result Checklist (OPRC) Example Excerpt (part 1/2)

Risks

No.	PEEMMM	What to observe (Enter own question in space provided, or use default question)
...	...	...
5	Measures	What could cause a decision fail to be consistent with previous decisions on similar matters? If discretion was exercised, what could cause the inconsistencies be hard to be explained or supported?
	Default Q.	~~What could cause the incorrect use of categories or targets relevant to the preparation or deliver of the process output?~~
		If the PCC or operational reviewer is new to the organization and/or there is no organizational memory available to provide information about past decisions. When inconsistencies may be necessary, lack of documentation pertaining
6	Methods	What could cause procedures or guidelines for preparing or communicating the written notice of the decision to become out-of-date or no longer accurate (i.e., obsolete)?
	Default Q.	~~How could procedures be unlawfully altered or disregarded?~~
		New legislations or regulations may affect how the written notice of the decision has to be prepared or delivered. Updates to the PCRP Policy Suite or Provincial regulation could affect the written notice

Improvement Opportunities

No.	PEEMMM	What to observe (Enter own question in space provided, or use default question)
1	People	What skills could be taught to the personnel to improve empathy and relatability; as well as their ability to prepare or deliver the written notice of the decision?
	Default Q.	~~How can personnel be better trained in their ability to prepare or deliver the process output?~~
		Ability to manage complainant expectations, ability to explain scope and limitations of the PCRP.
2	Equipment	How could equipment be used differently or better (or what new equipment could be procured) to better document and establish linkages between concerns, decisions made, decision maker, and applicable legislation and regulation?
	Default Q.	~~What improvements could be made to the equipment used to prepare, deliver or communicate the process output?~~
		Flowcharts connecting concerns, decisions, decision maker, and applicable legislation and regulation. Organizational memory documents, story-telling or case studies to train new personnel.
...	...	...

Custom questions

No.	PEEMMM	Objective	What to observe (Enter own question in space provided, or use default question)
1	People	Compliance	"Was the complainant advised of any opportunities for improvement at the completion of the PCRP?" (Administrative fairness, p. 4)
			Not applicable
2	Environment	Compliance	"Has the decision to the complainant been provided in clear language?" (Administrative fairness, p. 4)
			Yes
3	Measures	Compliance	"If discretion is exercised can any inconsistencies with previous decisions on similar matters be explained and supported by decision-maker?" (Administrative fairness, p. 3)
			Lack of knowledge re: past similar matters.
4	People	Effectiveness	When applicable, did the Complainant receive an apology?
			Not applicable, complainant did not want an apology.
5	People	Effectiveness	"Is the policy/legislation explained to the person affected?" (Administrative fairness, p. 4)
			Complainant was provided with report from Protective Services regarding the incidents (causes, actions taken) with the complainant.

Legend
PEEMMM = [P]eople, [Eq]uipment, [En]vironment, [Mat]erials, [Meas]ures, [Meth]ods
Objective = [C]ompliance, [E]ffectiveness, [R]isks, [I]mprovement Opportunities

Observe-Process-Result Checklist Example Excerpt (part 2/2)

Even when a boundary audit will access one or more departments, "Observe the process result" is usually performed just once for each process instance observed, since there is usually one output of the process regardless of the number of departments involved. Whereas the remaining two sub-methods, i.e., "Observe the Process" and "Interview Personnel" will be performed for different interactions at each of the departments being accessed during the audit.

Nevertheless, the auditors may decide to use the OPRC more than once within a process to examine interim products when applicable, as was the case during the BAM verification (when preliminary process outputs, ultimately rejected by complaints, were examined by means of the OPRC). It is important to recognize that the guidance on the application of the BAM is flexible and the tools can be adapted and used by the auditor as they see fit.

The next sub-method, after having examined the process result, is "Observe the process" and is presented below.

D.2.2.2 Observe the process

After the process result has been assessed by the audit team, backward tracing would take them through the process activities in a reverse order (i.e., the last activity being analyzed first, then the second last, and so on), as adapted from Russell (2005, p. 94), Arter *et al.*, 2013 (p. 91-92), and ISO 19011 (2011b, sub clause 6.4.6), to examine interactions in an interdepartmental process.

When using closed files (i.e., records) to 'observe' process result or interactions, mapping the closed file using an IdPFD can be very helpful in understanding the evolution of the process instance. For example, the origin of nonconforming issues identified in the process output could be traced back to the interaction where they originated, prompting the use of an OPIC to examine said interaction looking for the root causes of the issues. An example of the use of an IdPFD to map a closed file is presented in Figure 45.

By backwardly-tracing the process, the audit team will likely move from one department to the other as they observe activities and interactions. In order to identify the sequence of activities and interactions, the audit team can refer to the IdPFD where the process was modeled during the planning stage. It is not necessary (nor possible) to examine all activities and interactions, therefore a sample must be chosen. The selection of the sample of activities and interactions to examine can be done using information from the IdPFD and OPRC. In other words, the auditor may have identified in the IdPFD or OPRC interactions where miscommunications or delays had occurred. Those interactions can be closely examined using the OPIC. It is important to maintain the audit approach and avoid turning the audit into an investigation, or worse, a witch-hunt.

Interdepartmental Process Flow Diagram (IdPFD) Template

Audit Phase: Planning [or Performance if used to map the flow of a product]

Instructions:

1. Request and obtain process documents from auditees (i.e., the departments involved in the interdepartmental process)

3.3. Identify (by filling in) the type of event as either an Activity and its subtype (e.g., Operation - Circle, Transport – Arrow, and so on) or an Interaction - Hexagon.

Process name:	**Patient Concerns Officer (PCO) Review**
Process objective:	**To receive, review, and respond to concerns raised by complainants [1]**
Output of the process:	**Response to Concern**
Process Owner [PO]:	**Case Study Organization (CSO)**
Process Partner [PP1]:	**Operations (Op.) [Dep1, Dep2, Dep3]**
Process Partner [PP2]:	**Complainant (Comp)**

Date:	**May 6, 2016**
Analyst:	**Enrique Fernandez**

Remarks:	**Boundary Audit Method Example Record used: CC1A Concern, CSO Review**

Summary

Event		PP2	PO	PP1	Total by type
Activity	Operation	-	-	-	-
	Transport	-	-	-	-
	Delay	-	-	-	-
	Inspection	-	1	-	1
	Storage	-	-	-	-
Interaction		13	21	10	44
Total by Dept.		**13**	**22**	**10**	**45**

No.	[✓] performers & logic [AND / OR / XOR] PP2	Process Owner	PP1	Type of Event (Activity or Interaction) Activity (select sub-type)	Inter-action	Input	Event description (include date or time reference if mapping flow of a product during Audit Performance)	Resources (Ppl, Eq., Env., Meas., and Meth.)	Person responsible (Job title or role)
1	☑ AND	☑	☐	○⇨D□▽	⬢	Concern details	13/5/2011 PCC spoke with complainant to learn details of concerns (2 concerns: Manner of physician, Manner of security guards)	Phone	CSO: PCC Complainant
2	☐	☑	☐	○⇨D□▽	⬢	Concern details	17/5/2011 PCC completed Concerns Memos and sent them to 2 Operational reviewers (Dep 1 Site Manager and Dep 2)	Email, Concerns memo	CSO: PCC
29	☐	☐	☑	○⇨D□▽	⬢		20/7/2011 PCC received email from PCO Office requesting patient's file PCO had received a call from Complainant requesting a PCO review File closed at CSO	Email	Op: PCO Investigator CSO: PCC

Abbreviations

Dep1 = Department 1
Dep2 = Department 2
Dep3 = Department 3

References

[1] : PCRP Policy (POCSO , 2012a)
[2] : PCRP Process (CSO, 2010)
[3] : Medical Staff Guideline (POCSO, 2012c)

Figure 45 - Example of IdPFD used to document a closed file (Excerpt)

The objective of the "Observe the Process" sub-method is to watch closely how activities and interactions are performed, the extent of compliance with procedures and methods, their suitability to meeting process objectives (including objectives from interaction criteria), as well as to identify risks that could affect the process, and to look for improvement opportunities that could make the process more effective and efficient.

There are two checklists for Observe the Process: Observe Process (1. Activities) [OPAC], and Observe Process (2. Interactions) [OPIC]. As their name imply, the first one is intended to guide auditors when observing activities, while the second one aims to be used to assess interdepartmental interactions.

D.2.2.2.1 Guidance on questions based on PEEMMM

Questions provided in the checklists can be prepared and organized according to the following process elements: People, Equipment, Environment, Materials, Measures, and Methods (PEEMMM, as per Arter 2003). When using such a framework to examine interactions, the interpretation of the term "Environment" may not be completely obvious. For processes where the documentation calls for alignment or achievement of organizational values or other kind of supporting values, like those referred to as 'principles of family and patient-centered care' ("Patient and Family Centred Care means care provided working in partnership with Patients and families by encouraging *active participation* of Patients and families in all aspects of care, as integral members of the Patient's care and support team, and as partners in planning and improving facilities and services [... and] applies to Patients of all ages and to all areas of health care" PCRP Policy, p. 3, highlights by the author); the process element "Environment" could accommodate questions probing how the personnel performing the interaction (or process output) display or fulfill said values or principles (such as probing how is "*active participation*" encouraged). Similarly, questions pertaining to "Equipment" may become repetitive when asking questions with regards to compliance, effectiveness, risks, and improvement opportunities. Such deficiency could be overcome by focusing questions for different interactions on different types of equipment, including phone, voice mail, email, and IT infrastructure.

The checklists help the auditor to identify what to observe (by means of guiding questions), and also provide space to write down notes. As mentioned before, not all activities or interactions need be examined; the focus should be on the activities and interactions that can negatively impact the performance of the process, for example, those that involving interacting with the customer, or the identification of critical process components such as requirement-gathering, requirement-fulfilling, or product/service preparation and delivery. The auditors can make as many copies of the checklist as needed, and write down identifying information of the audit, the auditor, and the activity or interaction. Instructions are provided at the top of each checklist. Just as with the checklist used to Observe the Process Result, Observe Process (Activities) and Observe Process (Interactions) can and should be adapted by the auditor to include questions

evaluating the applicable audit criteria. For example, questions regarding procedural specifications regarding material or equipment use, or communication equipment and methods.

Figure 46 presents an example of Observe Process (Interactions) checklist aiming to illustrate its use. The example (available in full as an Appendix on p. 332) was prepared as follows:

1. Used the IdPFD to select one interaction that would be examined: the interaction selected was "contact relevant POCSO operations program/site manager" because the record of that interaction, i.e., the email and "Concerns memo", were available from the closed complaint file, and because the record was deemed to contain plenty of information regarding form and content of interaction.
2. Audit, process, and interaction details were entered at the top of the template: the process is the PCRP, and the audit has four objectives (compliance, effectiveness, risks, and improvement opportunities). Interaction details entered consisted of interaction order (4 out of 17 as per the IdPFD), interaction name (i.e., "Contact relevant operations manager"), interaction description (also from the IdPFD), record used when assessing the interaction (i.e., CC1A) and criteria used (i.e., harmonized criteria from: PCRP Policy, Medical Staff Guideline).
3. Questions from the question bank (which contained questions for each process interaction, prepared for each process element under each of the four audit objectives, using harmonized criteria) were transferred to the checklist in the appropriate space.
4. The questions were subsequently answered by examining the corresponding record.

The auditors may choose to use section "Risks" in the checklist to record actual problems found during the observation of the interaction (or the record), in addition to potential risks related to the audit criteria.

It is important not to disturb the personnel while observing the activities and interactions. The third sub-method of the boundary audit refers to interviews and will allow the audit team to ask questions to the personnel in order to gather more audit evidence.

Observing an activity (with the aid of the Observe (Activity) Checklist Template, OPAC) may be easier than observing an interaction (because interactions may occur electronically). When interactions occur by electronic means, records of the interaction can be examined instead. For example, by looking at emails, memos, or minutes exchanged between departments, the checklist can be used to assess the interaction. It is useful to review the records looking for potential flags such as lack of compliance with requests from one department, delays in response, and other types of communication breakdown.

Boundary audit checklist (Part 2 - Observe Process (2. Interactions))

Audit Phase Performance (Sub method 2. Observe Process (2. Interactions))

Method objective To observe interdepartmental interactions of a process and assess (depending on the audit objectives): compliance, effectiveness, risks, and improvement opportunities

Instructions

1. Use the IdPFD, if available, to identify the interactions within a process
2. For each interaction to be examined, prepare and fill out a checklist (such as this one) as follows:
   - 2.1. Fill out audit, process, and interaction details
   - 2.2. If a question bank has been prepared using the applicable audit criteria (harmonized or otherwise): transfer the relevant questions from the question bank to the checklist in the space provided (i.e., blank lines)
   - 2.3 If questions need to be prepared from scratch: use the applicable audit criteria (harmonized or otherwise) such as process requirements and objectives, and interaction criteria, to prepare interaction-specific questions for each process element under each audit ol
   - 2.4 Or if desired, use the default questions

   NOTE: If using own questions (as per 2.2 or 2.3), it is recommended to strike-through the default questions to avoid confusion
3. For each question:
   - 3.1. If a binary question, check Yes or No, and
   - 3.2. Write down notes and observations in the space provided

For section "Risks", not only potential risks could be identified, but also actual occurrences or problems that happened during the process instance [i.e., record] or during the process observation.

Audit details

Audit objectives: Compliance ☑ Effectiveness ☑ Risks ☑ Improvement Opp. ☑

Process details

Process name:	Patient Concerns Resolution Process (PCRP)	Date:	19-Apr-16
Tracing order:	Backward ☑ Forward ☐	Analyst:	Enrique Fernandez
Interaction order (no.)	4 out of 17	Remarks:	Questions transcribed from question bank using harmonized criteria (PCRP Policy, Procedure, Medical Staff Guideline, Administrative fairness and 'Pocket card')
Interaction name:	[PCC] Contact relevant operations manager		
Interaction description:	[PCC] contacts relevant [POCSO] operations program/site manager; if other departments or programs are already involved confirm who will take the lead		
Departments involved:	CSO and Operations (Dep1 and Dep2)		
Process instance (or record) reviewed:	CC1A Concern, CSO Review: Email with "Concern memo" from PCC to Op. Reviewers (Dep1 and Dep2)		
Criteria used:	Harmonized criteria from: Medical Staff Guideline (3.8. p. 3) PCRP Procedure (3.2, p. 4)		

Compliance

No.	PEEMMM	What to observe
1	People	What evidence is there of training on who (and how) to contact from other departments?
	~~Default Q.~~	~~Are interactions taking place between the pertinent people as per procedure?~~
		PCC has experience in PCRP (the job requires it), training material (binder) evidence was provided during research
2	Equipment	What equipment is used to identify and contact members from other departments?
	~~Default Q.~~	~~Are interactions taking place using the specified equipment as per procedure (PC, phone, email)?~~
		Memo was communicated via email
3	Environment	How are values 'respect', 'accountability', 'transparency', 'engagement', and 'performance' evident when contacting othe
	~~Default Q.~~	~~Is the social atmosphere meeting applicable requirements (organizational manual)?~~
		Respect - in the wording of memo and intro email; Accountability - discharging role (PCC) and asking for collaboration from Operations (Dep1 and Dep2); Transparency - communicating concerns to Operations; Engagement - PCC making herself available for follow up or to answer questions; Performance - PCC mentioning to Operations target of [POCSO] to provide a response within 30 days
...	...	...

Figure 46 - Observe Process (2. Interactions) Checklist Example Excerpt (part 1/2)

Effectiveness

No.	PEEMMM	What to observe
...	...	...
4	Materials	How is information kept private and confidential?
	~~Default Q.~~	~~Are the inputs to the interaction (i.e., complaint details) aimed at meeting objectives?~~
		Use of corporate email communication and electronic files
5	Measures	Was a 'person to take the lead' actually identified, and did they acknowledge and discharge the responsibility?
	~~Default Q.~~	~~Is the interaction result (i.e., output) measured against objectives?~~
		PCC served as lead and contact person of Operational Reviewers (Dep1 on one hand, and Dep2 on the other).
6	Methods	Have there been any deviations from the procedures when contacting departments or determining the lead?
	~~Default Q.~~	~~Do interaction procedures help to achieve objectives?~~
		No evidence of deviation

Risks

No.	PEEMMM	What to observe
1	People	What could occur to hamper the coordination by [CSO] of a multidisciplinary concern?
	~~Default Q.~~	~~What potential failures (i.e., communication failures) could affect how people perform interactions?~~
		Inability to contact the right Operational Reviewer, lack of cooperation from Operational Reviewers, lack of management skills of [CSO] staff to coordinate a multidisciplinary concern.
2	Equipment	How can the equipment used to coordinate different departments break down or be ineffective?
	~~Default Q.~~	~~What potential failures could damage the interaction-enabling equipment?~~
		If email service fails for an extended period of time, if email server loses records, if PCC or Operational Reviewer do not take the time to communicate by email or fax and limit their interactions to phone calls which may leave no documented evidence of the process followed.
3	Environment	What could cause [POCSO] or Patient-centered values be disregarded or undermined during the management of a concern involving multiple departments?
	~~Default Q.~~	~~What hazards to the interaction exist in the environment?~~
		Respect' - being disrespectful with Operational Reviewer or Complainant (i.e., assuming wrong-doing, or vexatiounsess, respectively, from the start). 'Accountability' - by interfering with Operational Reviewer's investigation or doing it for him/her. 'Transparency' - by withholding information about concern. 'Engagement' - by interfering with Operational Reviewer's review process. 'Performance' - by disregarding relevant targets (e.g.,
...	...	...

Improvement Opportunities

No.	PEEMMM	What to observe
...	...	...
4	Materials	How could the information that is needed to identify 'who will take the lead' be gathered faster?
	~~Default Q.~~	~~How can meeting requirements and objectives be error-proofed?~~
		PCC is the lead by default, perhaps a short algorithm could be developed to determine if/when it would be appropriate to assign the lead to someone else.
5	Measures	How could the responsibilities of 'who will take the lead' be better documented, communicated, executed?
	~~Default Q.~~	~~How can measurements of the interaction be made less intrusive, more enlightening (i.e., data analytics)?~~
		PCC responsibilities overlap (by design) with responsibilities of the lead, however, those responsibilities (or expectations) should be documented when assigned to a different individual.
6	Methods	What guidance could be developed to determine and assess the performance of the person who took the lead?
	~~Default Q.~~	~~How can the procedure for interactions be improved by using communication theory, behavioral psych., tech. innovations, etc.?~~
		Keep track of performance regarding complaints managed (timely responses, time taken to resolution, level of complexity of concerns, concerns that needed escalation, and so on). Perhaps limited to PCCs within [CSO].

Custom questions

No.	PEEMMM	Objective	Question
...	...	...	

Legend

PEEMMM = [P]eople, [Eq]uipment, [En]vironment, [Mat]erials, [Meas]ures, [Meth]ods
Objective = [C]ompliance, [E]ffectiveness, [R]isks, [I]mprovement Opportunities

Observe Process (2. Interactions) Checklist Example Excerpt (part 2/2)

It is important to note that disagreement is not always a sign of communication breakdown, nor is complete agreement an example of effective communication. At some organizations, interactions may usually take place over the phone. Ideally, an organization will keep notes or records summarizing the matters discussed during the phone call, especially decisions or commitments made. If the organization does not keep record of phone calls, observing how the phone call takes place (and using the OPIC) may suffice.

The third sub-method of the boundary audit is "Interview personnel", and is presented next.

D.2.2.3 Interview personnel

This sub-method will help auditors gather information on the activities and interactions of the process from the people that perform the process (as adapted from Russell (2005, p. 96), Arter *et al.*, 2013 (p. 94), and ISO 19011 (2011b, sub clause 6.4.6), to examine interactions in an interdepartmental process. Relevant personnel from the departments involved should be interviewed. Similarly to the previous sub-method, two checklists provide guidance to the auditor on what information could be sought from the personnel (namely "Interview Personnel (1. Activities)" (IPAC), and "Interview Personnel (2. Interactions)" (IPIC) whose default questions are provided in Appendix D.3.3.

Interviews will particularly help auditors to understand the interdepartmental relationship, since subtleties regarding human interactions are hard to perceive visually or from records. It is often suggested to interview personnel one-on-one, here is no exception, either for the concurrent or sequential approach.

It is suggested to use a checklist for each activity or interaction that will be examined. Here, too, auditors can tailor the checklist to include questions specifically addressing audit criteria. The use of the checklist is flexible: it can be used as guidance when the auditor is following a conversational approach to the interview, or as a list of questions to be asked regarding the activity or interaction. A conversational approach (Russell 2005) means that the interview is started with a request such as "Please explain your job to me", and as the explanation progresses, the auditor will ask for clarifications, request to be shown documents or other materials, while using the questions as "pointers" rather than as a script. On the other hand, the checklist can be used as a comprehensive list of questions to ensure that all relevant aspects (i.e., questions covering all process elements in terms of all audit objectives) are covered during the interview.

Just as is common practice (Russell, 2003) to ease the interviewee by saying that the audit is evaluating the process inputs and outputs against objectives, not assessing individual performance; the same should be noted regarding the focus of the interview on the interdepartmental interaction not on personal performance.

After having assessed the process through observation (of both the result and the process) and by asking questions, the audit team needs to analyze the information that has been collected. The

analysis will take place still within the "audit performance" stage. Thus, it should be performed quickly, albeit not hastily as to affect the effectiveness of the analysis, since the auditee is still experiencing (and perhaps being impacted by) the audit. Below, the remaining steps of the audit performance stage are described: i.e., analyzing information, assessing the boundary, reaching conclusions, and holding a closing meeting.

D.2.2.4 Analyzing information

The audit team will have copious amounts of notes in their checklists and notes. The collected information on the output, and activities and interactions comprising the process needs to be analyzed aiming to have a clear big picture that can help answer the questions posed by the audit objectives regarding compliance, effectiveness, risks, and improvement opportunities.

The first step to analyzing the information is to make sure that it is complete, reliable, and valid (Pierce 2008). If the auditors find that there are some questions that still need to be answered, they should go back and seek clarification. They should go back and observe the process again, request for clarifications or to be shown supporting evidence that were missed or overlooked previously.

Reliability of information is dependent on the work performed by the auditors: Do the activities and interactions assessed accurately represent the process? Was the examination of the activities and interactions thorough enough (i.e., were the questions adequate)? Were notes and observations effective regarding audit objectives about compliance, effectiveness, risks and improvement opportunities? The best way to make sure reliable information is gathered is by design, i.e., by planning the audit carefully and thoroughly, and by having competent auditors performing the audit.

When information is considered to be complete and reliable, it can be assessed in terms of its validity, by asking for instance: is the information acceptable to be used for drawing conclusions? As Willborn and Cheng (1994) note about corroborating information: "Information gathered through interviews should be tested by acquiring the same information from other sources." In other words, information gathered by observing the process result, the process, and relevant records should be compared against what was learnt during the interviews. Corroborating information is particularly important during a boundary audit, because the personnel from different departments would have been interviewed about the interdepartmental interactions. Therefore, different accounts could be available about the same interactions in a process. It is important to make a distinction between information completeness, reliability and validity, and audit findings: the qualifiers of the information are used to assess its fitness for use, while audit findings (arising from the use and analysis of acceptable information) will describe issues with compliance, effectiveness, risks, and opportunities of the process. In other words, the information and its utility are different than the findings about the process.

The second step to analyzing information pertains to extracting meaningful findings from the information available. Auditors need to use their judgment to identify findings that will be useful to the auditee. Russell (2005) advises sorting findings by importance, where importance can "be judged based on: (1) Repeated occurrences, or (2) One-time occurrences that have high risk" (p. 101). Therefore, findings from checklists could be organized by theme, grouping multiple occurrences together, while also identifying findings that are 'high-risk'. Only those findings that are significant are transferred to the Audit Finding Summary Template for subsequent documentation using Finding Sheets. Emphasis should be placed on identifying underlying process deficiencies, rather than shallow flaws. For example, several findings pertaining to unavailable procedures may be the result of a common cause related to lack of authority and responsibility for keeping documents available and up to date. Therefore, an appropriate finding would point out to this systemic deficiency (i.e., that no person has made responsible of document control), as opposed to only the disconnected symptoms (i.e., that no procedures for equipment operation, maintenance, or training records were found) (adapted from Arter *et al.,* 2013, p. 63 and Russell 2005, p. 100). It is the job of the auditors to identify findings related to the process structure not only to the superficial conditions.

Once relevant findings had been identified, they can be organized by their type and location using the Audit Finding Summary Template as explained in the next subsection.

D.2.2.5 Assessing the boundary

Organizing findings using the Audit Finding Summary Template (AFST) (available as an Appendix on p. 335) can facilitate the assessment of the interdepartmental relationship, also known as "boundary" by allowing the auditors to visually organize and classify audit findings making it easier to identify department-specific or shared responsibility. Even when the use of SWOT analysis was originally intended for strategic planning, it can be used as a classification system to summarize and classify audit findings. The four main categories of the SWOT analysis are: strengths, weaknesses, opportunities, and threats. On one hand, non-conformances related to audit objectives compliance and effectiveness would likely be classified as weaknesses, while outstanding practices would be deemed as strengths. On the other hand, audit findings regarding risks would likely be classified as threats, whereas improvement opportunities would be classified as opportunities. It is important to also identify whether the finding relates to the boundary (in other words to interdepartmental relationship) or to one of the departments, and enter the finding in the appropriate column. Figure 47 presents the suggested format of the Audit Finding Summary Template. The four horizontal subsections represent the type of finding, while columns represent the location of the finding (i.e., departments and the boundary). In the background of the matrix a few circles intersect: each circle represents a department, and the intersection represents the boundary.

The Audit Finding Summary Template serves as a canvas to enter findings from the audit, and has limited space. The findings should be summarized, either as keywords or as short statements.

The purpose of the SWOT framework is to help categorize findings, and to display them in an abbreviated form. During the documentation of findings for the audit report, by means of finding sheets, the findings will be explained and supporting information for each of them will be provided by the auditor. An example of the Audit Finding Summary Template is presented next to illustrate its use.

From the information gathered in the Checklists, the audit team can extract findings and organize them in the Audit Finding Summary Template. The example in Figure 47 shows the findings extracted and selected from the information collected using IdPFDs, and OPR and OPICs.

The findings include one weakness, one threat, one opportunity and two strengths. Regarding negative-type findings, the identified weakness was "Long response times" because from the records examined it was found that responses to complainants took too long (for example, for records CC1A and CC10, more than two and three months, respectively). The weakness was classified under the 'Boundary' column because delays in communications between departments have an impact on the delayed response to the complainant, therefore, the finding pertains to all departments involved (e.g., CSO and Operations). The threat identified, and summarized as "Defensiveness during investigation" under the 'Process Partner 1: Operations' column, was identified from Operational Reviewers becoming less responsive (i.e., taking longer time to respond) as the complainant pushed back out of dissatisfaction with preliminary investigative results (e.g., CC1A).

Regarding positive-type findings, an opportunity that was identified was "Workflow Management Software", referring to the possibility of automating the tracking of concerns and communications in order to ensure meeting objectives. Finally, the two strengths were: "Excellent communication skills" for the CSO, and "Direct response to the concern" for the 'Process Partner 1: Operations (Physician)'. Excellent communication skills were evidenced in the emails from the closed concerns and show that the PCCs can communicate effectively and accordingly with complainants and Operations staff. Lastly, "Direct response to the concern" refers to how the Physician talked directly to the complainant (record CC1A) to listen to their concern and provided a response directly, subsequently notifying the CSO of the resolution.

By categorizing audit findings as per the SWOT framework (strengths, weaknesses, threats, and opportunities), and by organizing them by location, the findings related to the boundary will "jump off the page" and will help to depict the status of the interdepartmental relationship. The organization of the Audit Finding Summary Template helps convey visually how many issues correspond to each department or to the boundary, and whether they are urgent concerns (i.e., weaknesses or threats) or improvement possibilities. Each finding on the AFST will later be documented by means of Finding Sheets when preparing the Audit Report.

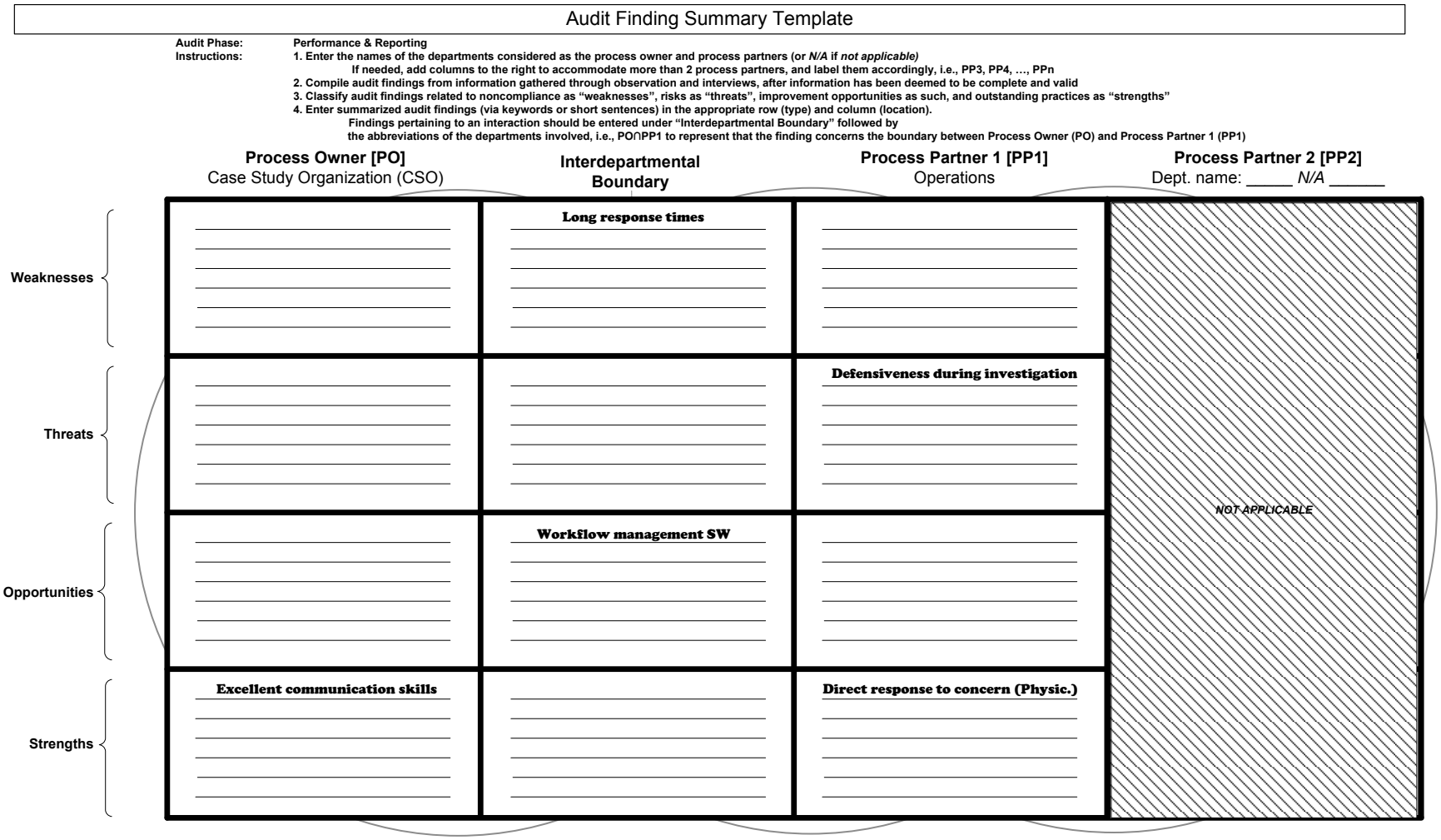


Figure 47 - Example of Audit Finding Summary

The last couple of steps under Audit Performance are Reaching conclusions and Holding a closing meeting, which are presented next.

D.2.2.6 Reaching conclusions

Portraying the audit findings using the AFST is intended to help the audit team to summarize collected information in a meaningful way. The audit team can draw conclusions regarding the relationship between audit objectives and the process. By now, a clear picture about the extent of compliance to requirements, effectiveness in meeting objectives, potential risks and improvement opportunities of the process should be available to the audit team.

The audit finding summary template is a unique contribution of the boundary audit. A resulting unique advantage is that the tool aims to help auditors to naturally traverse from the aggregation of findings, to the formulation of conclusions, to the preparation of the report. For example, weaknesses or threats, whether they pertain to a department or to the boundary, should attract auditors' interest because those elements need to be primordially addressed. The prioritized findings will then be included in the report, and likely acted upon by the auditees.

D.2.2.7 Holding a closing meeting

The audit team should have a closing meeting with management representatives to notify them that the audit activities are over (as per Russell, 2005, p. 106-110; Arter *et al.,* 2013, p. 96, and sub clause 6.4.9 of ISO 19011, 2011b). During the closing meeting, the audit team will recapitulate the audit work performed, present preliminary findings using the Audit Finding Summary Template (another unique advantage of the boundary audit) to convey quickly and effectively what was identified, and if needed, present objective evidence to support said findings. Auditors and auditees need to resolve "any areas of disagreement over objective evidence or auditor conclusions" (Arter, *et al.,* 2013, p. 96).

The next stage, Audit reporting, which describes how the results of the audit are compiled and delivered to the auditee, is presented next

Appendix D.2.3 - Audit reporting

Audit reporting in the boundary audit is the result of combining and adapting Russell's (2005) and Arter *et al.*'s (2013) approaches. For example, finding sheets (as suggested by Arter *et al.,* 2013) were adapted to represent the categorization of findings as Weaknesses, Threats, Strengths, and Opportunities. In addition, the contents of the audit report (i.e., introduction and summary) were determined from Russell's (2005) suggestions, and expanded with the addition of finding sheets (as recommended by Arter *et al.,* 2013), with the particularity of organizing the finding sheets according to their location (e.g., Department A, Boundary, and Department B) and further by type of finding (i.e., SWOT).

The audit reporting stage comprises three main steps: Generating Finding Sheets, Preparing the Audit Report, and Delivering the Audit Report. The three steps are presented below.

D.2.3.1 Generating finding sheets

Finding sheets (as suggested by Arter *et al.,* 2013, p. 104) need to be prepared, so as to explain the findings that were entered in short form into the AFST. Findings will be documented using the appropriate template, i.e., 1. Weakness and Threats, or 2. Opportunities and Strengths. A diagram summarizing the preparation of the finding sheets is presented on Figure 48 - Generate Finding Sheets.

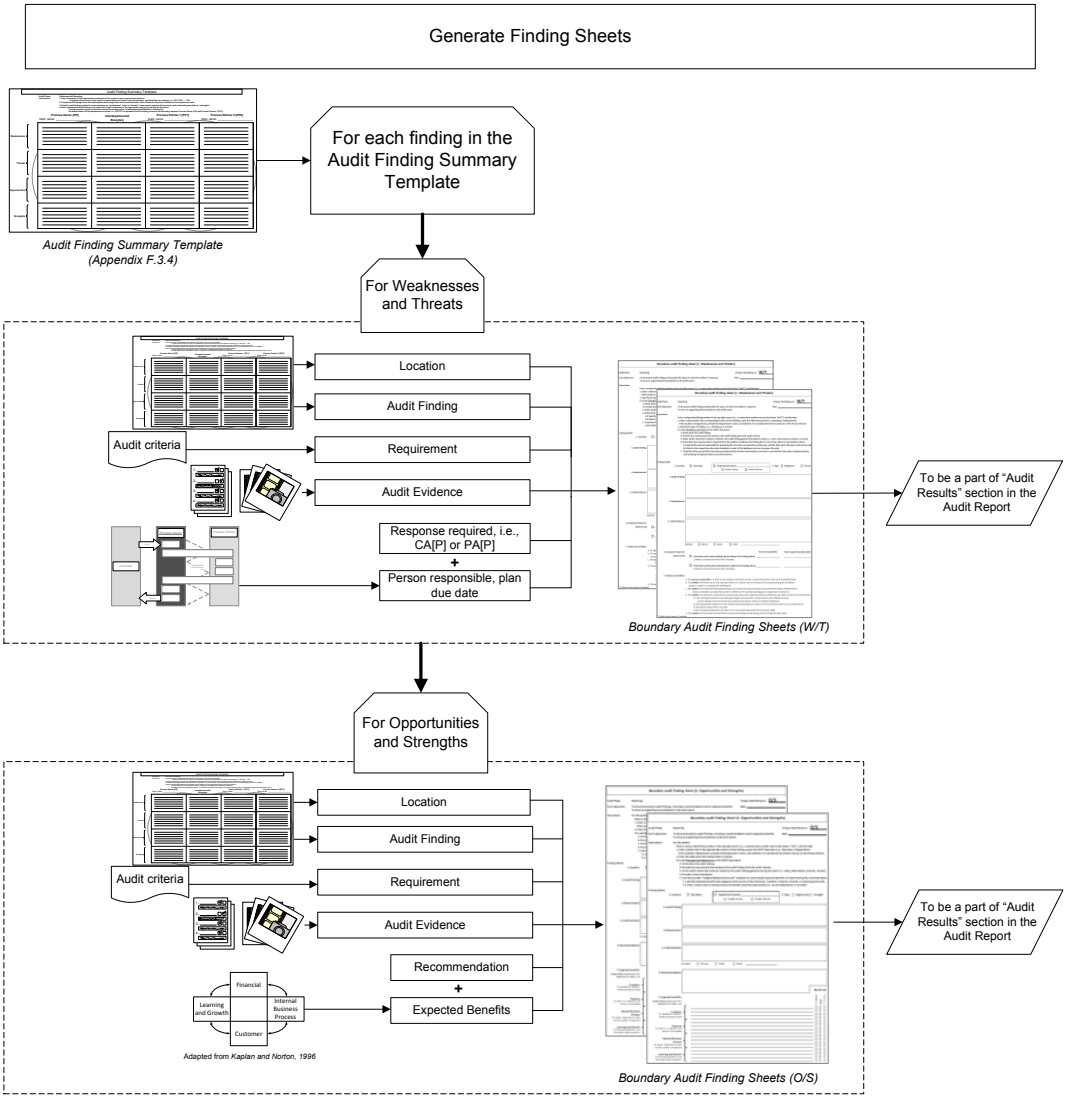


Figure 48 - Generate Finding Sheets

The Finding Sheet (O/S) template is available on p. 338; while examples of the use of audit finding sheets (one for weakness/threats and the other for opportunities/strengths) are presented in Figure 49 and Figure 50.

The Finding Sheet (W/T) example (see Figure 49) was developed by (1) selecting an audit finding from the Audit Finding Summary and (2) filling out the details on the appropriate Finding Sheet template. The selected audit finding was “Long response times”, which is a finding that belongs to the interdepartmental boundary and classified as a weakness, as per the AFST on p. 289. Then, the appropriate template, i.e., Finding Sheet (1. Weaknesses and Threats) was used to document the finding as follows:

1. Entered a unique identifying number (i.e., W/T 01) and the date when the finding sheet was prepared at the top right
2. Checked off “Boundary” and “Weakness” under sections 1 and 2 respectively, because on the Audit Finding Summary the finding was placed under the “Interdepartmental boundary” column and categorized as a “Weakness”.
3. Provided details about the audit finding, i.e., elaborated on the meaning of “Long response times” by adding the following text: “Time to provide a response to complainant is too long (e.g., more than 2 months for CC1A)”
4. Entered the applicable requirement that the audit finding relates to, e.g.,
    a. "PCRP [should be] accessible, fair, consistent, transparent and timely" (PCRP Policy, p. 1)
    b. "Have decisions made in a timely manner?" (Administrative fairness p. 3)
5. Provided Audit Evidence, e.g., time for Operations to respond to CSO was almost one month, and time for CSO to provide response letter to complainant was more than two months. Similarly, record CC10 showed more than three months as time taken to provide response to complainant.
6. Checked off the type of response required, i.e., a corrective action, since the finding was deemed as a weakness that needs to be addressed; and entered the details of the person responsible for preparing a plan, as well as the date by which the response plan is required. The person responsible is the CSO Director, because the CSO is the Process Owner and can champion the response with regards to addressing the finding pertaining to the boundary. The date by which the plan is required is June 30, 2016, i.e., approximately six weeks after the date the finding was documented.

Similarly, a Finding Sheet (O/S) example (see Figure 50) was developed for “Direct response to concern”, which is a finding that belongs the Process Partner (Physician) and classified as a strength. The appropriate template, i.e., Finding Sheet (2. Opportunities and Strengths) was used to document the finding as follows:

1. Entered a unique identifying number (i.e., O/S 01) and the date when the finding sheet was prepared at the top right
2. Checked off “Department”, entered the name “Operations (Physicians)”, and checked off “Process Partner” to indicate to whom the audit finding refers. Also checked off “Strength” because the finding was categorized as such in the Audit Finding Summary.

3. Provided details about the audit finding, i.e., elaborated on the meaning of "Direct Response to concern" by adding the following text: "The Operational Reviewer from Physicians reviewed the concern with other doctor and talked to the complainant to convey the response. The conversation served to provide assurance to the complainant of the usefulness of the feedback, and left the complainant satisfied with process and outcome."
4. Entered the requirement that the audit finding relates to, i.e.., "To allow employees and Medical Staff to address Concerns in a manner consistent with the [POCSO] Values" (PCRP Policy, p.1)
5. Provided Audit Evidence, i.e., a description of the email contents from the Operational Reviewer describing how he/she had talked to the complainant and provided a resolution.
6. Entered a Recommendation, i.e., "To try to have Operational Reviewers, where possible, respond directly to the complainant."
7. Documented, and organized according to the Balanced Scorecard categories, the expected benefits and beneficiaries from following the recommendation, i.e., "increased customer satisfaction", "less handling of the concern by an intermediary", and "operational reviewers gain experience in talking to complainants".

When all finding sheets are ready, they are organized by department, for example: first, all finding sheets pertaining to Department A, followed by finding sheets pertaining to the boundary or to both departments, ending with all finding sheets pertaining to Department B. This packet of finding sheets will become the *Results* section of the audit report. In addition, two more sections (preceding the *Results*) will be created, namely, *Introduction* and *Summary*, which are described in the next subsection.

Boundary audit finding sheet (1. Weaknesses and Threats)

Audit Phase Reporting — **Unique identifying no.:** W/T 01

Form objectives To document audit findings and provide the space to enter the auditee's response — **Date:** May 13, 2016
To serve as supporting documentation to the audit report

Instructions

Enter a unique identifying number in the top right corner (i.e., a consecutive number next to the letters "W/T"), and the date
1. Enter a check mark in the corresponding location of the finding, as per the Audit Finding Summary (i.e., Boundary or Department)
if the location is Department, provide the Department's name, and whether it is considered the Process Owner or the Process Partner.
2. Specify the type of finding, i.e., a Weakness or a Threat
For each Weakness and Threat in the Audit Finding Summary:
3. Write down the audit finding (i.e., explain the audit finding beyond the keyword or statement in the Audit Finding Summary)
4. Provide the requirement that relates to the audit finding (from the audit criteria)
5. Write and/or attach the evidence related to the audit finding gathered during the audit (i.e., notes, observations, pictures, records)
6. Determine the response that is required from the auditee to address the finding (Corrective A. for Weaknesses, Preventive A. for Thre
6.1 Specify the person responsible for preparing the corrective or preventive action plan, and the date when the plan needs to be re
6.2 Refer to the respective action plan template in order to find guidance on how to prepare the plan
7. Tentative follow up activities have been provided which include reviewing the corrective or preventive action plan, implementing it, and verifying its implementation and effectiveness

Finding details

1. Location: ☑ Boundary ☐ Department (name) _____ ☐ Process Owner ☐ Process Partner — 2. Type: ☑ Weakness ☐ Threat

3. Audit Finding:
Long response times:
Time to provide a response to complainant is too long (e.g., more than 2 months for CC1A)

4. Requirement:
"PCRP [should be] accessible, fair, consistent, transparent and timely" (PCRP Policy, p. 1)
"Have the decisions been made in a timely manner?" (Administrative fairness p. 3)

5. Audit Evidence:
CC1A - CSO review
Time for Operations (PSS) to respond to CSO almost one month
Time to provide response letter to complainant was more than two months from date concern was first entered

Long response times also found in record CC10 (95 days) [CSO review]

Enclosed: ☐ Pictures ☐ Notes ☑ Other Refer to IdPFD timeline, and OPRC

6. Required response: (Select one)

	Person responsible	Plan required by what date?
☑ Corrective action (and related plan) to address the finding above ↳ Refer to Corrective Action Plan Template	CSO Director	June 30, 2016
☐ Preventive action (and related plan) to address the finding abov ↳ Refer to Preventive Action Plan Template		

7. Follow up activities:

a. The **person responsible** in 6. above will prepare a corrective action or preventive action plan by the specified date.
b. The **auditor** will follow up on the required action on 6. above, and will review the corresponding plan and either accept it, reject it, or request for clarification.
c. The **auditee** will implement the approved plan and verify the corrective action (or preventive action) effectiveness
Note: A corrective or preventive action is effective if it is achieving the goal or objectives it intends to.
d. The **auditor** will verify the corrective (or preventive) action was implemented and is effective, by means of any or a combinati
d.1. By visiting the process and verifying changes to the process, to documents, and related training; and by making sure the corrective (or preventive) action meets the desired objectives
d.2 By requesting a report from the auditee outlining progress or status of the corrective action and its performance
d.3 By performing a follow-up audit
d.4 By including verification activities in the next scheduled audit (From Russell, 2005)
e. The **auditor** will document the verification process and keep records along with the original audit report.

☐ Attach more paper if needed

Figure 49 - Example of Finding Sheet (W/T)

Boundary audit finding sheet (2. Opportunities and Strengths)

Audit Phase Reporting — **Unique identifiying no.:** O/S 01

Form objectives To document positive audit findings, including a recommendation and expected benefi — **Date:** May 13, 2016
To serve as supporting documentation to the audit report

Instructions

For the auditor:

Enter a unique identifying number in the top right corner (i.e., a consecutive number next to the letters "O/S"), and the date

1. Enter a check mark in the appropriate location of the finding, as per the Audit Finding Summary (i.e., Boundary or Department) if the location is Department, provide the Department's name, and whether it is considered the Process Owner or the Process Partner.
2. Enter the date when the finding sheet is created.

For each Strength and Opportunity in the Audit Finding Summary:

3. Write down the audit finding (i.e., explain the audit finding beyond the keyword or statement in the Audit Finding Summary)
4. Provide the requirement that relates to the audit finding (from the audit criteria).
5. Write and/or attach the evidence related to the audit finding gathered during the audit (i.e., notes, observations, pictures, records)
6. Provide a recommendation.
7. Use the provided "Adapted Balanced Scorecard" template to communicate expected benefits of implementing the recommendati
   - 7.1 Identify expected benefits and categorize them as one of the following: Customer, Financial, Internal, or Learning and Growt
   - 7.2. Enter a check mark to indicate where the benefit would be experienced (i.e., by one department, or by both).

Finding details

1. Location: ☐ Boundary ☑ Department (name) **Operations (Physicians)** ☐ Process Owner ☑ Process Partner — 2. Type: ☐ Opportunity ☑ Strength

3. Audit Finding: **"Direct response to concern"**

The Operational Reviewer from Phyisicians reviewed the concern with other doctor and talked to the complainant to convey the response. The conversation served to provide assurance to the complainant of the usefulness of the feedback, and left the complainant satisfied with process and outcome.

4. Requirement: **"To allow employees and Medical Staff to address Concerns in a manner consistent with the [POCSO] Values" (PCRP Policy, p. 1)**

5. Audit Evidence: **Email from Operational Reviewer explaining that he had reviewed the concern with two other doctors, and that he then spoke to the complainaint. The Operational Reviewer mentioned that the complainant appreciated being heard.**
The Operational Reviewer talked to the complainant two days after receiving the Concerns Memo.

Enclosed: ☐ Pictures ☐ Notes ☐ Other _____

6. Recommendation: **To encourage Operational Reviewers, where possible, respond directly to the complainant.**

7. Expected benefits:
(Adapted Balanced Scorecard, from Kaplan & Norton 1996, p. 44)

		Beneficiary		
		P. Owne	Both	P. Partner
Customer (Ex. Satisfaction, retention, market, and account share)	**Increased cust. satisfaction since the customer talks directly to the Op. Reviewer**	☐	☑	☐
	Increased cust. satisfaction because less time taken to respond to concern	☐	☑	☐
		☐	☐	☐
		☐	☐	☐
Financial (Ex. Return on investment, and economic value-added)		☐	☐	☐
		☐	☐	☐
		☐	☐	☐
		☐	☐	☐
Internal Business Process (Ex. Quality, response time, cost, and new product introductions)	**Less handling of the concern by an intermediary (i.e., the PCC)**	☐	☑	☐
		☐	☐	☐
		☐	☐	☐
		☐	☐	☐
Learning and Growth (Ex. Employee satisfaction, and information system availability)	**Operational Reviewers gain experience in talking to complainants**	☐	☐	☑
		☐	☐	☐
		☐	☐	☐
		☐	☐	☐

Figure 50 - Example of Finding Sheet (O/S)

D.2.3.2 Preparing the audit report

The remaining two sections (in addition to the finding sheets, which comprise the *Results* section) of the audit report are *Introduction* and *Summary*. The introduction section of the audit report needs to provide information to the reader regarding the details of the audit. Russell (2005, p. 113) suggests to include as part of the introduction (coinciding greatly with the contents suggested by ISO 19011:2011): audit objectives and scope; auditee(s), client, and auditing organization; audit team members; audit criteria; dates and location when and where the audit was conducted; and a list with the people to which the report will be provided. Most of these details can be obtained from the audit plan. Examples of the above could be:

Table 48 - Examples of *Introduction* contents

Introduction component	Example
1. Audit objective	To verify compliance, effectiveness, risks and improvement opportunities …
2. Audit scope	… of the Patient Concerns Resolution Process (PCRP) (an interdepartmental process).
3. Auditees	The Case Study Organization, and Operations (which can be embodied by different program/sites)
4. Client	CSO and Operations jointly decided to have the audit performed
5. Auditing organization	Internal audit team: conformed by members of both departments that have no conflict of interest and are independent of the functions being audited
6. Audit team members	Richard Dowler, audit leader [names are fictitious] Gail Evans, team member Linda Smith, team member Jane Anderson, team member
7. Audit criteria	ISO 10002:2014 PCRP Policy (POCSO, 2012a) PCRP Procedure (POCSO, 2012b) Medical Staff Guideline (POCSO, 2012c) Administrative Fairness (CSO, 2013) Pocket card (POCSO, 2013b)
8. Audit dates and location	May 2016 at the office of the CSO and of Operations (Physicians site)
9. Report distribution list	Mike Myers, Director of CSO [names are fictitious] Arnold Peters, Medical Zone Director

The *Introduction* section need not be long, and it could be displayed in tabular form or textual form. The second section of the report, namely the *Summary*, would be prepared next. The content of the summary expands on Russell's (2005, p. 114) conclusions regarding compliance and effectiveness by incorporating conclusions regarding risks and improvement opportunities. Another contribution of the boundary audit pertains to the audit team's conclusions regarding the interdepartmental relationship.

The Summary will present the audit team conclusion regarding the interdepartmental process with relation to the audit objectives. In other words, the summary will present the audit team's judgment on the extent of compliance, effectiveness, risks identified, and opportunities discovered. Guidance on what to include in the summary is presented next, followed by illustrating examples:

1. Relevant audit findings, along with the relevant requirement, for example:
    a. *Long response times were found in two occasions, e.g., delivery of response letter to complainant took more than two or even three months from the time the complaint was first submitted, for closed records CC1A and CC10, respectively; evidencing lack of 'timelines' (PCRP Policy, p. 1, Administrative fairness, p.3)*
    b. *Evidence was found of one instance (CC1A) where the Operational Reviewer (Physician) communicated the response directly to the complainant, as per the objective "To allow employees and Medical Staff to address Concerns in a manner consistent with the [POCSO] Values" (PCRP Policy, p. 1)*

    Note: Audit findings could be organized by 'themes', as found during the BAM Validation. Themes could be identified from commonalities amongst audit findings and subsequently used as a categorization system to organize audit findings. By organizing audit findings by 'theme', auditors could presents findings in a more cohesive manner, and the auditees correspondingly prepare responses in a systemic (i.e., comprehensively) way.

2. Audit team's assessment on the extent of **compliance to applicable requirements**, for example:
    a. *The interdepartmental process complies with ISO 10002:2014*
    b. *Except for the audit findings indicated above, interactions of the interdepartmental process comply with the applicable PCRP documentation (i.e., PCRP Policy, PCRP Procedure, Medical Staff Guideline, Administrative fairness and Pocket card)*
3. Audit team's opinion regarding the **effectiveness** in achieving **process output requirements and objectives**, for example: *Except for the findings indicated above, the process output complies with the process output requirements and objectives of the applicable PCRP documentation (i.e., PCRP Policy, PCRP Procedure, Medical Staff Guideline, Administrative fairness and Pocket card)*
4. Audit team's recognition of significant **risks or threats** to the process or the personnel, for example: *A threat was identified regarding the possibility of Operational Reviewers becoming too defensive during the response investigation.*
5. Audit team's recognition of potential **improvements** of the interdepartmental process, particularly those related to the boundary or the interdepartmental interaction, for example:
    a. *The interdepartmental process could be improved by automating certain tasks such as sending automatic reminders and preparing daily status reports.*
    b. *The interdepartmental process could be improved if more Operational Reviewers relayed the concern resolution directly to the complainant.*
6. Audit team's opinion on the **overall performance** of the **interdepartmental relationship**, for example:

a. *The interdepartmental relationship was deemed to be adequate in terms of compliance to requirements, effectiveness in achieving objectives, and potential threats.*
b. *The interdepartmental relationship could be improved by ensuring speedier responses from Operational Reviewers during and after response investigation.*

Once *Introduction*, *Summary*, and *Results* are ready, they are assembled into the Audit Report (see Figure 51).

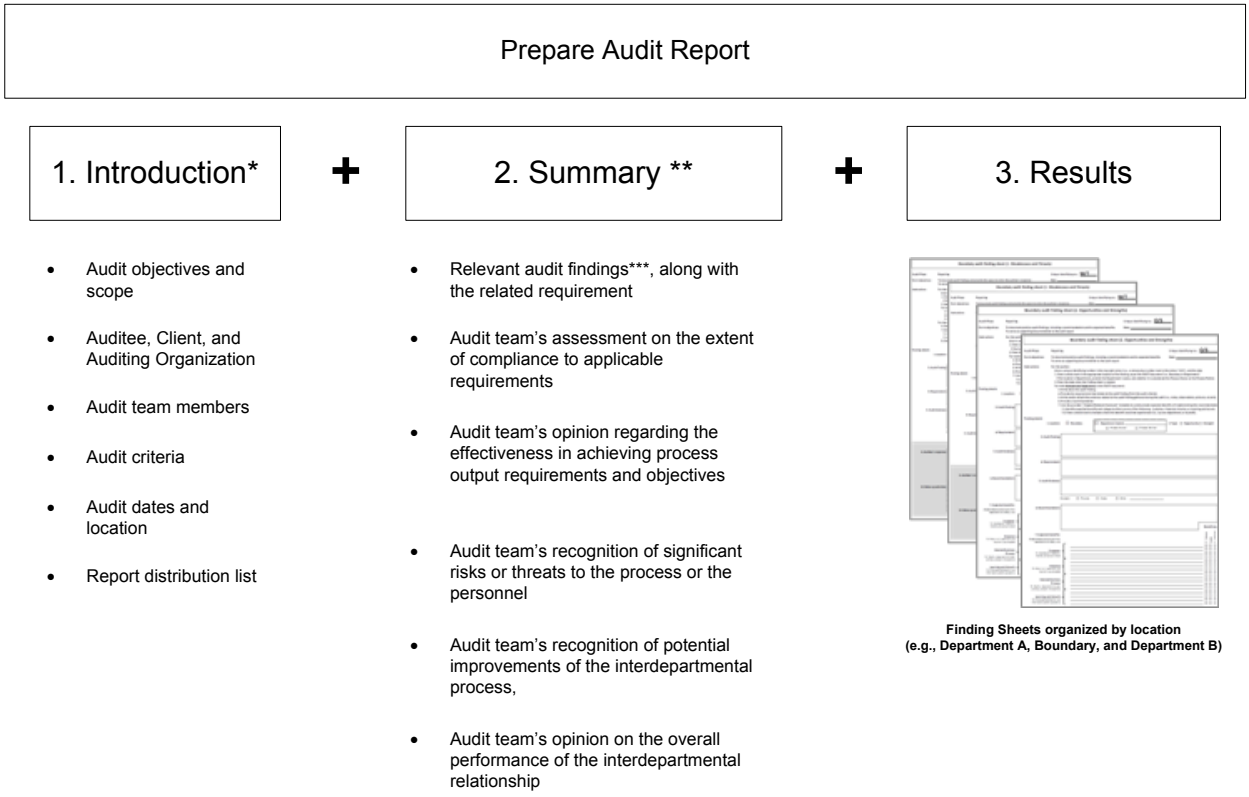


Figure 51 - Contents of Audit Report

In case the Process Owner and the Process Partner (i.e., the auditees) require separate reports, the audit team needs to prepare them separately, making sure the findings pertaining to the boundary are included in both reports.

D.2.3.3 Delivering the audit report

Once the report is ready, it should be delivered (orally and in written form) to the management representatives from both departments.

First, in an Exit meeting, the audit leader delivers an oral presentation of the report, summarizing the audit activities performed, a conclusion on the state of the interdepartmental process regarding the performance in terms of the audit objectives, and relevant audit findings (adapted from Arter *et al.,* 2013 to include conclusions regarding the interdepartmental relationship). As assumed at the beginning of the method, management representatives from the departments accessed during the audit should attend the meeting. In case it was decided at the beginning that separate meetings would be needed (i.e., when determining collaboration and accessibility), the audit team will oblige and hold separate exit meetings, one for each departmental management representative, presenting the findings related to the boundary and to the respective department.

Then, after the exit meeting, the written report is distributed to the appropriate people, as per the audit plan.

The next stage of the boundary audit method is Audit closure, which is explained below.

Appendix D.2.4 - Audit closure

Audit closure encompasses the activities that occur after the audit report is delivered and refer to the auditee's response to the audit findings (e.g., as per sub clause 6.7 of ISO 19011, 2011b, or Arter *et al.,* 2013, pp. 115-125), for example, by taking a corrective action to address a weakness, a preventive action to prevent a threat, or by following a recommendation to exploit a strength or opportunity (by means of an advancement action).

Audit closure steps are generic enough to accommodate all possible responses, i.e., from corrective action, to preventive action, to advancement action. Audit closure steps include (steps re-arranged from Arter *et al.,* 2013, pp. 115-125, and adapted to include interdepartmental collaboration, as illustrated in Figure 52):

1. Assessing findings,

2. Planning a Response (i.e., a Corrective Action Plan (CAP), a Preventive Action Plan (PAP), or an Advancement Action Plan (AAP)),

3. Reviewing the Response Plan,

4. Implementing the Response,

5. Verifying the implementation and effectiveness of the response, and

6. Keeping records

The six steps above are described after Figure 52.

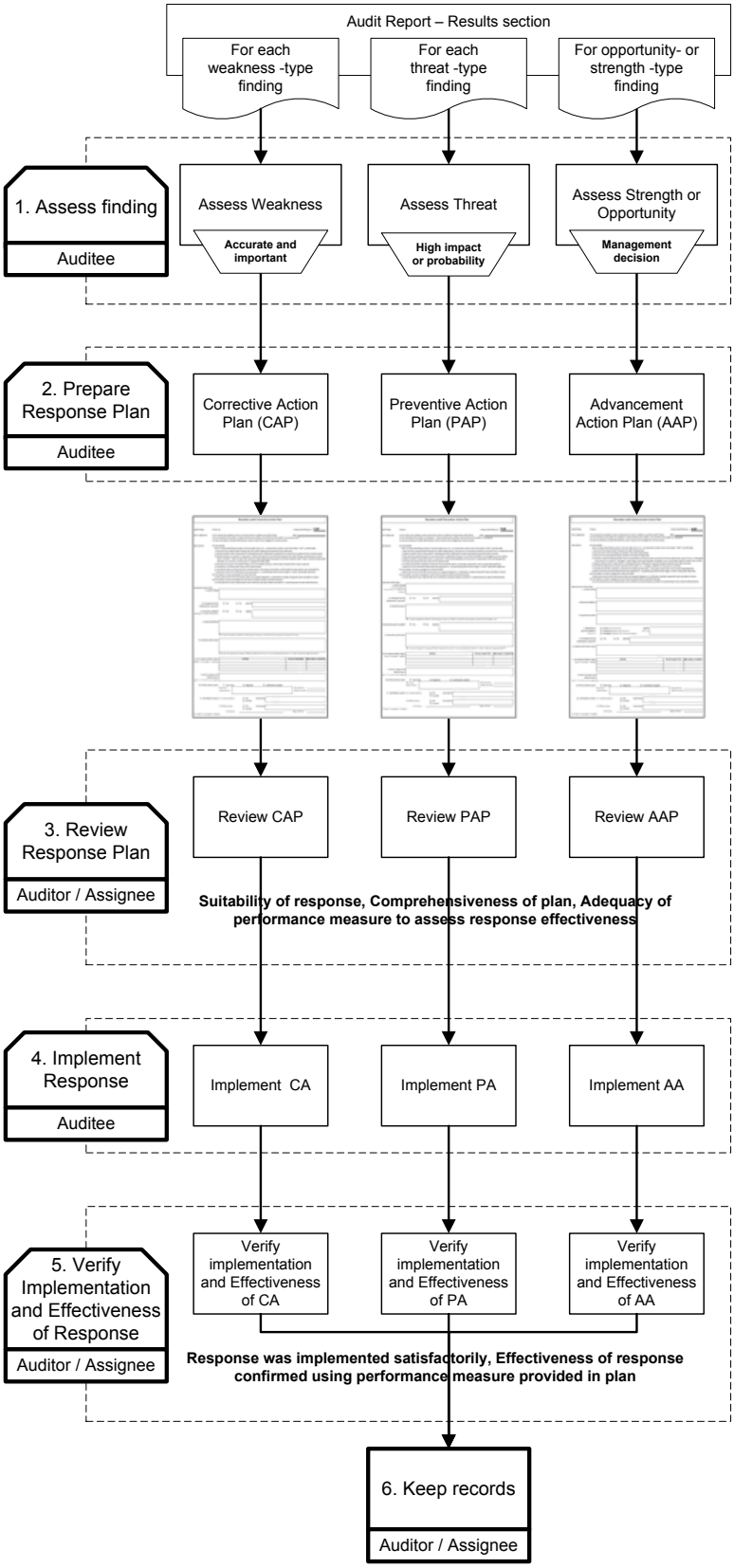


Figure 52 - Audit closure adapted and expanded from Russell (2005) and Arter *et al.*, (2013)

D.2.4.1 Assessing findings

The boundary audit expands Russell's (2005) and Arter *et al.*'s (2013) audit follow up/audit closure phase through further use of the categorization of findings as Weaknesses, Threats, Strengths, and Opportunities, and by framing the responses according to such categorization. Also, the boundary audit creates a third Response Plan, namely, Advancement Action Plan to address Strengths and Improvement Opportunities, in addition to the original Corrective Action Plan and Preventive Action Plan (see for example, Russell 2005, pp. 127-132 for details on corrective action, and Arter *et al.,* 2013 pp. 118-122 for details on both corrective action and preventive action).

The first step of the audit closure stage involves assessing the findings presented in the audit report (an adaptation of Arter *et al.*'s (2013, p. 124) suggestions applied to the boundary-audit-specific categorization of findings and emphasizing the interdepartmental relationship). The auditee (likely management representatives from both audited departments) will examine the audit findings and for each type of finding consider the following:

1. For weaknesses (adapted from Arter *et al.,* 2013, p. 119)
    a. Does the finding accurately represent the state of the interdepartmental process?
    b. Is the finding important enough to be addressed immediately? Are there other pressing issues, thus needing to postpone responding to the finding?
2. For threats (from Arter *et al.,* 2013, p. 121)
    a. Quantify risks by means of assessing their probability and impact
    b. Prioritize risks to address
3. For strengths and opportunities
    a. What strengths could be augmented or disseminated across the departments?
    b. What opportunities can be pursued that will yield the most benefit to the departments and the organization(s)?

Upon assessing the findings and selecting those that are accurate and important (for weaknesses), high impact or probability (for threats), or most beneficial (for strengths and opportunities), the next step is to plan proper responses.

D.2.4.2 Planning a response

At least three types of response to an audit finding are possible (Arter *et al.,* 2013, p. 117). A weakness will require a corrective action, a threat a preventive action, and a strength or opportunity an advancement action. Even though Corrective Action Plans (CAP) and Preventive Action Plans (PAP) are common, it was decided to design new ones for the BAM so as to sustain the benefit of categorizing findings in terms of their location (i.e., department-specific or boundary-related), and type (i.e., SWOT). Additionally, a contribution of the BAM development was the design of an Advancement Action Plan template that resembled the style and content of the CAP and PAP, while emphasizing the expected benefits of acting upon the identified

Strength or Opportunity by means of the adapted used of the Balanced Scorecard Categories identified by Kaplan and Norton (1996).

The response plans (namely CAP, PAP and AAP) were designed to aid the process of documenting the response by the auditees. The finding sheet where the finding was originally documented contains the person that is responsible for preparing a corrective action or preventive action plan. This person can use the corresponding template to document the plan, whereas for an advancement action, the responsibility for preparing the AAP will depend on a decision of the management of the departments involved.

a. Corrective Action Plan (CAP)

The CAP template enables the auditee to document how will the cause of the nonconformance or noncompliance identified in the audit finding be removed. The CAP requires the auditee to provide: the originating audit finding, whether interdepartmental collaboration will be needed, the root cause to be removed, the proposed corrective action (CA) and a correction if needed, an implementation plan, and the proposed measures to assess effectiveness of the corrective action once it is implemented (adapted from Russell 2005, ISO 9001:2015)

b. Preventive Action Plan (PAP)

The PAP template enables the auditee to plan for the removal of causes of potential nonconformances (i.e., risks or threats). The PAP requires the auditee to provide: the originating audit finding (including the potential nonconformity or undesirable situation), answer whether and to what extent is interdepartmental collaboration required during the PAP, the identification of potential causes, whether action is needed, and if affirmative, what preventive action will be taken (including activities, responsibilities and deadlines); as well as the proposed measure(s) to assess effectiveness of the preventive action once it is implemented (adapted from ISO 9001:2008, since it was removed from ISO 9001:2015)

c. Advancement Action Plan (AAP)

Though the finding sheet containing a Strength or Opportunity does not specify a person responsible for providing a response, the responsibility can be assigned by management of the auditee to one of its members. The AAP template (available in Appendix D.3.7.3) aims to serve as a medium to document a plan to implement an action that will improve the interdepartmental process, either by building on a strength or by making the most of an opportunity. When filling out the AAP template, the following must be entered: the original audit finding, from Finding Sheet (2. Opportunities and Strengths); the recommendation and expected benefits; a decision whether to pursue an action now, in the future, or not at all; whether the action will require interdepartmental collaboration;

the definition of the advancement action; an implementation plan (with people responsible and dates of completion); and lastly, a proposed measure to assess effectiveness of the action once it has been implemented.

D.2.4.2.1 A note on Advancement Action (and the corresponding Plan)

An Advancement Action is the response of the auditee to a recommendation made by the audit team with relation to a strength or an opportunity. Similar concepts to advancement action are "best observed practice" (Arter *et al.,* 2013), and "innovative action" (Russell 2005). "Best observed practice" refers to "when the audit conclusions indicate superior performance, there may be an opportunity to deploy the knowledge gained to other processes or parts of the organization" (Arter, *et al.,* 2013, p. 118). An *innovative action*, according to Russell (2005), is "(1) Action taken to change a process or system to introduce something new (proactive)." For the Boundary Audit, the name "Advancement Action" (AA) was chosen since "advancement" is not only a synonym of improvement, but also represents "progress", which is ultimately sought from the strengths and opportunities identified in the boundary audit.

A contribution of the AAP is that it allows to frame the expected benefits of the Advancement Action in terms of Balanced Scorecard Categories (BSC), i.e., Customer, Financial, Internal Business Process, and Learning and Growth, as per Kaplan and Norton (1996). The objective sought when using the BSC is to help management of the departments involved identify the potential benefits, including specific BSC-related measures for the eventual assessment of implementation effectiveness, of the recommendations made by the auditors via the Finding Sheets documenting opportunities and strengths. Additionally, the AAP allows to identify whether interdepartmental collaboration is required and how, for advancement actions that may pertain to interdepartmental interactions.

Two examples of response plans (i.e., CAP and AAP) are included in the next couple of pages. The CAP example (Figure 53) was prepared in order to illustrate the documentation of a response to a negative-type finding (i.e., weakness or threat). The weakness that was selected was "Long response times", and the CAP was prepared by following the next steps:

1. The audit finding was documented (i.e., "Long response times"), as reported in the Finding Sheet W/T 01 (i.e., Figure 49)
2. Interdepartmental collaboration was deemed required, and thus was indicated and details provided, i.e., "Long response times usually a result of delays in interdepartmental interactions, so a collaborative solution would likely be more effective"

Boundary audit Corrective Action Plan

Audit Phase Closure

Unique identifying no.: CAP

Date: May 13, 2016

Form objectives
To be used by the auditee to plan a corrective action to address a weakness-type audit finding.
To be reviewed by the auditor (or assignee), implemented by the auditee, and verified by the auditor (or assignee)
To serve as evidence of audit effectiveness, and an input to the management review process.

Instructions

For the auditee

Enter a unique identifying number in the top right corner (i.e., a consecutive number next to the letters "CAP"), and the date

1. Document the original audit finding as per the audit finding sheet prepared by the audit team.
2. Specify whether and to what extent is interdepartmental collaboration expected to be required to implement the corrective action.
3. Specify whether a correction is required to contain/remedy the nonconformity related to the audit finding, and what does it entail.
   Correction "does not deal with causes but rather addresses the specific nonconforming item itself" (Arter *et al.,* 2013)
   Examples of correction include rework or regrade (ISO 9000:2015)
4. Document the cause of the audit finding. If not immediately obvious, a Root Cause Analysis (RCA) may be required
5. Provide the corrective action that will be implemented
6. Provide the steps to implement the corrective action, the people responsible, and the date the step needs to be completed by.
7. Determine how should CA effectiveness be assessed (i.e., by specifying a performance target, or other measurable objective)

For the auditor (or person assigned to review the CAP)

8. Review the CAP and record the result (i.e., Approved, Rejected, or Clarification needed) along with reviewer name and date of revie

For the auditor (or person assigned to verify the CA implementation and effectiveness)

9. Verify that the CA was implemented, and is effective (using the details provided in 7. pertaining how to assess effectiveness).

Corrective Action Plan:

1. Audit Finding: (including potential nonconformity or undesirable situation)
Long response times:
Time to provide a response to complainant is too long (e.g., more than 2 months for CC1A)

2. Interdepartmental collaboration required? ☑ Yes ☐ No Specify: **Long response times usually a result of delays in interdepartmental interactions, so a collaborative solution would likely be more effective**

3. Correction needed? (remedial or containment action) ☐ Yes ☑ No Specify: **No need for correction (concerns examined were already closed)**

4. Cause identified:
Delays in response obey different causes, for example:
- Increasing complexity of complaint investigation: concerns are added through the investigation process [usually due to complainant being dissatisfied with preliminary results and pushing for a different response], thus increasing work-load and pushing into the future the date for resolution
- Delays due to personnel leaving for, or being, on vacation (at CSO or Operations)

✪ It may be needed to perform Root-Cause Analysis to identify the true cause related to the audit finding.

5. Corrective action (CA):
It would be appropriate to perform a detailed analysis of common causes (e.g., an RCA) for delays in providing responses to complainants. Once those causes are identified, a Pareto analysis could help identify which causes should be addressed or removed first.

✪ It may be necessary to assess different potential solutions via a cost/benefit analysis in order to select an appropriate CA

6. CA implementation steps: (attach more paper if needed)

Activity	Person responsible	Date expect. completion
Prepare plan for detailed RCA of causes of delays in concern investigations	**Jane Smith (CSO)***	**30-Jun-16**
Implement plan, draw conclusions, present results to management	**Jane Smith (CSO)**	**30-Aug-16**
	***Names are fictitious**	

7. How to measure CA effectiveness: (Ideally with performance targets)
RCA was performed, a report prepared and presented to management by August 30, 2016

8. CA Plan review result: [By auditor/assignee] ☑ Approved ☐ Rejected ☐ Clarification needed
Reviewer observations:
Reviewed by: **RD, Audit leader**
Date reviewed **May 20, 2016**

9. Verification results: [By auditor/assignee]
CA Implementation ☐ OK ☐ Not OK Comments:
CA Effectiveness ☐ OK ☐ Not OK Comments:
Verified by: _____ Date verified: _____

☐ Attach more paper if needed

Figure 53 - Example of Corrective Action Plan (CAP)

3. To the question about whether a 'correction was needed?' the answer given was 'no' followed by the explanation "no need for correction (concerns examined were already closed)."
4. Regarding 'Causes identified' for the Audit Finding, the following explanation was given: "Delays in response obey different causes, for example:
    a. Increasing complexity of complaint investigation: concerns are added through the investigation process [usually due to complainant being dissatisfied with preliminary results and pushing for a different response], thus increasing work-load and pushing into the future the date for resolution, and
    b. Delays due to personnel leaving for, or being, on vacation (at CSO or Operations)"
5. The Corrective Action suggested was to perform a more thorough analysis of causes for delays: "It would be appropriate to perform a detailed analysis of common causes (e.g., an RCA) for delays in providing responses to complainants. Once those causes are identified, a Pareto analysis could help identify which causes should be addressed or removed first."
6. A plan outlining the steps that need to be taken to implement the corrective action was documented, including responsibilities and deadlines (see section 6 in the example).
7. A measure was determined to assess whether the preventive action was effective, i.e., "RCA was performed, a report prepared and presented to management by August 30, 2016"
8. Lastly, the auditor or person assigned to review the CAP examined the suitability of the response plan and approved it.

Next, the development of the AAP example is described.

The AAP example (Figure 54) illustrates the documentation of a response to a positive-type finding (i.e., strength or opportunity). The strength that was selected was "Direct response to concern", and the AAP was prepared as follows:

1. The audit finding, recommendation, and expected benefits were transcribed from the Finding Sheet O/S 01 (Figure 50) into sections 1, 2 and 3 of the AAP
2. A response to the recommendation is recorded, i.e., to pursue the recommendation and a reason for doing it (i.e., because the expected benefits are promising).
3. Interdepartmental collaboration was deemed required, and thus was indicated and details provided, i.e., "CSO plans communication campaign; Operations gives feedback; CSO makes changes if needed and executes the communication campaign "
4. The Advancement Action is determined and recorded, i.e., "To regularly communicate to Operational staff the possibility and benefits of directly responding to complainants"
5. A plan outlining the steps that need to be taken to implement the preventive action was documented, including responsibilities and deadlines (see section 7 in the example).

Boundary audit Advancement Action Plan

Audit Phase Closure

Unique identifying no.: **AAP 01**

Date: **May 13, 2016**

Form objectives
To be used by the auditee to plan an advancement action to address a positive audit finding
To be reviewed by the auditor (or assignee), implemented by the auditee, and verified by the auditor (or assignee)
To serve as evidence of audit effectiveness, and an input to the management review process.

Instructions

For the auditee

Enter a unique identifying number in the top right corner (i.e., a consecutive number next to the letters "AAP"), and the date

1. Document the original audit finding (from audit finding sheet)
2. Document the recommendation provided in the audit finding sheet
3. Document the expected benefits provided in the audit finding sheet, organized by Balanced Scorecard (BSC) categories
4. Provide a response stating whether the recommendation will be pursued (within a year or within three years), or disregarded
   If the answer to 4. is "Disregard", specify rationale, and attach it as is to the audit report (as a record)
5. Specify whether and to what extent is interdepartmental collaboration required during the advancement action process
6. Provide the advancement action (AA) that will be taken (i.e., a change or addition to the process or activity)
7. Provide the activities needed to implement the advancement action , the people responsible, and corresponding deadlines
8. Determine how should AA effectiveness be assessed, preferably in relation to one or more of the BSC categories mentioned in sectior
   and by specifying a performance target, or other measurable objective (i.e., SMART goal); if not possible, provide a reason

For the auditor (or person assigned to review the AAP)

9. Review the AAP and record the result (i.e., Approved, Rejected, or Clarification needed) along with reviewer name and date of reviev

For the auditor (or person assigned to verify the AA implementation and effectiveness)

10. Verify that the AA was implemented, and is effective (using the details provided in 8. pertaining to how to assess effectiveness).

Advancement Action Plan:

1. Audit Finding: **"Direct response to concern"**
The Operational Reviewer from Physicians reviewed the concern with other doctor and talked to the complainant to convey the response. The conversation served to provide assurance to the complainant of the usefulness of the feedback, and left the complainant satisfied with process and outcome.

2. Recommendation: **To encourage Operational Reviewers, where possible, respond directly to the complainant.**

3. Expected benefits: (organized by BSC categories, e.g., Customer, Financial, etc.)
CUSTOMER: Increased cust. satisfaction since the customer talks directly to the Op. Reviewer
CUSTOMER: Increased cust. satisfaction because less time taken to respond to concern
INT. BUS. PROC: Less handling of the concern by an intermediary (i.e., the PCC)
LEARNING & GROWTH: Operational Reviewers gain experience in talking to complainants

4. Response to recommendation? (Select one)
☑ **Pursue** (continue to 5.)
☐ **Postpone (≥1 yr)** (continue to 5.)
☐ **Disregard** (stop and file with audit report)

Specify: (Optional) **The expected benefits are promising and a decision is made to act on the recommendation**

5. Interdepartmental collaboration required? ☑ **Yes** ☐ **No** Specify: **CSO plans communication campaign; Operations gives feedback; CSO makes changes if needed and executes the communication campaign**

6. Advancement action (AA): **To regularly communicate to Operational staff the possibility and benefits of directly responding to complainants**

7. AA implementation steps: (attach more paper if needed)

Activity	Person responsible	Date expect. completion
1. Plan communication campaign	**Jane Smith (CSO)***	**June 15, 2016**
2. Test communication campaign, get feedback from Operations	**Jane Smith (CSO)**	**July 1, 2016**
3. Execute communication campaign	**Jone Doe (Op)**	**July 30, 2016**
4. Measure results	**Jane Smith (CSO)**	**January 1, 2017**

**** Names are fictitious***

8. How to measure AA effectiveness: (Ideally with relation to BSC categories and with performance targets; i.e., SMART goal, if not give reason)
Int. Bus. Proc.: Number of 'Resolutions relayed to complainant directly by Operational staff' increased by 20% from the previous year.

9. AA Plan review result: ☑ **Approved** ☐ **Rejected** ☐ **Clarification needed**

Reviewer observations: **Approved without changes**

Reviewed by: **RD, Audit leader**

Date reviewed **May 20, 2016**

10. Verification results: AA Implementation ☐ **OK** ☐ **Not OK** **Comments:**

AA Effectiveness ☐ **OK** ☐ **Not OK** **Comments:**

Verified by: _____ Date verified: _____

☐ Attach more paper if needed

Figure 54 - Example of Advancement Action Plan (AAP)

6. A measure was determined (according to the Balanced Scorecard categories) to assess whether the preventive action was effective (i.e., "Internal Business Process: Number of 'resolutions relayed to complainant by Operational staff' increased by 20% by the end of the year.")
7. Lastly, the auditor or person assigned to review the AAP examined the suitability of the response plan and approved it.

The ability to recognize "interdepartmental collaboration" in the response plans is one contribution of the boundary audit. In addition, the Advancement Action Plan is another significant contribution for two reasons: first, it is a template to guide the planning, implementation, and verification of an action that aims to leverage a *strength* or take advantage of an identified *opportunity,* and second, it maintains the same design philosophy regarding type of content and format as the CAP and PAP, thus facilitating its use and understanding.

After a response plan has been prepared, it has to be submitted to the auditor (or a person assigned by the audit client) for review. The review process is presented next.

D.2.4.3 Reviewing the planned a response

This step (adapted from Russell 2005, p. 127) requires the auditor or assignee to review the planned response. Note that an assignee is appointed by the audit client, and for an internally initiated audit, the audit client can be management of any or all of the departments involved. The assigned person and can be a departmental manager, a quality engineer, or member of staff who will be involved in reviewing the response to the finding(s). The assignee needs to be capable of assessing the appropriateness of the plan (either because of education, training, or professional experience).

Criteria that can be used to assess the appropriateness of the plan (adapted from Russell 2005, and expanded to include "completeness", "comprehensiveness of plan" and "adequacy of performance measure") includes:

- Completeness: For all response plan templates, the plan should be complete, i.e., all information required has been provided. If any non-optional information is missing, a request to complete the missing details should be made to the author of the plan.
- Suitability of response:
    a. For corrective action: according to Russell (2005), the reviewer of a corrective action plan should ensure that the corrective action "treats the underlying cause, not a symptom of the problem […,] is timely […, and] prevents recurrence" (p. 129)
    b. For preventive action: the reviewer should make sure that a study of potential causes and effects was performed prior to determining the action to take. The

action can remove the potential cause, or mitigate it. For the latter, mitigation can be in the form of reduced probability of occurrence, reduced impact, or a combination of both.

c. For advancement action: the reviewer should make sure that the proposed action is in fact addressing the strength or opportunity, and likely to yield the intended result (i.e., by achieving the goal of the recommendation, including its benefits).

- Comprehensiveness of plan: For all response plan templates, the reviewer will assess whether the number and type of activities of the implementation plan are appropriate to the corrective/preventive/advancement action (i.e., scope and purpose), and that the deadlines are realistic. The information provided, though limited as it may be, is clear enough in describing what things will be achieved, by whom, and by what date.
- Adequacy of performance measure to assess response effectiveness: For all response plan templates, the reviewer should use his/her judgment to assess whether the measure for action effectiveness that is provided can serve as an indicator of the success or lack thereof of the proposed action. The closer a measure of effectiveness is to the action, the more reliable and accurate it could be considered (for example, an example of a bad measure would be *increase in sales* as an indicator of a successful change in a *manufacturing setting* because sales occur too far from the action taken, and is subject to a multitude of other factors).

Results of the review can be recorded in the response plan. For example, all three templates (i.e., CA, PA, and AA) provide space for the reviewer to select if the plan is: approved, rejected, or requiring clarification, along with the date in which the review took place and space to enter the name of the reviewer. Space is also provided to make observations that may have arisen during the review.

After the plan has been approved, it can be implemented, step which is presented below.

D.2.4.4 Implementing the Response

The person responsible for planning the response will most of the times also be in charge of the overall implementation. Nevertheless, specific activities are the responsibility of the people assigned to them, as per the implementation steps under number 6. of the CAP template, number 6. of the PAP template, and number 7. of the AAP template. Each plan will include different activities, which may comprise some of the following:

a. For corrective action: correction (remedial action), changes to a process or procedure, updates to or creation of documents, and training of personnel (adapted from Arter *et al.,* 2013, pp. 119).
b. For preventive action: further study of potential consequences and causes, changes to a process or procedure, changes to resources (incl. suppliers), and training of personnel (adapted from Arter *et al.,* 2013, pp. 119).

c. For advancement action: further study of potential benefits, strategic planning, changes to a process or procedure, R&D and marketing efforts including impact measurement.

Collaboration between departments may be needed to implement responses addressing findings related to the interdepartmental relationship (or boundary). The response plans would provide an indication as to whether collaboration is needed, and the people that will be involved in the implementation, apart from also providing the intended implementation dates. Interestingly, the collaborative implementation of a response could include department-specific activities as well as interdepartmental interactions, thus mimicking the interdepartmental process at a micro-level.

D.2.4.5 Verifying implementation and effectiveness of the response

As Russell (2005) points out, "effective implementation of corrective action is not the same as effective corrective action. The first is an indication that the actions were implemented, while the second is an indication that the actions worked" (p. 132). He says the following about corrective action, but it is also applicable for preventive action and advancement action:

1. "Achieving the desired result is proof that the process improved and the actions implemented are consistent with business goals.
2. The fact that the process is capable, efficient, and meets stated objectives requires evidence that it consistently achieves the desired results in a cost-effective manner" (Russell 2005, p. 132).

The auditor or person assigned will verify that the action was effectively implemented, in other words, "that people did what they said they were going to do and that everyone involved in the change is informed" (Russell 2005, p. 132). The auditor may ask to see evidence of changes (in person or in pictures) including records (such as updated documents and procedures). Additionally (and distinctively for the boundary audit) if the response action pertains to an interaction, the auditor may want to observe records of interactions (maybe even live interactions) occurring after the response has been implemented, for example, an email exchange or meeting minutes.

The effectiveness of the action taken should be assessed by means of the measure specified in the plan (i.e., under number 7. of the CAP template, number 7. of the PAP template, or number 8. of the AAP template). For example, if the measure was a maximum of 48 hours between email request and email response, the auditor will examine records of email exchanges between the departments to verify that response times were kept below 48 hours.

The results of the verification can be recorded by the auditor or assignee in the corresponding action plan. For example, CAP/PAP/AAP templates provide space to enter the results of the verification of implementation and of action effectiveness, including space to enter comments and specify the name of the verifier and date of verification.

Once the auditor or assigned person is satisfied with the results of the action taken, i.e., that it was implemented effectively, and that it is producing the expected results, the audit is considered to be closed, and records need to be shared with relevant parties and safely kept.

D.2.4.6 Keeping records

As Arter *et al.,* (2013, p. 125), and Russell (2005, pp. 122-124) suggest: the auditor will keep records pertaining to the actions taken, including the action plan and relevant evidence pertaining to its implementation and action effectiveness. Copies of records need to be distributed to the people in the audit report distribution list, so that they are informed of the results of the actions taken. Additionally, the auditor will attach any relevant records to the audit report to be used in future audit planning efforts (as adapted from Arter *et al.*, 2013, and Russell 2005).

An interesting by-product of the boundary audit will be a thorough documentation of an interdepartmental process, including the IdPFD, roles and responsibilities for both departments, and details regarding previously undocumented agreed-upon-practices and communications. Such host of information is valuable not only because it describes the process across boundaries (i.e., not constrained by departmental limits), but it also gives account of previously invisible aspects. The new information can be used in many ways, for example: to formalize organizational communications, update roles and responsibilities to reflect the true work employees perform, and to document new procedures that the audit has discovered were performed impromptu (i.e., reactively).

Appendix D.3 - Supporting tools (templates and examples)

This section presents information on select tools that support the boundary audit. Tools presented include: the Objective Mapping Template, the Interdepartmental Process Flow Diagram Template, Checklists (for Observe Process Result, Observe Process, and Interviews), Audit Finding Summary Template, Finding Sheet Templates (for 1. Weaknesses and Threats, and 2. Opportunities and Strengths), and the Response Plan Templates (including Corrective Action Plan, Preventive Action Plan, and Advancement Action Plan).

Introduction

Boundary audit templates aim to be comprehensive yet concise. It has been attempted to consistently keep the length of the template to one page where possible. As a result, space available to enter responses is very limited, although such a limitation could be solved by adding extra paper to the template, or by manipulating the original electronic file to increase the size of the text-boxes. The hope is that the templates reach the following objectives: 1) To clearly state how to fill out the template, by means of providing instructions, 2) To provide a comprehensive list of items that need to be prepared for each template so that once prepared, they are useful during the audit (to support an effective audit method) as well as after (to serve as documentation of work performed, and a benchmark against to which assess audit effectiveness), 3) To allow for a quick presentation of important information (at least of the template requirements) by limiting template length to one page (i.e., "understanding from scanning").

It may be apparent that the templates could serve as mockups for the eventual design of an electronic system (i.e., software or application) to support the boundary audit. In such event, template requirements could be used to prepare database fields (and subsequently form fields). An electronic system to support the boundary audit would likely yield the following features:

1. Ability to fill out templates (or forms) without concerns of space limitation
2. Ability to pre-populate templates with audit-specific details (e.g., names of departments, of the organization, of the process, and names of auditors).
3. Ability to follow up electronically on audit findings and requests for action, such as corrective action, preventive action, and advancement action
4. Ability to update interested parties (i.e., the people in the report distribution list) regarding status of requests for action, including review results, and verification results
5. Ability to store audit-related documents for later review (i.e., by management), or for subsequent audits

Next, the original value of the tools is presented, followed by templates and examples of original tools

Original value of tools

BAM tool	Original contribution (and description), or Significantly adapted (with sources and extent of adaptation), or Generic
1. Objective Mapping Template (OMT)	- OMT is an original contribution - OMT allows to identify the main stakeholders of the process, and to organize stakeholders' objectives as common, unique and potentially conflicting - OMT allows early on in the audit process to identify potential misalignments between stakeholders of interdepartmental process. *OMT template and example are provided*
2. Interdepartmental Process Flow Diagram (IdPFD)	- IdPFD is a significant adaptation. - Adapted from Freivald's (2009, p. 37) "Flow process chart" to accommodate up to 3 departments, allow identification of interactions by means of hexagon symbol, and to record PEEMMM for activities or interactions *IdPFD template and two examples (one each for planning stage and performance stage) are provided*
3. Checklists (OPRC, OPIC, IPIC)	- Checklists (e.g., OPRC, OPIC, IPIC) represent significant adaptations (to examine process output, OPRC), and original adaptations (to examine interactions through observation, OPIC; and interviews, IPIC). - Adapted from Arter *et al.*'s (2013, p. 150) "Free form audit checklist" using Ishikawa's (1986) PEEMMM process elements (as presented by Arter, 2003) with respect to the four audit objectives identified from literature analysis (e.g., Table 2) - OPRC allows to examine process result (a significant adaptation) - OPIC provides guidance to observe process interactions (an original contribution) - IPIC provides questions to interview personnel regarding process interactions (an original contribution) *OPRC template provided, along with list of default questions for OPIC and IPIC* *OPRC and OPIC examples also provided*
4. Audit Finding Summary Template (AFST)	- AFST is an original contribution - The AFST was developed to allow the categorization and organization of findings by location (i.e., departments or boundary) and type of finding (i.e., SWOT) *AFST template and example are provided*
5. Finding Sheets FS (W/T) – generic FS (O/S) – original contribution	- Finding sheet for negative type findings (i.e., FS (W/T), generic from literature (as suggested by Arter *et al.,* 2013, p. 104-108). - Finding sheet for positive-type findings (i.e., FS (O/S), original contribution because allows: a. Documentation of both kinds of 'positive type' findings, i.e., strengths and opportunities b. Identification of the 'location' of a finding, i.e., a given department, or the 'boundary' between departments. c. Provision of a 'recommendation' regarding the opportunity or strength d. Identification of potential benefits (and their categorization as per the Balanced Scorecard categories by Kaplan and Norton, 1994) and the beneficiaries of the recommendation in c. above. *FS (W/T) example provided* *FS (O/S) template and example provided*

BAM tool	Original contribution (and description), or Significantly adapted (with sources and extent of adaptation), or Generic
6. Response Plans CAP – generic PAP – adapted from CAP AAP –adapted from PAP	- Corrective action plan (CAP), generic from literature (e.g., Russell, 2005, pp. 126-127). CAP template prepared by using the data from literature as follows: a. Adapted 'fundamental components' in bullet form in Russell (2005, p. 127), for sections 1 to 6; b. Adapted bottom half of 'Figure 10.1 Request for corrective action' in Russell (2005, p. 128) for section 8; c. Adapted verification 'flow of events' in list available in Russell (2005, p. 132) for section 9; d. Expanded CAP to allow to indicate if response requires 'interdepartmental collaboration' (i.e., in section 2 of CAP). e. Prepared instructions to use template based on the fields that were created as mentioned in a) to d) above. - Preventive action plan (PAP), available in certain literature, such as Arter *et al.*, (2013), pp. 120-122, while considered as 'uncommon' by Russell, 2005, because "preventive action […] can be easily abused because of the unlimited number of possible or potential nonconformities" (p. 125). PAP template was prepared by adapting the CAP template (mentioned above) for the purpose of 'preventive action', as follows: a. Substituted 'corrective' with 'preventive' b. Removed 'corrective action' c. Substituted 'cause identified' with 'potential causes', and added the potential use of FMEA to identify potential causes (as suggested by Arter et al., 2013, p. 122) d. Added a field to indicate if preventive action is needed e. Updated instructions - Advancement action plan (AAP), original contribution (organized as 'supporting tool') because it allows to document positive-type findings (i.e., opportunities and strengths). AAP template was prepared by adapting the PAP template (mentioned above, which in turn was adapted from CAP template) for the purpose of 'advancement action' as follows: a. Substituted 'preventive' with 'advancement' b. Substituted 'potential causes' with 'recommendation' ('recommendation' should be available from corresponding FS (O/S)) c. Added field 'Expected benefits' of recommendation (organized by Balanced Scorecard categories, Kaplan and Norton, 1996, as available from corresponding FS (O/S)), to motivate pursue of AA d. Added field to indicate if recommendation will be pursued, postponed or disregarded (as adapted from 'Deciding what deployment action to take, if any' in Arter *et al.*, 2013, p. 124). e. Updated instructions *CAP example provided* *PAP example provided* *AAP template and example are provided*

Appendix D.3.1 - Objective Mapping Template

D.3.1.1 Objective Mapping Template (Post-validation version)

Objective Mapping Template

Audit Phase: Planning

Instructions:
1. Request and obtain documents from auditees
2. Enter identifying information for the process and for each stakeholder (i.e., process owner, process partner 1 and process partner 2, customer, and organization); use N/A if not applicable.
3. For each objective, identify them as unique, common, or potentially conflicting, as per the guidance below:
   - Unique: the objective is unique to a given stakeholder (to be entered in the left-most column, next to the corresponding stakeholder)
   - Common: the objective is shared by two or more stakeholders (to be entered at the bottom of the matrix, followed by names of the stakeholders who share the objective)
   - Potentially conflicting: the objective of a given stakeholder conflicts with another stakeholder (to be entered in the main matrix at the intersection of row containing the owner, and column of the stakeholder with which the objective potentially conflicts)
4. Provide references where the objectives were taken from

1. Process name

2. Stakeholder Identification

Process Owner:
Process Partner 1:
Process Partner 2:
Customer:
Organization:

3. Objective Classification

3.1. Unique Objectives

3.2. Potentially Conflicting Objectives

conflicts with →	Process Owner	Process Partner 1 (PP1)	Process Partner 2 (PP2)	Customer	Organization
Process Owner	Sample objective at intersection belongs to stakeholder in the row and potentially conflicts with stakeholder in the column				
Process Partner 1 (PP1)					
Process Partner 2 (PP2)					
Customer					
Organization					

3.3. Common Objectives

4. References

D.3.1.2 Objective Mapping Template (Post-validation) [Example]

Objective Mapping Template

Audit Phase: Planning

Instructions:
1. Request and obtain documents from auditees
2. Enter identifying information for the process and for each stakeholder (i.e., process owner, process partner 1 and process partner 2, customer, and organization); use N/A if not applicable.
3. For each objective, identify them as unique, common, or potentially conflicting, as per the guidance below:
   - Unique: the objective is unique to a given stakeholder (to be entered in the left-most column, next to the corresponding stakeholder)
   - Common: the objective is shared by two or more stakeholders (to be entered at the bottom of the matrix, followed by names of the stakeholders who share the objective)
   - Potentially conflicting: the objective of a given stakeholder conflicts with another stakeholder (to be entered in the main matrix at the intersection of row containing the owner, and column of the stakeholder with which the objective potentially conflicts)
4. Provide references where the objectives were taken from

1. Process name

Patient Concerns Resolution Process (PCRP)

2. Stakeholder Identification

Process Owner:	**Case Study Organization (CSO)**
Process Partner 1:	**Operations (Op)**
Process Partner 2:	**--- Not applicable, N/A ---**
Customer:	**Patient / Family (Patient)**
Organization:	**Parent of the CSO (POCSO)**

3. Objective Classification

3.2. Potentially Conflicting Objectives

3.1. Unique Objectives		CSO	Operations	Patient/Family	POCSO
- To facilitate the PCRP as required by the PCRP Regulation, [...] to be the primary contact for the Complainant, [...] and to serve as the final opportunity to review the Concerns process prior to a referral to the [Provincial] Ombudsman [3] - To have PCO and [CSO] staff who are able to provide to Staff and Medical Staff (a) advice regarding steps to resolve a Concern, (b) appropriate Staff or supervisor involvement, (c) identification of legislation, (d) assistance with resolution options, and (e) assistance in communication with the complainant [2]	CSO	Sample objective at intersection belongs to stakeholder in the row and potentially conflicts with stakeholder in the column			
- To have "Medical Zone Directors or designates who investigate Concerns in accordance with Part 6 of [POCSO] Medical Staff Bylaws, ensure procedural fairness for Complainant and affected Medical Staff and [POCSO], and fulfill the requirements of the PCRP" [3] - "To have concerns managed by the Staff and/or manager and/or Medical Staff as close as possible in time and place to the alleged occurrence; and within their level of comfort, skill level and scope of responsibility" [2,3]	Operations				
"To provide sufficient information in writing or verbally [...] to allow for a thorough and effective Concerns investigation" [3]	Patient/Family				
	POCSO			**"From the [Provincial] Ombudsman's perspective, when reviewing a decision made by POCSO it is not about whether a decision is right or wrong, it is about how the rationale supports a fair decision" [4]**	

3.3. Common Objectives

Common amongst POCSO, CSO, and Operations:
- **To have shared responsibility and accountability between [POCSO] and Medical Staff of programs and services involving Medical Staff that are offered by [POCSO] [3]**
- **"To enhance the experience of Patients and their family [...] by applying the principles of Patient and Family Centered Care when managing Concerns" [1]**
- **"To allow employees and Medical Staff to address Concerns in a manner consistent with the [POCSO] Values" [1]**
- **To have personnel capable of receiving concerns expressed by the public (i.e., an accessible PCRP)[1, 2]**
- **"[POCSO] shall respond in a timely, respectful manner to all Concerns raised within the parameters of applicable privacy legislation" [1]**
- **To be able to receive complaints orally or in writing [... and] at any time [2]**
- **"To facilitate a PCRP within [POCSO] that is accessible, fair, consistent, transparent and timely" [1]**
- **"To inform and support quality Patient care through listening and responding to Patient feedback" [1]**

Common amongst POCSO, CSO, Operations, and Complainants:
- **"To ensure that the 'correct' decision was made" [4]**
- **Decisions must be "reasonable" and "made in a timely manner" [4]**
- **"Person affected receives an apology as applicable" [4]**
- **"Policy/legislation [...s)] backs a decision, [...(b)] is explained to person affected, [... and©] ensures complainant's need have been addressed [4]**
- **Complainant's level of satisfaction with process and outcome is measured [4]**

4. References

[1]: PCRP Policy
[2]: PCRP Procedure
[3]: Medical Staff Guideline
[4]: Administrative fairness
[5]: 'Pocket card'

Appendix D.3.2 - Interdepartmental Process Flow Diagram (IdPFD) Template

D.3.2.1 IdPFD Template (Post-validation version)

Interdepartmental Process Flow Diagram (IdPFD) Template

Audit Phase: Planning [or Performance if used to map the flow of a product]

Instructions:

1. Request and obtain process documents from auditees (i.e., the departments involved in the interdepartmental process)
2. Enter identifying information (i.e., process name, process objective, output of the process, and names of departments involved: 1 process owner, and up to 2 process partners
3. Each event (activity or interaction) in the process will be documented, one step per row.
   Note: The auditor may decide not to record simple interactions such as "Thank you" emails, especially in complex processes with numerous interactions.
   - 3.1 Enter a unique consecutive number under No. (first column), except for non-sequential activities (i.e., those that can be performed "at any time" or are "ongoing") which can be entered at the end
     - 3.1.1 For decision points, enter decision paths as sub levels of the decision point, for example: If event 5. is a decision point, 5.10 is one path and 5.20 another one, whereas 5.11 would be a consecutive activity of 5.10
   - 3.2. Identify the departments involved in the activity or interaction by checking the appropriate checkbox, and using the following logic words or symbols to represent relationships:
     - **AND** ∧ e.g., PP1 AND PP2 means that both departments perform the interaction together
     - **OR** ∨ e.g., PP1 OR PP2 means either PP1 or PP2 or both can perform the activity or interaction
     - **XOR** ⊕ e.g., PP1 XOR PP2 means either PP1 or PP2 but not both can perform the activity or int.
   - 3.3. Identify (by filling in) the type of event as either an Activity and its subtype (e.g., Operation - Circle, Transport – Arrow, and so on) or an Interaction - Hexagon.
   - 3.4. Under Inputs (i.e., fourth column), identify the inputs to the event (i.e., material or information needed to perform the activity/interaction)
   - 3.5. Under Event description, enter a short description (one or two sentences) of the event (include date or time reference if mapping flow of a product during Audit Performance)
   - 3.6. Under Resources, enter the appropriate process elements required to perform the event (except for materials, which were entered under inputs): People [Ppl], Equipment [Eq.], Environment [Env.], Measures [Meas.], and Methods [Meth.]
   - 3.7 Under Person responsible, identify the role or job title of the person responsible for performing the event
4. Reference documents used and explain relevant abbreviations
5. After the process has been documented, fill out the Summary Table:
   - 5.1 Count the number of each type of event per department (and sub type for data transfers)
   - 5.2 Compute totals per department, per type and grand total.

Process name:	
Process objective:	
Output of the process:	
Process Owner [PO]:	
Process Partner [PP1]:	
Process Partner [PP2]:	

Date:	
Analyst:	

Remarks:	

Summary

Event		PP2	PO	PP1	Total by type
Activity	Operation				
	Transport				
	Delay				
	Inspection				
	Storage				
Interaction					
Total by Dept.					

No.	[✔] performers & logic [AND / OR / XOR] PP2 / Process Owner / PP1	Type of Event (Activity or Interaction)		Input	Event description (include date or time reference if mapping flow of a product during Audit Performance)	Resources (Ppl, Eq., Env., Meas., and Meth.)	Person responsible (Job title or role)
	☐_☐_☐	Activity (select sub-type) ○ ⇨ D □ ▽	Inter-action ⬡				
	☐_☐_☐	Activity (select sub-type) ○ ⇨ D □ ▽	Inter-action ⬡				
	☐_☐_☐	Activity (select sub-type) ○ ⇨ D □ ▽	Inter-action ⬡				

Page 1 of ____

Interdepartmental Process Flow Diagram (IdPFD) Template (cont…)

No.	[✓] performers & logic [AND / OR / XOR]			Type of Event (Activity or Interaction)		Input	Event description (include date or time reference if mapping flow of a product during Audit Performance)	Resources (Ppl, Eq.., Env., Meas., and Meth.)	Person responsible (Job title or role)
	PP2	Process Owner	PP1						
	□_	□_	□	Activity (select sub-type) ○ ⇨ D □ ▽	Inter-action ⬡				
	□_	□_	□	Activity (select sub-type) ○ ⇨ D □ ▽	Inter-action ⬡				
	□_	□_	□	Activity (select sub-type) ○ ⇨ D □ ▽	Inter-action ⬡				
	□_	□_	□	Activity (select sub-type) ○ ⇨ D □ ▽	Inter-action ⬡				
	□_	□_	□	Activity (select sub-type) ○ ⇨ D □ ▽	Inter-action ⬡				
	□_	□_	□	Activity (select sub-type) ○ ⇨ D □ ▽	Inter-action ⬡				
	□_	□_	□	Activity (select sub-type) ○ ⇨ D □ ▽	Inter-action ⬡				
	□_	□_	□	Activity (select sub-type) ○ ⇨ D □ ▽	Inter-action ⬡				

Page ____ of ____

Interdepartmental Process Flow Diagram (IdPFD) Template (cont...)

No.	[✓] performers & logic [AND / OR / XOR]			Type of Event (Activity or Interaction)		Input	Event description (include date or time reference if mapping flow of a product during Audit Performance)	Resources (Ppl, Eq.., Env., Meas., and Meth.)	Person responsible (Job title or role)
	PP2	Process Owner	PP1						
	☐ _	☐ _	☐	Activity (select sub-type) ○ ⇨ D □ ▽	Inter-action ⬡				
	☐ _	☐ _	☐	Activity (select sub-type) ○ ⇨ D □ ▽	Inter-action ⬡				
	☐ _	☐ _	☐	Activity (select sub-type) ○ ⇨ D □ ▽	Inter-action ⬡				
	☐ _	☐ _	☐	Activity (select sub-type) ○ ⇨ D □ ▽	Inter-action ⬡				
	☐ _	☐ _	☐	Activity (select sub-type) ○ ⇨ D □ ▽	Inter-action ⬡				
	☐ _	☐ _	☐	Activity (select sub-type) ○ ⇨ D □ ▽	Inter-action ⬡				

Abbreviations

References

Page ____ of ____

D.3.2.2 IdPFD Example (Excerpt, pp. 1 and 4) - Planning stage: modeling the process (Post-validation version)

Interdepartmental Process Flow Diagram (IdPFD) Template

Audit Phase: Planning [or Performance if used to map the flow of a product]

Instructions:

1. Request and obtain process documents from auditees (i.e., the departments involved in the interdepartmental process)
2. Enter identifying information (i.e., process name, process objective, output of the process, and names of departments involved: 1 process owner, and up to 2 process partners
3. Each event (activity or interaction) in the process will be documented, one step per row.
   Note: The auditor may decide not to record simple interactions such as "Thank you" emails, especially in complex processes with numerous interactions.
   - 3.1 Enter a unique consecutive number under No. (first column), except for non-sequential activities (i.e., those that can be performed "at any time" or are "ongoing") which can be entered at the end
     - 3.1.1 For decision points, enter decision paths as sub levels of the decision point, for example: If event 5. is a decision point, 5.10 is one path and 5.20 another one, whereas 5.11 would be a consecutive activity of 5.10
   - 3.2. Identify the departments involved in the activity or interaction by checking the appropriate checkbox, and using the following logic words or symbols to represent relationships:
     - **AND** ∧ e.g., PP1 AND PP2 means that both departments perform the interaction together
     - **OR** ∨ e.g., PP1 OR PP2 means either PP1 or PP2 or both can perform the activity or interaction
     - **XOR** ⊕ e.g., PP1 XOR PP2 means either PP1 or PP2 but not both can perform the activity or int.
   - 3.3. Identify (by filling in) the type of event as either an Activity and its subtype (e.g., Operation - Circle, Transport – Arrow, and so on) or an Interaction - Hexagon.
   - 3.4. Under Inputs (i.e., fourth column), identify the inputs to the event (i.e., material or information needed to perform the activity/interaction)
   - 3.5. Under Event description, enter a short description (one or two sentences) of the event (include date or time reference if mapping flow of a product during Audit Performance)
   - 3.6. Under Resources, enter the appropriate process elements required to perform the event (except for materials, which were entered under inputs):
     People [Ppl], Equipment [Eq.], Environment [Env.], Measures [Meas.], and Methods [Meth.]
   - 3.7 Under Person responsible, identify the role or job title of the person responsible for performing the event
4. Reference documents used and explain relevant abbreviations
5. After the process has been documented, fill out the Summary Table:
   - 5.1 Count the number of each type of event per department (and sub type for data transfers)
   - 5.2 Compute totals per department, per type and grand total.

Process name:	**Patient Concerns Resolution Process (PCRP)**
Process objective:	**To receive, [facilitate the] review, and respond to concerns raised by complainants [1]**
Output of the process:	**Response to concern**
Process Owner [PO]:	**[CSO]**
Process Partner [PP1]:	**Operations (Op.)**
Process Partner [PP2]:	***N/A***

Date:	**February 3, 2014**
Analyst:	**Enrique Fernandez**

Remarks:

Summary

Event		PP2 [N/A]	PO	PP1	Total by type
Activity	Operation	-	2	3	5
	Transport	-	-	-	-
	Delay	-	-	-	-
	Inspection	-	2	3	5
	Storage	-	1	-	1
Interaction		-	13	11	24
Total by Dept.		**-**	**18**	**17**	**35**

No.	[✓] performers & logic [AND / OR / XOR] PP2 N/A	Process Owner	PP1	Type of Event (Activity or Interaction) Activity (select sub-type)	Inter-action	Input	Event description (include date or time reference if mapping flow of a product during Audit Performance)	Resources (Ppl, Eq., Env., Meas., and Meth.)	Person responsible (Job title or role)
1	☐ _ ☑ OR ☑			○ ⇨ ▷ □ ▽	⬢	Generals of a complaint	Intake of complaint brought forward by a complainant either verbally or in writing	Ppl: Descalation, crisis mgmt Eq: Phone or email or web-form Env: Accessibility, timeliness, confidentiality, responsiveness Meas: Type of concern Meth: POCSO, 2012b	@PO: PFIC or PCC or @P1: Staff and/or Manager and/or Medical Staff
2	☐ _ ☑ OR ☑			○ ⇨ ▷ □ ▽	⬢	Generals of complaint Process for managing the concern	Acknowledge complaint, and advise complainant of the process for managing the concern including contact person	Ppl: Knowledge of PCRP Eq: Phone, email Env: Fairness, timeliness Meas: Within 3 days Meth: POCSO, 2012b	@PO: PFIC or PCC or @P1: Staff and/or Manager and/or Medical Staff
3	☐ _ ☑ OR ☑			● ⇨ ▷ □ ▽	⬡	Generals of complaint Organizational Chart	Start [ongoing] review of the concern, and determine whether to inform a supervisor, and the most relevant [POCSO] person, department or agency to whom to forward the concern if required	Ppl: Knowledge of PCRP Eq: Phone, email, Env: Respect, fairness, timeliness, privacy Meas: "within their level of comfort, skill level, and scope of responsibility" [1] Meth: POCSO, 2012b, FOIPP, Org. Chart	@PO: PCC Or @P1: Staff and/or Manager and/or Medical Staff

Interdepartmental Process Flow Diagram (IdPFD) Template

No.	[✓] performers & logic [AND / OR / XOR] PP2 N/A | Process Owner | PP1	Type of Event (Activity or Interaction) Activity (select sub-type)	Inter-action	Input	Event description (include date or time reference if mapping flow of a product during Audit Performance)	Resources (Ppl, Eq.., Env., Meas., and Meth.)	Person responsible (Job title or role)
	☐_☐_☑	○⇨▱□▽	⬣	Resolution process progress, Obstacles for resolution	- - At any time - - Inform supervisor if attempts to resolve complaint are not progressing and inform the complainant	Ppl: Interpersonal communication skills Eq: Email, phone (in person?) Env: Fairness, respect, timeliness Meas: Concern resolution not progressing Meth: POCSO, 2012b; Medical staff bylaws and rules as applicable	Staff or Management or Medical staff
	☐_☐_☑	○⇨▱□▽	⬣	Questions or requests	- - At any time - - Contact the [CSO] to seek advice regarding procedure, involvement of appropriate staff, identification of legislation; or assistance with resolution options or in communicating with the complainant	Ppl: Knowledge that PRD is available Eq: Email or phone Env: Accessibility, *collaborativeness*, coordination, confidentiality Meas: Need for advice or assistance Meth: POCSO, 2012b; applicable legislation	Staff or Management or Medical staff
	☐_☑_☐	○⇨▱□▽	⬣	Concern resolution status	- - Ongoing basis - - Obtain information from the complainant as required;	Ppl: Communication skills Eq: Email or phone Env: Accessibility, *collaborativeness*, coordination, confidentiality Meas: As needed on an ongoing basis Meth: POCSO, 2012b	PCC
	☐_☑_☐	○⇨▱□▽	⬣	Concern resolution status	- - Ongoing basis - - Provide updates on the status of the concern to the complainant; Be available as a resource to provide information and answer the complainant's questions	Ppl: Communication skills Eq: Email or phone Env: Accessibility, *collaborativeness*, coordination, confidentiality Meas: As needed on an ongoing basis Meth: POCSO, 2012b	PCC
	☐_☐_☑	○⇨▱■▽	⬡	Complainant risk-triggers (behaviour, threats)	- - At any time - - "Supervisors receiving a concern shall evaluate the risk associated with the concern, and shall initiate appropriate risk management strategies." [1]	Ppl: Risk identification and management Eq: Computer and database Env: Awareness, risk-avoidance Meas: Probability, Impact Meth: POCSO, 2012b/4; Enterprise Risk Management docs	Supervisor
	☐_☑OR☑	○⇨▱□▽	⬣	Available review options	- - At any time - - "At any time during the concern resolution process or after a decision has been made, regardless of the outcome, those responsible for managing the concern shall advise the complainant of relevant options available to them for a further review such as the PCO, the [CSO], and other external bodies who conduct reviews." [1]	Ppl: Crisis mgmt, Communication skills Eq: Email or phone Env: Accessibility, fairness, relevance Meas: Ongoing basis Meth: POCSO, 2012a,b	@PO: PCC or @P1: Staff manager or Supervisor or Medical staff lead

Abbreviations

PFIC = Patient Feedback Intake Coordinator
PCC = Patient Concerns Consultant
FOIPP = Freedom of Information and Protection of Privacy Act
HIA = Health Information Act
[P]EHRR = [Provincial] Electronic Health Record Regulation
PPCA = Protection for Patients in Care Act
HPA = Health Professions Act
MHA = Mental Health Act

References

[1] : PCRP Policy (POCSO , 2012a)
[2] : PCRP Process (CSO, 2010)
[3] : Medical Staff Guideline (POCSO, 2012c)

D.3.2.3 IdPFD Example (Excerpt, pp. 1 and 5) - Performance stage: mapping the flow of a product (i.e., complaint) (post-val)

Interdepartmental Process Flow Diagram (IdPFD) Template

Audit Phase: Planning [or Performance if used to map the flow of a product]

Instructions:

1. Request and obtain process documents from auditees (i.e., the departments involved in the interdepartmental process)
2. Enter identifying information (i.e., process name, process objective, output of the process, and names of departments involved: 1 process owner, and up to 2 process partners
3. Each event (activity or interaction) in the process will be documented, one step per row.
   Note: The auditor may decide not to record simple interactions such as "Thank you" emails, especially in complex processes with numerous interactions.
   - 3.1 Enter a unique consecutive number under No. (first column), except for non-sequential activities (i.e., those that can be performed "at any time" or are "ongoing") which can be entered at the end
     - 3.1.1 For decision points, enter decision paths as sub levels of the decision point, for example: If event 5. is a decision point, 5.10 is one path and 5.20 another one, whereas 5.11 would be a consecutive activity of 5.10
   - 3.2. Identify the departments involved in the activity or interaction by checking the appropriate checkbox, and using the following logic words or symbols to represent relationships:
     - AND ∧ e.g., PP1 AND PP2 means that both departments perform the interaction together
     - OR ∨ e.g., PP1 OR PP2 means either PP1 or PP2 or both can perform the activity or interaction
     - XOR ⊕ e.g., PP1 XOR PP2 means either PP1 or PP2 but not both can perform the activity or int.
   - 3.3. Identify (by filling in) the type of event as either an Activity and its subtype (e.g., Operation - Circle, Transport – Arrow, and so on) or an Interaction - Hexagon.
   - 3.4. Under Inputs (i.e., fourth column), identify the inputs to the event (i.e., material or information needed to perform the activity/interaction)
   - 3.5. Under Event description, enter a short description (one or two sentences) of the event (include date or time reference if mapping flow of a product during Audit Performance)
   - 3.6. Under Resources, enter the appropriate process elements required to perform the event (except for materials, which were entered under inputs):
     People [Ppl], Equipment [Eq.], Environment [Env.], Measures [Meas.], and Methods [Meth.]
   - 3.7 Under Person responsible, identify the role or job title of the person responsible for performing the event
4. Reference documents used and explain relevant abbreviations
5. After the process has been documented, fill out the Summary Table:
   - 5.1 Count the number of each type of event per department (and sub type for data transfers)
   - 5.2 Compute totals per department, per type and grand total.

Process name:	**Patient Concerns Resolution Process (PCRP)**
Process objective:	**To receive, review, and respond to concerns raised by complainants [1]**
Output of the process:	**Response to Concern**
Process Owner [PO]:	**Case Study Organization [CSO]**
Process Partner [PP1]:	**Operations (Op.) [Dep1, Dep2, PCO]**
Process Partner [PP2]:	**Complainant**

Date:	**May 5, 2016**
Analyst:	**Enrique Fernandez**

Remarks:	**Boundary Audit Method Example** **Record used: CC1A Concern, CSO Review**

Summary

Event		PP2 [N/A]	PO	PP1	Total by type
Activity	Operation	-	-	-	-
	Transport	-	-	-	-
	Delay	-	-	-	-
	Inspection	-	1	-	1
	Storage	-	-	-	-
Interaction		13	21	10	44
Total by Dept.		**13**	**22**	**10**	**45**

No.	[✓] performers & logic [AND / OR / XOR] PP2 / Process Owner / PP1	Type of Event (Activity or Interaction)	Input	Event description (include date or time reference if mapping flow of a product during Audit Performance)	Resources (Ppl, Eq., Env., Meas., and Meth.)	Person responsible (Job title or role)
1	☑ AND ☑ _ ☐	Activity (select sub-type): ○ ⇨ ▷ □ ▽ ; Interaction: ⬢	Concern details	13/5/20XX PCC spoke with complainant to learn details of concerns (2 concerns: Manner of physician, Manner of security guards)	Phone	CSO: PCC Complainant
2	☐ _ ☑ _ ☐	Activity (select sub-type): ○ ⇨ ▷ □ ▽ ; Interaction: ⬢	Concern details	17/5/20XX PCC completed Concerns Memos and sent them to 2 Operational Reviewers (Dep2 Site Manager and Dep1)	Email, Concerns memo	CSO: PCC
3	☑ AND ☑ _ ☐	Activity (select sub-type): ○ ⇨ ▷ □ ▽ ; Interaction: ⬢		18/5/20XX Complainant called PCC to ask for update and described pain from encounter with security guards	Phone	Complainant CSO: PCC

Interdepartmental Process Flow Diagram (IdPFD) Template

No.	[✓] performers & logic [AND / OR / XOR] PP2 / Process Owner / PP1	Type of Event (Activity or Interaction)		Input	Event description (include date or time reference if mapping flow of a product during Audit Performance)	Resources (Ppl, Eq.., Env., Meas., and Meth.)	Person responsible (Job title or role)
28	☑ AND ☑ _ ☐	Activity (select sub-type) ○ ⇨ D □ ▽	Inter-action ⬢		15/7/20XX PCDir called Complainant PCDir explained that PCRP would not have trespass order removed Complainant was agitated and offensive and hung up PCDir and PCC determined to prepare letter finalizing review and offering escalation alternatives (i.e., PCO review)	Phone	CSO: PCDir Complainant
29	☐ _ ☐ _ ☑	Activity (select sub-type) ○ ⇨ D □ ▽	Inter-action ⬢	Response letter	20/7/20XX Response letter sent to Complainant, PCDir, and Dep2 looking after Complainant. Dep1 was notified that review is complete	Email Response letter attached	CSO: PCC
30	☑ AND ☑ _ ☐	Activity (select sub-type) ○ ⇨ D □ ▽	Inter-action ⬢	Response letter	20/7/20XX Complainant called PCC and PCC explained contents of letter Complainant could not open encrypted email with letter	Phone call	CSO: PCC Complainant
31	☐ _ ☐ _ ☑	Activity (select sub-type) ○ ⇨ D □ ▽	Inter-action ⬢		20/7/20XX PCC received email from PCO Office requesting patient's file PCO Office had received a call from Complainant requesting a PCO review File closed at CSO	Email	Op: PCO Investigator CSO: PCC
	☐ _ ☐ _ ☐	Activity (select sub-type) ○ ⇨ D □ ▽	Inter-action ⬡				
	☐ _ ☐ _ ☐	Activity (select sub-type) ○ ⇨ D □ ▽	Inter-action ⬡				

Abbreviations

Dep1 = Department 1
Dep2 = Department 2
PCDir = Patient Concerns Director
PCO = Patient Concerns Officer

References

[1] : PCRP Policy (POCSO , 2012a)
[2] : PCRP Process (CSO, 2010)
[3] : Medical Staff Guideline (POCSO, 2012c)

Appendix D.3.3 - Checklists

D.3.3.1 Observe Process Result Checklist Template (Post-validation version)

Boundary audit checklist (Part 1 - Observe Process Result)

Audit Phase Performance (Sub method 1. Observe Process Result)

Method objective To observe process result or output, and assess (depending on the audit objectives) its compliance, effectiveness, risks, and improvement opportunities

Instructions

1. Secure access to process result or output (be it a product, or output records if a service or intangible)
2. Fill out audit details (incl. audit objectives, product / lot number or record reviewed, and criteria used)
3. Fill out process details (i.e., process name, process objective, process output, customer of the process and whether it's internal or external, process owner, and process partners)
4. Adapt the OPRC template by doing one of the following:
   - 4.1. If a question bank has been prepared using the applicable audit criteria (harmonized or otherwise): transfer the relevant questions from the question bank to the OPRC in the space provided (i.e., blank lines)
   - 4.2 If questions need to be prepared from scratch: use the applicable audit criteria (harmonized or otherwise) such as process requirements and objectives, to prepare questions for each process element to assess the process output under each audit objective
   - 4.3 Or if desired, use the default questions

   NOTE: If using own questions (as per 4.1 or 4.2), it is recommended to strike-through the default questions to avoid confusion
5. When filling out the template:
   - 5.1. If a binary question, check Yes or No, and
   - 5.2. Write down notes and observations in the space provided

For section "Risks", not only potential risks could be identified, but also actual occurrences or problems evidenced by the process output that is being examined

Audit details

Audit objectives: Compliance ☐ Effectiveness ☐ Risks ☐ Improvement Opp. ☐

Product / lot number, or record reviewed:		**Date:**	
Criteria used:		**Analyst:**	

Process details

Process name:		**Remarks:**	
Process objective:			
Output of the process:			
Customer of the process:	Internal ☐ External ☐		
Process Owner [PO]:			
Process Partner 1 [PP1]:			
Process Partner 2 [PP2]:			

Compliance

No.	*PEEMMM*	What to observe	Yes	No
1	People		☐	☐
	Default Q.	Are personnel doing what they should (with regards to the process output)?		
2	Equipment			
	Default Q.	What equipment is available to produce, deliver or communicate the process output?		
3	Environment			
	Default Q.	How are relevant values or principles sought out by the personnel or process with regards to the process output?		
4	Materials			
	Default Q.	What information is needed to produce or deliver the process output?		

Compliance (cont…)

No.	PEEMMM	What to observe (Enter own question in space provided, or use default question)
5	Measures	_____
	Default Q.	What categories or targets are used with relation to the process output?
6	Methods	_____
	Default Q.	What procedures are available to produce or deliver the process output?

Effectiveness

No.	PEEMMM	What to observe (Enter own question in space provided, or use default question)	Yes	No
1	People	_____		
	Default Q.	Are people being effective in preparing or deliverng the process output?	☐	☐
2	Equipment	_____	Yes	No
	Default Q.	Is the equipment avaialble for preparing, delivering or communicating the process output appropriate?	☐	☐
3	Environment	_____		
	Default Q.	How are relevant principles or values displayed when preparing or delivering the process output?		
4	Materials	_____	Yes	No
	Default Q.	Is the information needed for preparing or delivering the process output complete and appropriate?	☐	☐
5	Measures	_____		
	Default Q.	How effective are the categories or targets used with relation to the proecess output?		
6	Methods	_____		
	Default Q.	How effective are the procedures available for preparing or delivering the process output?		

Risks

No.	PEEMMM	What to observe (Enter own question in space provided, or use default question)
1	People	_____
	Default Q.	What could hamper the performance of the personnel when preparing or delivering the process output?
2	Equipment	_____
	Default Q.	What could cause the equipment used to prepare, deliver or communicate the process output to be damaged or rendered usel
3	Environment	_____
	Default Q.	What could cause relevant principles or values be disregarded or undermined?
4	Materials	_____
	Default Q.	What could cause information needed to prepare or deliver the process output to be altered or corrupted?

Risks (cont…)

No.	PEEMMM	What to observe (Enter own question in space provided, or use default question)
5	Measures	_____
	Default Q.	What could cause the incorrect use of categories or targets relevant to the preparation or deliver of the process output?
6	Methods	_____
	Default Q.	How could procedures be unlawfully altered or disregarded?

Improvement Opportunities

No.	PEEMMM	What to observe (Enter own question in space provided, or use default question)
1	People	_____
	Default Q.	How can personnel be better trained in their ability to prepare or deliver the process output?
2	Equipment	_____
	Default Q.	What improvementes could be made to the equipment used to prepare, deliver or communicate the process output?
3	Environment	_____
	Default Q.	How can adherence to relevant principles and values be improved?
4	Materials	_____
	Default Q.	How can relevant information for preparing or delivering the process output be collected faster or better?
5	Measures	_____
	Default Q.	What new or improved categories or targets could be used with regards to preparing or delivering the process otuput?
6	Methods	_____
	Default Q.	What additional guidance or standards could be developed or applied to improve preparatin or delivery of the process output?

Custom questions

No.	*PEEMMM*	Objective	What to observe (Enter own question in space provided, or use default question)
1	_____	_____	_____
2	_____	_____	_____
3	_____	_____	_____

Legend
PEEMMM = [P]eople, [Eq]uipment, [En]vironment, [Mat]erials, [Meas]ures, [Meth]ods
Objective = [C]ompliance, [E]ffectiveness, [R]isks, [I]mprovement Opportunities

D.3.3.2 Observe Process (2. Interactions) Checklist - Default questions* used in template

Compliance

[P]	Are interactions taking place between the pertinent people as per procedure?
[Eq]	Are interactions taking place using the specified equipment as per procedure (PC, phone, email)?
[En]	Is the social atmosphere meeting applicable requirements (organizational manual)?
[Mat]	Are inputs to the interaction meeting requirements?
[Meas]	Are outputs of the interaction compliant to procedure or organizational guidelines?
[Meth]	Are interactions taking place as indicated by organizational communications guidelines?

Effectiveness

[P]	Are people working in collaboration to achieve process, and departmental objectives?
[Eq]	Does equipment help interactions meet process and departmental objectives?
[En]	Is the environment facilitating interactions meet process and departmental objectives?
[Mat]	Are the inputs to the interaction requirements (i.e., complaint details) aimed at meeting objectives?
[Meas]	Is the interaction result (i.e., output) measured against objectives?
[Meth]	Do interaction procedures help to achieve objectives?

Risks

[P]	What potential failures (i.e., communication failures) could affect how people perform interactions?
[Eq]	What potential failures could damage the interaction-enabling equipment?
[En]	What hazards to the interaction exist in the environment?
[Mat]	How can interaction requirements and expectations be miscommunicated or misunderstood?
[Meas]	Identify measures used to assess interactions and their outputs and look for flaws that could lead to mis-measuring
[Meth]	Identify points of failure in the interaction methods (documents or procedures)

Improvement Opportunities

[P]	How would people benefit from learning interpersonal and communication techniques?
[Eq]	How would other equipment help interactions be faster, more reliable, more effective?
[En]	How would a change in the environment help interactions be more efficient, effective? Team-building dynamics?
[Mat]	How can meeting requirements and objectives be error-proofed?
[Meas]	How can measurements of the interaction be made less intrusive, more enlightening (i.e., data analytics)?
[Meth]	How can the procedure for interactions be improved by using communication theory, behavioral psychology, technological innovations, etc.?

* Even though default questions are provided to observe process interactions, the auditor is encouraged to prepare their own questions using the applicable audit criteria

D.3.3.3 Interviews (2. Interactions) Checklist - Default questions* used in template

Compliance

[P] Were you trained on how to perform the interaction?

[Eq] What equipment is used to communicate (i.e., "interact") with other departments, and how is it kept and maintained?

[En] Is the environment conducive to having an interaction as per the organizational communication guidelines?

[Mat] Are interaction inputs assessed for conformance to specifications (e.g., procedures)? How do you request more information, ask for clarifications?

[Meas] How are outputs of the interaction assessed for conformance to specifications (e.g., procedures)?

[Meth] Is there a method (e.g., guide or procedure) outlining how to interact with personnel from other departments? Please show me. How do you know if it's up to date?

Effectiveness

[P] How does the interaction help in achieving objectives such as… [cite an applicable departmental or process objective as per the Objective Mapping Template (OMT)]?

[Eq] How is the equipment allowing the interaction to achieve objectives such as… [cite an applicable departmental or process objective as per the OMT]?

[En] How is the environment allowing the interaction to achieve objectives such as… [cite an applicable departmental or process objective as per the OMT]?

[Mat] How are interaction inputs (e.g., requirements, expectations) contributing to the achievement of departmental or process objectives [as per OMT where applicable]?

[Meas] Is the interaction output measured or evaluated against the OMT objectives? How?

[Meth] Is the method for performing the interaction conducive to achieving objectives? Why?

Risks

[P] What are things that people do (or may not do) that can adversely affect the interaction?

[Eq] How can the equipment get in the way of a successful interaction?

[En] How can the environment adversely affect the interaction?

[Mat] How can interaction inputs be miscommunicated or misunderstood?

[Meas] How can measurements (i.e., metrics, performance indicators, as well as collection and analysis methods) of the interaction be rendered useless?

[Meth] How can methods (i.e., procedures) of the interaction be adversely affected?

Improvement Opportunities

[P] What would make people involved in the interaction more capable or more effective?

[Eq] What changes in equipment would make the interaction more efficient (i.e., faster, more reliable, more secure)?

[En] Will the department benefit from team-building activities to strengthen the interdepartmental relationship?

[Mat] How can inputs to the interaction be known sooner? How can they be made clearer?

[Meas] How can interaction and output measurements provide better and more useful data? How can they be less obtrusive?

[Meth] Can the interaction be streamlined or eliminated? What would you change of the interaction and why?

* Even though default questions are provided to interview personnel regarding process interactions, the auditor is encouraged to prepare their own questions using the applicable audit criteria

D.3.3.4 Observe Process Result Checklist [Post-validation version] Example

Boundary audit checklist (Part 1 - Observe Process Result)

Audit Phase	**Performance (Sub method 1. Observe Process Result)**
Method objective	**To observe process result or output, and assess (depending on the audit objectives) its compliance, effectiveness, risks, and improvement opportunities**
Instructions	**1. Secure access to process result or output (be it a product, or output records if a service or intangible)** **2. Fill out audit details (incl. audit objectives, product / lot number or record reviewed, and criteria used)** **3. Fill out process details (i.e., process name, process objective, process output, customer of the process and whether it's internal or external, process owner, and process partners)** **4. Adapt the OPRC template by doing one of the following:** **4.1. If a question bank has been prepared using the applicable audit criteria (harmonized or otherwise): transfer the relevant questions from the question bank to the OPRC in the space provided (i.e., blank lines)** **4.2 If questions need to be prepared from scratch: use the applicable audit criteria (harmonized or otherwise) such as process requirements and objectives, to prepare questions for each process element to assess the process output under each audit objective** **4.3 Or if desired, use the default questions** **NOTE: If using own questions (as per 4.1 or 4.2), it is recommended to strike-through the default questions to avoid confusion** **5. When filling out the template:** **5.1. If a binary question, check Yes or No, and** **5.2. Write down notes and observations in the space provided** **For section "Risks", not only potential risks could be identified, but also actual occurrences or problems evidenced by the process output that is being examined**

Audit details

Audit objectives: **Compliance** ☑ **Effectiveness** ☑ **Risks** ☑ **Improvement Opp.** ☑

Product / lot number, or record reviewed:	**CC1A Concern, CSO Review, Response letter July 20XX**	**Date:**	**02-May-16**
Criteria used:	**Process objectives and process requirements from harmonized criteria (i.e., PCRP Policy, PCRP Procedure, Medical Staff Guideline, Administrative fairness, and 'Pocket card')**	**Analyst:**	**Enrique Fernandez**

Process details

Process name:	**Patient Concerns Resolution Process (PCRP)**	**Remarks:**	
Process objective:	**To "receive, review, and respond to concerns raised by complainants" (POCSO, 2012b)**		
Output of the process:	**Response to concern**		
Customer of the process:	**Patient/Family** **Internal** ☐ **External** ☑		
Process Owner [PO]:	**Case Study Organization (CSO)**		
Process Partner 1 [PP1]:	**Operations (Op.)**		
Process Partner 2 [PP2]:	***N/A***		

Compliance

No.	*PEEMMM*	What to observe	Yes	No
1	People	"Are we available to answer questions from the complainant once a decision has been made?" (Administrative fairness, p. 4)		
	~~Default Q.~~	~~Are personnel doing what they should (with regards to the process output)?~~	☑	☐
		Yes, the complainant is given the contact details of the CSO Director to contact in case of further questions		
2	Equipment	"Is there a clear link between all the documentation and: (a) identification of the concerns as discussed with the complainant? (b) the decisions made? (c) who made the decisions? (d) how legislation, regulations, policies, or procedures were applied to the complainant's circumstances?" (Administrative fairness, p. 4)		
	~~Default Q.~~	~~What equipment is available to produce, deliver or communicate the process output?~~	☑	☐
		Yes (from examining record and response letter): concerns were documented, decisions explained, decision makers consulted with (i.e., Operational reviewers), and legislation/regulation/policy considered when providing the		
3	Environment	"Has neutral, non-inflammatory language been used?" (Administrative fairness, p. 4)		
	~~Default Q.~~	~~How are relevant values/principles sought out by the personnel or process with regards to the process output?~~	☑	☐
		Yes, the letter is respectful and uses neutral, non-inflammatory language.		

Compliance (cont…)

No.	PEEMMM	What to observe (Enter own question in space provided, or use default question)		
4	Materials	Does the notice of the decision meet the following requirements: "communicates clearly", "addresses each Concern the Complainant raised", "identifies the decision maker", and "provides the outcome and, if appropriate, the rationale for any decision made"?	Yes ☑	No ☐
	~~Default Q.~~	~~What information is needed to produce or deliver the process output?~~		
		Yes, bullet points that explain concern, operational reviewer, decision or outcome, and rationale for decision		
5	Measures	Is the decision made consistent with previous decisions on similar matters by relying on existing policies, guidelines and procedures?" (Administrative fairness, p. 3)	Yes ☑	No ☐
	~~Default Q.~~	~~What categories or targets are used with relation to the process output?~~		
		It is difficult to assess consistency with previous decisions on similar matters, due to lack of knowledge of the auditor; however, the record examined provides evidence of alignment with existing policies, guidelines and		
6	Methods	Are decisions made in compliance with laws and regulations?	Yes ☑	No ☐
	~~Default Q.~~	~~What procedures are available to produce or deliver the process output?~~		
		Yes, alignment with Provincial Patient Concerns Regulation.		

Effectiveness

No.	PEEMMM	What to observe (Enter own question in space provided, or use default question)		
1	People	"Does the complainant know when to expect a decision?" (Administrative fairness, p. 3)	Yes ☑	No ☐
	~~Default Q.~~	~~Are people being effective in preparing or delivering the process output?~~		
		Yes, from examining the record, it is evident that the complainant was in regular communication with PCC from CSO		
2	Equipment	How does the equipment contribute to communicating decisions so that they are timely, understandable, and correct?		
	~~Default Q.~~	~~Is the equipment available for preparing, delivering or communicating the process output appropriate?~~		
		Phone was used to communicate progress of investigation, and letter used to communicate decision. The format of the letter, comprehensive and succinct allows for timeliness and understandability.		
3	Environment	"Have the decisions been made in a timely manner?" (Administrative fairness, p. 3)	Yes ☑	No ☐
	~~Default Q.~~	~~How are relevant principles or values displayed when preparing or delivering the process output?~~		
		Yes, the concern involved several operational reviewers and different concerns, which had to be dealt with separately. The decision is considered timely, because it was a complex concern.		
4	Materials	What evidence is there that the Complainant understood the reasoning for the decision?		
	~~Default Q.~~	~~Is the information needed for preparing or delivering the process output complete and appropriate?~~		
		Reasoning for the decision was not understood. Complainant was not satisfied with outcome or process. Complainant wanted to have trespass order removed, which was not under the control of CSO, and discouraged by		
5	Measures	"What is the complainants' level of satisfaction with process and outcome?" (Administrative fairness, p. 4)		
	~~Default Q.~~	~~How effective are the categories or targets used with relation to the process output?~~		
		The complainant was not satisfied with the process, nor with the outcome.		
6	Methods	"What is the policy/legislation that backs a decision?" (Administrative fairness, p. 4)		
	~~Default Q.~~	~~How effective are the procedures available for preparing or delivering the process output?~~		
		Decision to leave Trespassing Order in place made by Dep2 within their purview. Trespassing order still allowed complainant to have access to 'scheduled doctor's appointments and Emergency Department as needed'		

Risks

No.	PEEMMM	What to observe (Enter own question in space provided, or use default question)
1	People	What human factor could cause an incomplete preparation or wrongful delivery of the written notice to the complainant and relevant staff (including not providing an apology when due)?
	~~Default Q.~~	~~What could hamper the performance of the personnel when preparing or delivering the process output?~~
		When a complainant is rude or has unrealistic expectations, the PCC or operational reviewer can become defensive and fail to perform a fair investigation and outcome.

Risks (cont…)

No.	PEEMMM	What to observe (Enter own question in space provided, or use default question)
2	Equipment	How could equipment fail to contribute to documenting concerns, decisions made, decision-maker, and applicable legislation and regulations?
	Default Q.	~~What could cause the equipment used to prepare, deliver or communicate the process output to be damaged or rendered usel~~
		There are many aspects to a concern, and electronic tools (email, word processor) can become indispensable to perform a proper investigation. If the electronic equipment fails and no back up exists, the investigation could suffer
3	Environment	What could cause a notice to include 'unclear or inflammatory language', or be biased (i.e., 'non-neutral')?
	Default Q.	~~What could cause relevant principles or values be disregarded or undermined?~~
		If the complainant has been rude and offensive, the PCC or operational reviewer can fail to use neutral or non biased language.
4	Materials	How could information be poorly collected and analyzed so as to fail to contribute to connecting concerns, decisions made, decision-maker, and applicable legislation and regulations?
	Default Q.	~~What could cause information needed to prepare or deliver the process output to be altered or corrupted?~~
		If the PCC or operational reviewer fail to identify the 'real issues' that need to be addressed, and instead get distracted with superficial aspects, the investigation and decision may be ineffective and need rework or escalation.
5	Measures	What could cause a decision fail to be consistent with previous decisions on similar matters? If discretion was exercised, what could cause the inconsistencies be hard to be explained or supported?
	Default Q.	~~What could cause the incorrect use of categories or targets relevant to the preparation or deliver of the process output?~~
		If the PCC or operational reviewer is new to the organization and/or there is no organizational memory available to provide information about past decisions. When inconsistencies may be necessary, lack of documentation pertaining
6	Methods	What could cause procedures or guidelines for preparing or communicating the written notice of the decision to become out-of-date or no longer accurate (i.e., obsolete)?
	Default Q.	~~How could procedures be unlawfully altered or disregarded?~~
		New legislations or regulations may affect how the written notice of the decision has to be prepared or delivered. Updates to the PCRP Policy Suite or Provincial regulation could affect the written notice

Improvement Opportunities

No.	PEEMMM	What to observe (Enter own question in space provided, or use default question)
1	People	What skills could be taught to the personnel to improve empathy and relatability; as well as their ability to prepare or deliver the written notice of the decision?
	Default Q.	~~How can personnel be better trained in their ability to prepare or deliver the process output?~~
		Ability to manage complainant expectations, ability to explain scope and limitations of the PCRP.
2	Equipment	How could equipment be used differently or better (or what new equipment could be procured) to better document and establish linkages between concerns, decisions made, decision maker, and applicable legislation and regulation?
	Default Q.	~~What improvements could be made to the equipment used to prepare, deliver or communicate the process output?~~
		Flowcharts connecting concerns, decisions, decision maker, and applicable legislation and regulation. Organizational memory documents, story-telling or case studies to train new personnel.
3	Environment	How could timeliness of communications be improved, or the reasonableness of the decision be clarified?
	Default Q.	~~How can adherence to relevant principles and values be improved?~~
		By agreeing to interim milestones with Operational Reviewers aiming to shorten the time taken to deliver a response. By attaching to the response letter the copy of the Operational Reviewer report, where appropriate, to
4	Materials	How could information be more speedily and reliably collected, analyzed and synthesized?
	Default Q.	~~How can relevant information for preparing or delivering the process output be collected faster or better?~~
		A detailed online form to collect concerns details as an alternative to phone call. An online document to clarify scope and limitations of the PCRP.
5	Measures	How could consistency of decisions (or the ability to explain and support any deviations) be enhanced or improved?
	Default Q.	~~What new or improved categories or targets could be used with regards to preparing or delivering the process output?~~
		By keeping a searchable organizational memory of decisions made and their rationale. By keeping a record of lessons learned regarding complainant dissatisfaction (and their causes).
6	Methods	What new standards or procedures could be adopted or implemented to improve the preparation and delivery of the written notice of the decision?
	Default Q.	~~What additional guidance or standards could be developed or applied to improve preparation or delivery of the process output?~~
		ISO 10001 - Codes of conduct for organization To design a promise to the complainant on what the PCRP intends to achieve for them, and what will be done if the

Custom questions

No.	PEEMMM	Objective	What to observe (Enter own question in space provided, or use default question)
1	People	Compliance	"Was the complainant advised of any opportunities for improvement at the completion of the PCRP?" (Administrative fairness, p. 4)
	Not applicable		
2	Environment	Compliance	"Has the decision to the complainant been provided in clear language?" (Administrative fairness, p. 4)
	Yes		
3	Measures	Compliance	"If discretion is exercised can any inconsistencies with previous decisions on similar matters be explained and supported by decision-maker?" (Administrative fairness, p. 3)
	Lack of knowledge re: past similar matters.		
4	People	Effectiveness	When applicable, did the Complainant receive an apology?
	Not applicable, complainant did not want an apology.		
5	People	Effectiveness	"Is the policy/legislation explained to the person affected?" (Administrative fairness, p. 4)
	Complainant was provided with report from Dep2 regarding the incidents (causes, actions taken) with the complainant.		
6	Materials	Effectiveness	How is it shown that there is a 'rational connection between evidence and conclusions reached'?
	Alignment between report from Dep2 and Response letter to complainant.		
7	Measures	Effectiveness	How is it exemplified that 'the rationale supports a fair decision'?
	Report from Dep2 clear and comprehensive.		
8	Measures	What supporting evidence is there that the 'correct' decision was made?	
	Thoroughness of review: Report of Operational Review by Dep2 , consultation with Psychiatrist and Dep1		
9	Methods	Effectiveness	"Does the policy/legislation ensure the complainant's need have been addressed?" (Administrative fairness, p. 4)
	The PCRP policy ensures that the complainant gets a response to each of their concerns, the decision maker and the rationale for the decision.		
10	Equipment	Risks	How could equipment hinder communicating the decision?
	A letter may be limited in the space it provides to address the concerns of a complainant. If the complainant has no fixed residential address, knowing the decision may become difficult.		
11	Materials	Risks	What could cause rationale behind a decision fail to support fairness of the decision' or 'the correct' decision to be made?
	Rationale behind a decision could cease to be fair if the investigation process was not properly followed, or if the initial concerns are not reflective of the 'real issues'.		
12	Measures	Risks	What could cause satisfaction with process and outcome to be wrongfully measured or recorded?
	If the person gathering the complainant's level of satisfaction does not explain the distinction between satisfaction with process and with outcome. A binary choice (satisfied/unsatisfied) may not collect enough details regarding the		
13	Methods	Risks	What could cause legislation and regulation to be wrongfully interpreted when making or communicating a decision?
	If legislation is used as an excuse to avoid providing a fair response to the complainant.		
14	Equipment	Impr. Opp.	How could equipment contribute to a speedier or more reliable communication of the decision?
	Decision could be communicated faster if email could be an option, rather than snail-mail letter.		
15	Materials	Impr. Opp.	How could rationale behind decisions be more clearly expressed, documented and transmitted?
	Providing a copy of the report from Operational Reviewer, or perhaps excerpts, alongside the 'response or decision' could be an option to consider.		
16	Materials	Impr. Opp.	How could the number of 'correct' decisions be increased?
	Many times the correctness of the decision is limited by the scope of action of the CSO with the PCRP. A review, and perhaps an extension of the scope or ability by the CSO (based on a careful review of the current deficiencies or		
17	Measures	Impr. Opp.	How could measurement of satisfaction with process and outcome be more efficiently performed?
	Collecting more specific data than a yes/no answer to satisfaction with process and outcome could provide valuable intelligence to POCSO, CSO and Operations regarding potential changes to policy or procedures.		

Legend
PEEMMM = [P]eople, [Eq]uipment, [En]vironment, [Mat]erials, [Meas]ures, [Meth]ods
Objective = [C]ompliance, [E]ffectiveness, [R]isks, [I]mprovement Opportunities

D.3.3.5 Observe Process (Interactions) Checklist [Post-validation version] Example

Boundary audit checklist (Part 2 - Observe Process (2. Interactions))

Audit Phase Performance (Sub method 2. Observe Process (2. Interactions))

Method objective To observe interdepartmental interactions of a process and assess (depending on the audit objectives): compliance, effectiveness, risks, and improvement opportunities

Instructions

1. Use the IdPFD, if available, to identify the interactions within a process
2. For each interaction to be examined, prepare and fill out a checklist (such as this one) as follows:
   - 2.1. Fill out audit, process, and interaction details
   - 2.2. If a question bank has been prepared using the applicable audit criteria (harmonized or otherwise): transfer the relevant questions from the question bank to the checklist in the space provided (i.e., blank lines)
   - 2.3 If questions need to be prepared from scratch: use the applicable audit criteria (harmonized or otherwise) such as process requirements and objectives, and interaction criteria, to prepare interaction-specific questions for each process element under each audit ob
   - 2.4 Or if desired, use the default questions

   NOTE: If using own questions (as per 2.2 or 2.3), it is recommended to strike-through the default questions to avoid confusion
3. For each question:
   - 3.1. If a binary question, check Yes or No, and
   - 3.2. Write down notes and observations in the space provided

For section "Risks", not only potential risks could be identified, but also actual occurrences or problems that happened during the process instance [i.e., record] or during the process observation.

Audit details

Audit objectives: Compliance ☑ Effectiveness ☑ Risks ☑ Improvement Opp. ☑

Process details

Process name:	Patient Concerns Resolution Process (PCRP)	Date:	19-Apr-16
Tracing order:	Backward ☑ Forward ☐	Analyst:	Enrique Fernandez
Interaction order (no.)	4 out of 17	Remarks:	Questions transcribed from question bank using harmonized criteria (PCRP Policy, Procedure, Medical Staff Guideline, Administrative fairness and 'Pocket card')
Interaction name:	[PCC] Contact relevant operations manager		
Interaction description:	[PCC] contacts relevant [POCSO] operations program/site manager; if other departments or programs are already involved confirm who will take the lead		
Departments involved:	CSO and Operations (Dep1 and Dep2)		
Process instance (or record) reviewed:	CC1A Concern, CSO Review: Email with "Concern memo" from PCC to Op. Reviewers (Dep1 and Dep2)		
Criteria used:	Harmonized criteria from: Medical Staff Guideline (3.8. p. 3) PCRP Procedure (3.2, p. 4)		

Compliance

No.	PEEMMM	What to observe
1	People	What evidence is there of training on who (and how) to contact from other departments?
	~~Default Q.~~	~~Are interactions taking place between the pertinent people as per procedure?~~
		PCC has experience in PCRP (the job requires it), training material (binder) evidence was provided during research
2	Equipment	What equipment is used to identify and contact members from other departments?
	~~Default Q.~~	~~Are interactions taking place using the specified equipment as per procedure (PC, phone, email)?~~
		Memo was communicated via email
3	Environment	How are values 'respect', 'accountability', 'transparency', 'engagement', and 'performance' evident when contacting othe
	~~Default Q.~~	~~Is the social atmosphere meeting applicable requirements (organizational manual)?~~
		Respect - in the wording of memo and intro email; Accountability - discharging role (PCC) and asking for collaboration from Operations (Dep1 and Dep2); Transparency - communicating concerns to Operations; Engagement - PCC making herself available for follow up or to answer questions; Performance - PCC mentioning to Operations target of [POCSO] to provide a response within 30 days
4	Materials	What information is needed to identify who should take the lead?
	~~Default Q.~~	~~Are inputs to the interaction meeting requirements?~~
		Details collected during complaint intake, such as 'Primary/Secondary category', 'Staff type involved', and 'Full action description' in the electronic database which are used to identify appropriate Operational Reviewer. The PCC also mentions that the Operational Reviewer could 'recommend an alternative department for the review'.

Compliance (cont…)

No.	PEEMMM	What to observe
5	Measures	How is it determined if there are already other programs or departments involved?
	~~Default Q.~~	~~Are outputs of the interaction compliant to procedure or organizational guidelines?~~
		Communication with Complainant to collect information regarding then-current involvement of staff, communication with Operational staff to determine involvement.
6	Methods	Is there a procedure to establish contact with other departments and determine 'who will take the lead'?
	~~Default Q.~~	~~Are interactions taking place as indicated by organizational communications guidelines?~~
		Procedure exists to contact other departments (Concerns memo), lead initially by PCC, unless otherwise determined

Effectiveness

No.	PEEMMM	What to observe
1	People	Are members involved in the management of the concern aware of the [POCSO] values (e.g., "respect, accountability, transparency, engagement, safety, learning and performance") and are they displaying them?
	~~Default Q.~~	~~Are people working in collaboration to achieve process, and departmental objectives?~~
		Yes - values are communicated and reinforced by the [POCSO] constantly. Values are displayed in Concerns memo as explained in q. 3 of 'Compliance'
2	Equipment	How does the equipment used for communication or concern review facilitate the concern being managed "fairly, consistently, transparently and timely"?
	~~Default Q.~~	~~Does equipment help interactions meet process and departmental objectives?~~
		Email and Concerns Memo provide a secure and reliable form of communication, while also enabling the documentation of the concern so that PCC and Operational Reviewer work collaboratively on the basis of a common ground.
3	Environment	How is 'shared responsibility and accountability' encouraged when contacting members from other departments?
	~~Default Q.~~	~~Is the environment facilitating interactions meet process and departmental objectives?~~
		Shared responsibility' - when the PCC asks for collaboration from Operational Reviewer to respond to the concerns, while also providing details of the concerns, of the context that the PCC has been able to gather, and when making herself available to answer questions. 'Accountability' when mentioning on Concerns Memo that 'health care providers involved with the care may not review their own care…', and when mentioning the target of responding
4	Materials	How is information kept private and confidential?
	~~Default Q.~~	~~Are the inputs to the interaction (i.e., complaint details) aimed at meeting objectives?~~
		Use of corporate email communication and electronic files
5	Measures	Was a 'person to take the lead' actually identified, and did they acknowledge and discharge the responsibility?
	~~Default Q.~~	~~Is the interaction result (i.e., output) measured against objectives?~~
		PCC served as lead and contact person of Operational Reviewers (Dep1 on one hand, and Dep2 on the other).
6	Methods	Have there been any deviations from the procedures when contacting departments or determining the lead?
	~~Default Q.~~	~~Do interaction procedures help to achieve objectives?~~
		No evidence of deviation

Risks

No.	PEEMMM	What to observe
1	People	What could occur to hamper the coordination by [CSO] of a multidisciplinary concern?
	~~Default Q.~~	~~What potential failures (i.e., communication failures) could affect how people perform interactions?~~
		Inability to contact the right Operational Reviewer, lack of cooperation from Operational Reviewers, lack of management skills of [CSO] staff to coordinate a multidisciplinary concern.
2	Equipment	How can the equipment used to coordinate different departments break down or be ineffective?
	~~Default Q.~~	~~What potential failures could damage the interaction-enabling equipment?~~
		If email service fails for an extended period of time, if email server loses records, if PCC or Operational Reviewer do not take the time to communicate by email or fax and limit their interactions to phone calls which may leave no documented evidence of the process followed.

Risks (cont…)

No.	PEEMMM	What to observe
3	Environment	What could cause [POCSO] or Patient-centered values be disregarded or undermined during the management of a concern involving multiple departments?
	~~Default Q.~~	~~What hazards to the interaction exist in the environment?~~
		Respect' - being disrespectful with Operational Reviewer or Complainant (i.e., assuming wrong-doing, or vexatiounsess, respectively, from the start). 'Accountability' - by interfering with Operational Reviewer's investigation or doing it for him/her. 'Transparency' - by withholding information about concern. 'Engagement' - by interfering with Operational Reviewer's review process. 'Performance' - by disregarding relevant targets (e.g.,
4	Materials	How can information used within a multidisciplinary concern (including lead determination) be corrupted or adultered?
	~~Default Q.~~	~~How can interaction requirements and expectations be miscommunicated or misunderstood?~~
		If the Complainant provides inaccurate information; if the electronic file is modified by an un-authorized person; if the Operational Reviewer does not collaborate and try to 'get out of it'
5	Measures	What could cause the incorrect identification of, and communication with, the appropriate department contacts?
	~~Default Q.~~	~~Identify measures used to assess interactions and their outputs and look for flaws that could lead to mis-measuring~~
		If the Complainant does not know sufficient details when submitting a concern; or if the concern details were gathered incorrectly by the PFIC or PCC; or if the PCC is unaware of the organizational structure, to name a few.
6	Methods	What could negatively impact the process of determining 'who will take the lead'?
	~~Default Q.~~	~~Identify points of failure in the interaction methods (documents or procedures)~~
		If the PCC has too much workload and feels compelled to assign lead to somebody else (i.e., Operational Reviewer), or if current lead already in place but PCC feels the need to claim the 'lead'.

Improvement Opportunities

No.	PEEMMM	What to observe
1	People	How can communication and coordination between [CSO] and other departments be performed more efficiently?
	~~Default Q.~~	~~Would people benefit from learning interpersonal and communication techniques?~~
		Perhaps adding notes to the Concerns Memo, breaking down the Operational Review process into sub-processes with corresponding target dates (i.e., 10 days for review, 10 days for a preliminary response, and 10 days for a definitive
2	Equipment	What equipment could help communicate and coordinate management of multidisciplinary concerns?
	~~Default Q.~~	~~Would other equipment help interactions be faster, more reliable, more effective?~~
		An online system (work-flow management software) to track the progress of the concern response.
3	Environment	How could values 'respect', 'accountability', 'transparency', 'engagement', and 'performance' be made more evident by the [CSO] when communicating and coordinating with other departments?
	~~Default Q.~~	~~Would a change in the environment help interactions be more efficient, effective? Team-building dynamics?~~
		Respect' - OK; 'Accountability' - OK; 'Transparency' - share quarterly reports with Operational Departments re: PCRP performance ('good' and 'bad'); 'Engagement' - educate and train Operational staff on PCRP and their corresponding rights and obligations; 'Performance' - keep track of concern-related performance metrics for Operational Departments (such as % of timely responses)
4	Materials	How could the information that is needed to identify 'who will take the lead' be gathered faster?
	~~Default Q.~~	~~How can meeting requirements and objectives be error-proofed?~~
		PCC is the lead by default, perhaps a short algorithm could be developed to determine if/when it would be appropriate to assign the lead to someone else.
5	Measures	How could the responsibilities of 'who will take the lead' be better documented, communicated, executed?
	~~Default Q.~~	~~How can measurements of the interaction be made less intrusive, more enlightening (i.e., data analytics)?~~
		PCC responsibilities overlap (by design) with responsibilities of the lead, however, those responsibilities (or expectations) should be documented when assigned to a different individual.
6	Methods	What guidance could be developed to determine and assess the performance of the person who took the lead?
	~~Default Q.~~	~~How can the procedure for interactions be improved by using communication theory, behavioral psych., tech. innovations, etc.?~~
		Keep track of performance regarding complaints managed (timely responses, time taken to resolution, level of complexity of concerns, concerns that needed escalation, and so on). Perhaps limited to PCCs within [CSO].

Custom questions

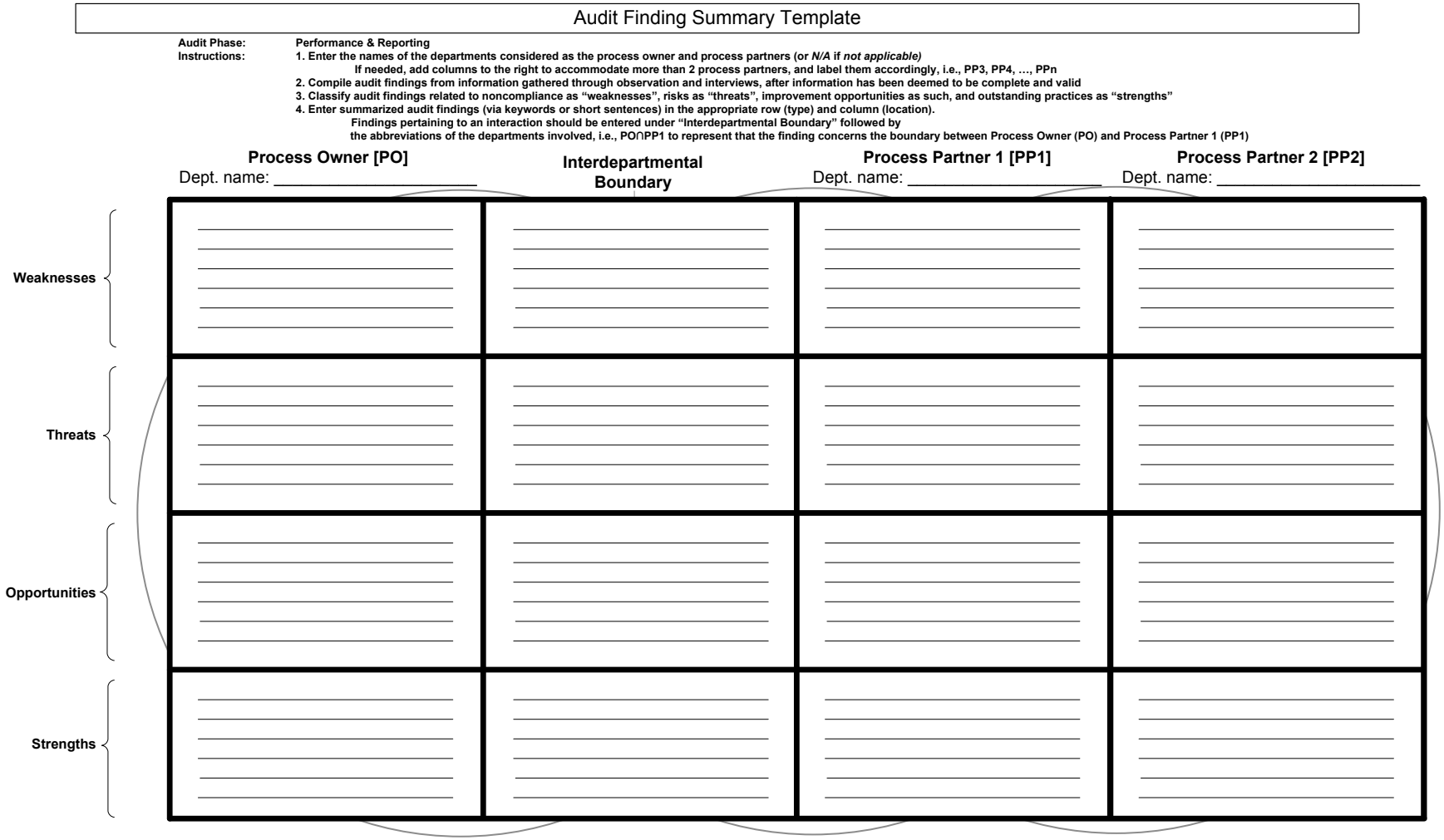
No.	PEEMMM	Objective	Question
1			

Legend

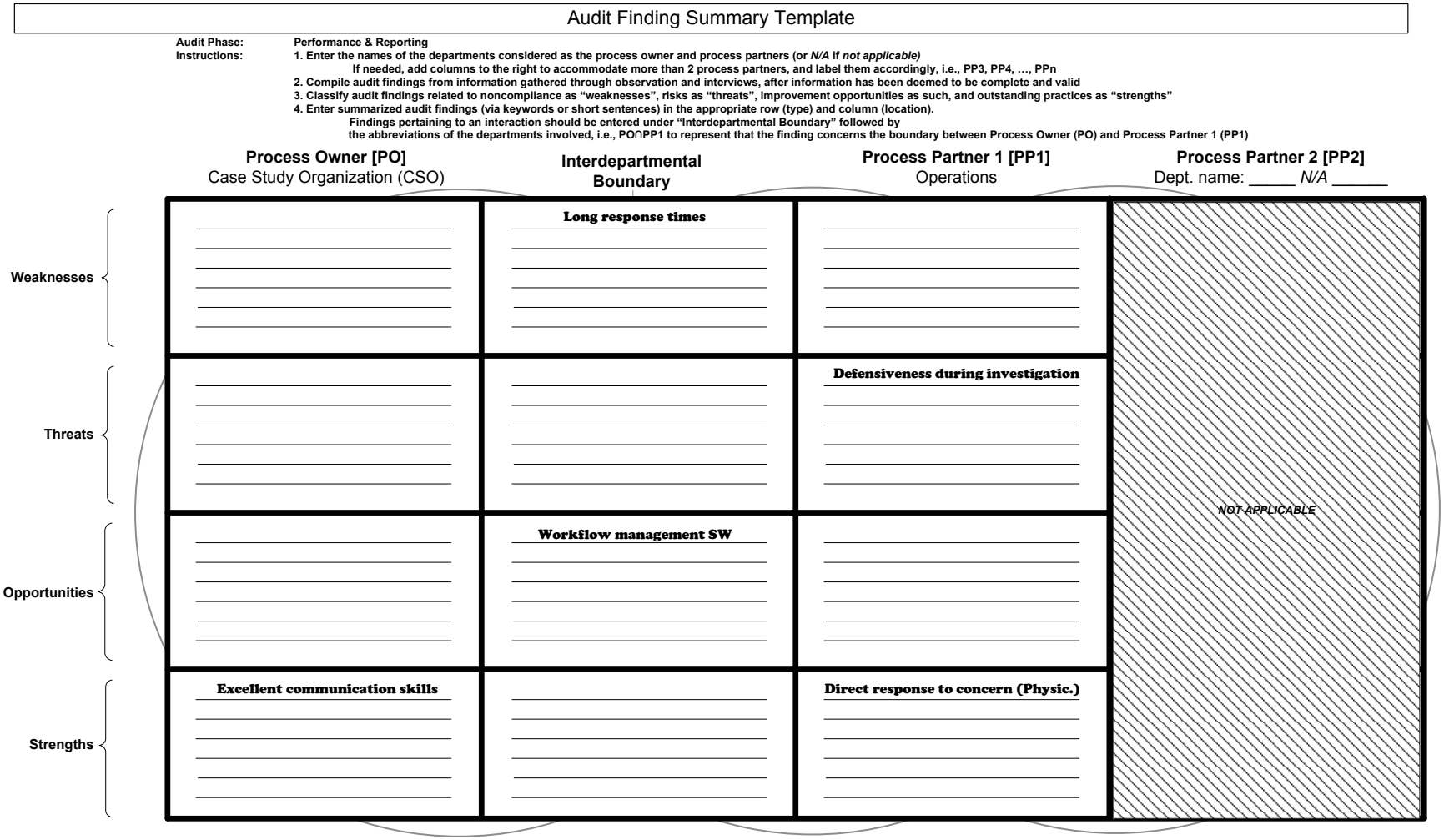
PEEMMM = [P]eople, [Eq]uipment, [En]vironment, [Mat]erials, [Meas]ures, [Meth]ods
Objective = [C]ompliance, [E]ffectiveness, [R]isks, [I]mprovement Opportunities

Appendix D.3.4 - Audit Finding Summary Template

D.3.4.1 Audit Finding Summary Template (Post-validation version)



D.3.4.2 Audit Finding Summary Template Example (Post-validation version)



Appendix D.3.5 - Finding Sheet Templates

D.3.5.1 Finding Sheet (1. Weaknesses and Threats) Example (Post-validation version)

Boundary audit finding sheet (1. Weaknesses and Threats)

Audit Phase Reporting — **Unique identifying no.:** W/T 01

Form objectives To document audit findings and provide the space to enter the auditee's response — **Date:** May 13, 2016
To serve as supporting documentation to the audit report

Instructions

Enter a unique identifying number in the top right corner (i.e., a consecutive number next to the letters "W/T"), and the date
1. Enter a check mark in the corresponding location of the finding, as per the Audit Finding Summary (i.e., Boundary or Department)
if the location is Department, provide the Department's name, and whether it is considered the Process Owner or the Process Partner.
2. Specify the type of finding, i.e., a Weakness or a Threat
For each Weakness and Threat in the Audit Finding Summary:
3. Write down the audit finding (i.e., explain the audit finding beyond the keyword or statement in the Audit Finding Summary)
4. Provide the requirement that relates to the audit finding (from the audit criteria)
5. Write and/or attach the evidence related to the audit finding gathered during the audit (i.e., notes, observations, pictures, records)
6. Determine the response that is required from the auditee to address the finding (Corrective A. for Weaknesses, Preventive A. for Thre
6.1 Specify the person responsible for preparing the corrective or preventive action plan, and the date when the plan needs to be re
6.2 Refer to the respective action plan template in order to find guidance on how to prepare the plan
7. Tentative follow up activities have been provided which include reviewing the corrective or preventive action plan, implementing it, and verifying its implementation and effectiveness

Finding details

1. Location: ☑ Boundary ☐ Department (name) _____ ☐ Process Owner ☐ Process Partner — 2. Type: ☑ Weakness ☐ Threat

3. Audit Finding:
Long response times:
Time to provide a response to complainant is too long (e.g., more than 2 months for CC1A)

4. Requirement:
"PCRP [should be] accessible, fair, consistent, transparent and timely" (PCRP Policy, p. 1)
"Have the decisions been made in a timely manner?" (Administrative fairness p. 3)

5. Audit Evidence:
CC1A - CSO review
Time for Operations (PSS) to respond to CSO almost one month
Time to provide response letter to complainant was more than two months from date concern was first entered

Long response times also found in record CC10 (95 days) [CSO review]

Enclosed: ☐ Pictures ☐ Notes ☑ Other Refer to IdPFD timeline, and OPRC

6. Required response: (Select one)

	Person responsible	Plan required by what date?
☑ Corrective action (and related plan) to address the finding above ↳ Refer to Corrective Action Plan Template	CSO Director	June 30, 2016
☐ Preventive action (and related plan) to address the finding above ↳ Refer to Preventive Action Plan Template		

7. Follow up activities:

a. The **person responsible** in 6. above will prepare a corrective action or preventive action plan by the specified date.
b. The **auditor** will follow up on the required action on 6. above, and will review the corresponding plan and either accept it, reject it, or request for clarification.
c. The **auditee** will implement the approved plan and verify the corrective action (or preventive action) effectiveness
Note: A corrective or preventive action is effective if it is achieving the goal or objectives it intends to.
d. The **auditor** will verify the corrective (or preventive) action was implemented and is effective, by means of any or a combinati
d.1. By visiting the process and verifying changes to the process, to documents, and related training; and by making sure the corrective (or preventive) action meets the desired objectives
d.2 By requesting a report from the auditee outlining progress or status of the corrective action and its performance
d.3 By performing a follow-up audit
d.4 By including verification activities in the next scheduled audit (From Russell, 2005)
e. The **auditor** will document the verification process and keep records along with the original audit report.

☐ Attach more paper if needed

D.3.5.2 Finding Sheet (2. Opportunities and Strengths) Template (Post-validation version)

Boundary audit finding sheet (2. Opportunities and Strengths)

Audit Phase Reporting — **Unique identifiying no.:** O/S____

Form objectives To document positive audit findings, including a recommendation and its expected benefits. To serve as supporting documentation to the audit report — **Date:** _____

Instructions For the auditor:

Enter a unique identifying number in the top right corner (i.e., a consecutive number next to the letters "O/S"), and the date

1. Enter a check mark in the appropriate location of the finding, as per the SWOT document (i.e., Boundary or Department) if the location is Department, provide the Department's name, and whether it is considered the Process Owner or the Process Partner.
2. Enter the date when the finding sheet is created.

For each Strength and Opportunity in the SWOT document:

3. Write down the audit finding.
4. Provide the requirement that relates to the audit finding (from the audit criteria).
5. Write and/or attach the evidence related to the audit finding gathered during the audit (i.e., notes, observations, pictures, records).
6. Provide a recommendation.
7. Use the provided "Adapted Balanced Scorecard" template to communicate expected benefits of implementing the recommendation.
   - 7.1 Identify expected benefits and categorize them as one of the following: Customer, Financial, Internal, or Learning and Growth.
   - 7.2. Enter a check mark to indicate where the benefit would be experienced (i.e., by one department, or by both).

Finding details

1. Location: ☐ Boundary ☐ Department (name) _____ ☐ Process Owner ☐ Process Partner — **2. Type:** ☐ Opportunity ☐ Strength

3. Audit Finding:

4. Requirement:

5. Audit Evidence:

Enclosed: ☐ Pictures ☐ Notes ☐ Other _____

6. Recommendation:

7. Expected benefits:
(Adapted Balanced Scorecard, from Kaplan & Norton 1996, p. 44)

		Beneficiary		
		P. Owner	Both	P. Partner
Customer Ex. Satisfaction, retention, market, and account share	_____	☐	☐	☐
	_____	☐	☐	☐
	_____	☐	☐	☐
	_____	☐	☐	☐
	_____	☐	☐	☐
Financial Ex. Return on investment, and economic value-added	_____	☐	☐	☐
	_____	☐	☐	☐
	_____	☐	☐	☐
	_____	☐	☐	☐
Internal Business Process Ex. Quality, response time, cost, and new product introductions	_____	☐	☐	☐
	_____	☐	☐	☐
	_____	☐	☐	☐
	_____	☐	☐	☐
	_____	☐	☐	☐
Learning and Growth Ex. Employee satisfaction, and information system availability	_____	☐	☐	☐
	_____	☐	☐	☐
	_____	☐	☐	☐

D.3.5.4 Finding Sheet (2. Opportunities and Strengths) Example (Post-validation version)

Boundary audit finding sheet (2. Opportunities and Strengths)

Audit Phase Reporting — **Unique identifiying no.:** O/S 01

Form objectives To document positive audit findings, including a recommendation and expected benefi — **Date:** May 13, 2016
To serve as supporting documentation to the audit report

Instructions For the auditor:
Enter a unique identifying number in the top right corner (i.e., a consecutive number next to the letters "O/S"), and the date
1. Enter a check mark in the appropriate location of the finding, as per the Audit Finding Summary (i.e., Boundary or Department)
if the location is Department, provide the Department's name, and whether it is considered the Process Owner or the Process Partner.
2. Enter the date when the finding sheet is created.
For each Strength and Opportunity in the Audit Finding Summary:
3. Write down the audit finding (i.e., explain the audit finding beyond the keyword or statement in the Audit Finding Summary)
4. Provide the requirement that relates to the audit finding (from the audit criteria).
5. Write and/or attach the evidence related to the audit finding gathered during the audit (i.e., notes, observations, pictures, records)
6. Provide a recommendation.
7. Use the provided "Adapted Balanced Scorecard" template to communicate expected benefits of implementing the recommendati
7.1 Identify expected benefits and categorize them as one of the following: Customer, Financial, Internal, or Learning and Growt
7.2. Enter a check mark to indicate where the benefit would be experienced (i.e., by one department, or by both).

Finding details

1. Location: ☐ Boundary ☑ Department (name) **Operations (Physicians)** 2. Type: ☐ Opportunity ☑ Strength
☐ Process Owner ☑ Process Partner

3. Audit Finding: **"Direct response to concern"**

The Operational Reviewer from Phyisicians reviewed the concern with other doctor and talked to the complainant to convey the response. The conversation served to provide assurance to the complainant of the usefulness of the feedback, and left the complainant satisfied with process and outcome.

4. Requirement: **"To allow employees and Medical Staff to address Concerns in a manner consistent with the [POCSO] Values" (PCRP Policy, p. 1)**

5. Audit Evidence: **Email from Operational Reviewer explaining that he had reviewed the concern with two other doctors, and that he then spoke to the complainaint. The Operational Reviewer mentioned that the complainant appreciated being heard.**
The Operational Reviewer talked to the complainant two days after receiving the Concerns Memo.

Enclosed: ☐ Pictures ☐ Notes ☐ Other _____

6. Recommendation: **To encourage Operational Reviewers, where possible, respond directly to the complainant.**

7. Expected benefits:
(Adapted Balanced Scorecard, from Kaplan & Norton 1996, p. 44)

		Beneficiary		
		P. Owne	Both	P. Partner
Customer (Ex. Satisfaction, retention, market, and account share)	**Increased cust. satisfaction since the customer talks directly to the Op. Reviewer**	☐	☑	☐
	Increased cust. satisfaction because less time taken to respond to concern	☐	☑	☐
		☐	☐	☐
		☐	☐	☐
Financial (Ex. Return on investment, and economic value-added)		☐	☐	☐
		☐	☐	☐
		☐	☐	☐
		☐	☐	☐
Internal Business Process (Ex. Quality, response time, cost, and new product introductions)	**Less handling of the concern by an intermediary (i.e., the PCC)**	☐	☑	☐
		☐	☐	☐
		☐	☐	☐
		☐	☐	☐
Learning and Growth (Ex. Employee satisfaction, and information system availability)	**Operational Reviewers gain experience in talking to complainants**	☐	☐	☑
		☐	☐	☐
		☐	☐	☐
		☐	☐	☐

Appendix D.3.6 - Adaptation and use of BSC to present expected benefits

The finding sheet used to document opportunities and strengths contains a section where the auditor presents a recommendation based on the audit finding. Since there is not a "request for action" in positive-type finding sheets as there is in negative-type finding sheets, the boundary audit aims to help auditors be persuasive when presenting recommendations for positive findings. In addition, since management of the audited departments, and likely of the organization, will receive the audit report, the presentation of recommendations is of utmost importance. By including expected benefits in addition to a recommendation in positive-type finding sheets, the boundary audit aims to help the departments at each side of the boundary to leverage their strengths and seize the potential opportunities. The way benefits are described or framed are also important. A classification system was sought that would "speak the language" of management, since they have significant influence in whether to pursue recommendations or not. The four distinct categories of the Balanced Scorecard (Kaplan and Norton 1996) provide a comprehensive and relevant framework for classifying benefits. The following subsections describe the adaptation of the Balanced Scorecard categories, along with their use in the boundary audit.

D.3.6.1 Adaptation

D.3.6.1.1. General objective

To effectively and persuasively communicate potential benefits of recommendations arising from positive audit findings

D.3.6.1.2 Specific objectives

a) To help auditors document recommendations
b) To provide auditors with an effective framework to document benefits deriving from implementation of recommendations
c) To allow management of the auditees (and of the respective organizations) to understand the potential benefits of the recommendations resulting from the boundary audit
d) To serve as a robust classification system that could also be used when preparing advancement action plans

D.3.6.1.3 Method

While preparing the positive-type finding sheet template, it was noticed that requiring the auditor to provide a recommendation based on the finding would be a good contribution by the auditor, as suggested by ISO 19011:2011 and Russell (2005). However, a recommendation in isolation seemed to be insufficient to prompt management of the auditee to act on the recommendation. It was concluded that supporting the recommendation with the expected benefits may yield better

results. Moreover, framing those expected benefits in terms that are meaningful to management, would further promote taking action.

Originally, the classification system that was considered was the PEEMMM process elements that are used throughout the boundary audit. However, after careful considerations, another classification system was selected. On one hand, the PEEMMM process elements refer to components of a process or an activity, in other words, the focus is too narrow; whereas management of the auditee (or of the organization) have a focus that is much broader (i.e., of the overall business) and may include not only operational aspects, but also involve customer relations, financial considerations, among others. Thus, persuading management of the auditee to devote resources to implement a recommendation (including planning, review, and subsequent implementation and effectiveness verification), whose benefits have been described in terms of activity-related elements may be difficult to achieve. Consequently, the use of a classification system to describe potential benefits in terms that are relevant to management becomes a priority. Thus, the use of the Balanced Scorecard categories, originally intended to "translate an organization's mission and strategy into a comprehensive set of performance measures that provides the framework for a strategic measurement and management system" (Kaplan and Norton 1996, p. 2), was deemed appropriate to be used to classify expected benefits in terms that management can relate to. In other words, by organizing the expected benefits using a classification system that is broad (i.e., business-oriented) rather than narrow (i.e., activity-focused such as the PEEMMM), a greater numbers of recommendations would be expected to be implemented, therefore increasing the value-adding ability of the boundary audit.

The categories of the balanced scorecard (called 'perspectives') are: Customer, Financial, Learning and Growth, and Internal Business Process. These four perspectives aptly encompass the different realms on which an improvement initiative can have an impact. Furthermore, the "generic measures" that the perspectives use to align strategy and vision could also be used to present expected benefits.

Table 49 - Balanced Scorecard perspectives (adapted from Kaplan and Norton 1996, p.44)

Perspective	Related aspects and generic measures	Used at the BAM to organize expected benefits
Financial	"Readily measurable economic consequences [such as] bottom-line improvement" (p. 25) Generic measures: "Return on investment and economic value-added" (p. 44)	Favorable impacts to financially-related aspects: reduced costs, increased profits, increased economic efficiencies
Customer	Measures of business unit performance related to customer and market segments (p. 26) Generic measures: "Satisfaction, retention, market, and account share" (p. 44)	Positive impacts to customer-related aspects: increased customer satisfaction, increased sales level or volume, more repeated business
Internal Business Process	"Measures [focused] on the internal processes that will have the greatest impact on customer satisfaction and achieving an organization's financial objectives" (p. 27) Generic measures: "Quality, response time, cost, and new product introductions" (p. 44)	Positive impact to business processes, such as reducing *muda* or waste, i.e., transport, inventory, motion, waiting, overproduction, over-processing, defects (Ohno, 1988); or improving process time.

Learning and Growth	"Infrastructure that the organization must build to create long-term growth and improvement [.. including:] people, systems and organizational procedures" (p. 28) Generic measures: "Employee satisfaction and information system availability" (p. 44)	Improvements to the skills or competencies of personnel; improvements to the technology infrastructure, or how such technology infrastructure is used; improvements to 'motivation, empowerment and alignment' of employees (Kaplan and Norton, 1996, p. 127).

The use of the Balanced Scorecard categories is not confined to the finding sheets, but they are also used in the advancement action plan templates.

D.3.6.1.2 Use

The Balanced Scorecard categories are used not only at the reporting phase of the boundary audit (i.e., at the positive-type finding sheets), but also during audit closure (i.e., in the advancement action plan template). The finding sheet template for documenting opportunities and strengths (i.e., FS (O/S) contains in the last section (i.e., 7. Expected benefits) four subsections called: Customer, Financial, Internal Business Process, and Learning and Growth. The auditor preparing the finding sheet is encouraged to think of potential benefits that may arise from implementing the recommendation that is being proposed for that specific finding. In addition, the auditor is expected to identify the party that is expected to experience such benefit, in other words, whether the benefit is to be experienced by the process owner, the process partner, or by both.

When documenting expected benefits of a given recommendation, the following steps could be followed:

1. For each Balanced Scorecard category (i.e., Customer, Financial, Internal Business Process, and Learning and Growth) ask if and how the proposed recommendation (from section 6. in the FS) can have a positive impact. When an expected benefit has been identified, write it on the line that corresponds to the applicable Balanced Scorecard category.

2. When a positive impact has been identified (i.e., an expected benefit), also identify 'who would experience such benefit: the process owner, the process partner, or both?' According to the response, check the box identifying the expected beneficiary.

The following excerpt of the finding sheet presents a sample potential benefits and beneficiaries from implementing a sample recommendation:

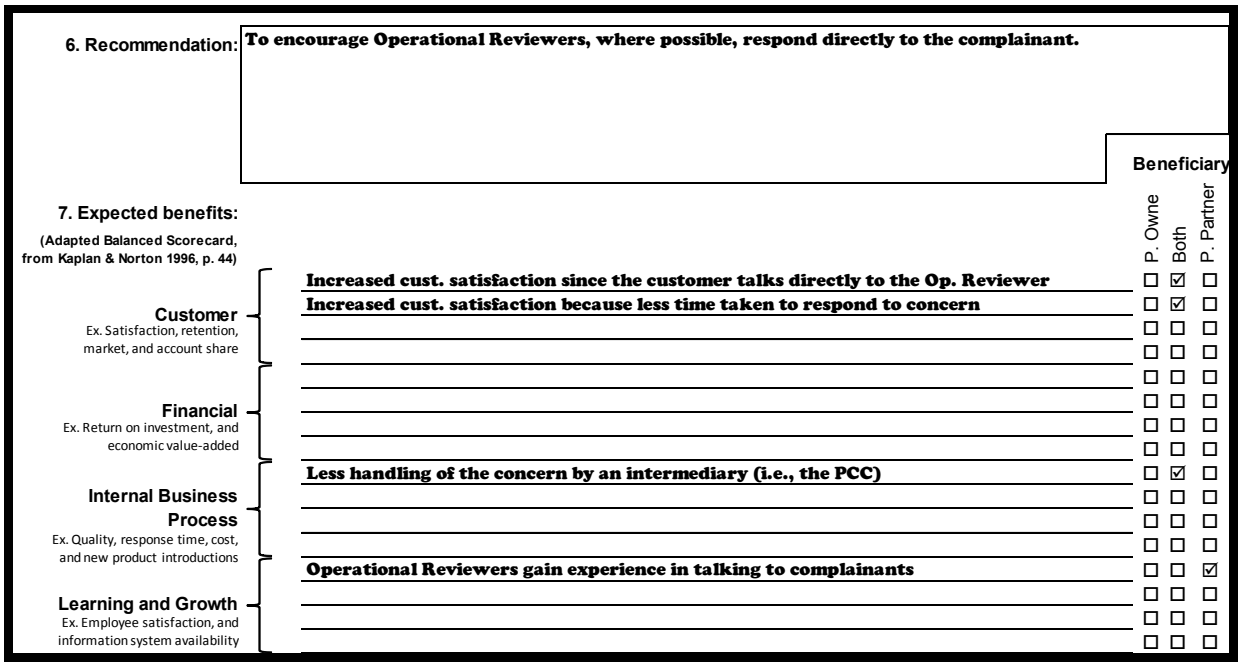


Figure 55 - Adapted Balanced Scorecard application in Finding Sheet (Excerpt)

Similarly, the person preparing an Advancement Action Plan using the template provided, can use the Balanced Scorecard categories to not only present expected benefits previously suggested by the auditor in the finding sheet, but also to suggest specific measures of effectiveness related to the implementation of the advancement action (AA), for example:

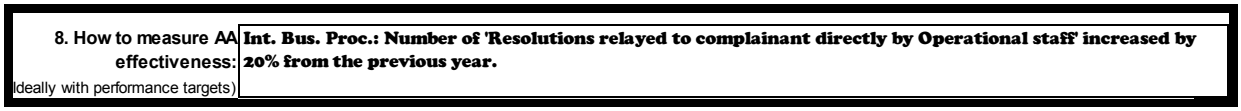


Figure 56 - Adapted Balanced Scorecard application in Advancement Action Plan (Excerpt)

D.3.6.1.3 Potential use of Dimensions of Quality instead of Balanced Scorecard Categories in the FS (O/S) and AAP templates

As a result of the BAM Validation, a suggestion was made by a research participant to use Dimensions of Quality (DQ) (HQCA 2005), instead of Balanced Scorecard Categories, to organize expected benefits of implementing recommendations and response action effectiveness (the latter at the FS (O/S) template, and the former at both the FS (O/S) and AAP templates).

The six Dimensions of Quality (HQCA 2005) are: “Acceptability”, “Accessibility”, “Appropriateness”, “Effectiveness”, “Efficiency”, and “Safety”.

The Dimensions of Quality are specific to health care. Conversely, the BAM has been developed with a goal of universal applicability (i.e., within any industry or sector). Therefore, the

possibility of modifying the BAM templates (i.e., FS (O/S) and AAP) to utilize DQ instead of BSC categories was rejected. Nevertheless, the suggestion by the research participant to use DQ was deemed worthwhile of exploring at a future time and outside the scope of this research.

In the future, the adaption of the FS (O/S) and AAP templates to utilize DQ instead of BSC categories could be pursued with the following objectives in mind:

- to explore if and how the tools (FS (O/S) and AAP) could be adapted to use the Dimensions of Quality to organize potential benefits of implementing recommendations and to measure response action effectiveness, in order to assess the flexibility of the aforementioned tools to accommodate alternative organization-specific categorization systems, and

- to explore the potential benefits and drawbacks of using an alternative categorization system (such as the DQ) for the FS (O/S) and AAP, instead of the BSC categories.

The BAM's goal of universal applicability becomes yet more apparent when the tools (i.e., FS and AAP) evidence their flexibility by accommodating the use of industry-specific categorization systems, such as the use of DQ (HQCA 2005) in the FS (O/S) and AAP.

Appendix D.3.7 - Response Plans

D.3.7.1 Corrective Action Plan Example

Boundary audit Corrective Action Plan

Audit Phase Closure — **Unique identifying no.:** CAP

Date: May 13, 2016

Form objectives To be used by the auditee to plan a corrective action to address a weakness-type audit finding.
To be reviewed by the auditor (or assignee), implemented by the auditee, and verified by the auditor (or assignee)
To serve as evidence of audit effectiveness, and an input to the management review process.

Instructions

For the auditee

Enter a unique identifying number in the top right corner (i.e., a consecutive number next to the letters "CAP"), and the date

1. Document the original audit finding as per the audit finding sheet prepared by the audit team.
2. Specify whether and to what extent is interdepartmental collaboration expected to be required to implement the corrective action.
3. Specify whether a correction is required to contain/remedy the nonconformity related to the audit finding, and what does it entail.
   Correction "does not deal with causes but rather addresses the specific nonconforming item itself" (Arter *et al.,* 2013)
   Examples of correction include rework or regrade (ISO 9000:2015)
4. Document the cause of the audit finding. If not immediately obvious, a Root Cause Analysis (RCA) may be required
5. Provide the corrective action that will be implemented
6. Provide the steps to implement the corrective action, the people responsible, and the date the step needs to be completed by.
7. Determine how should CA effectiveness be assessed (i.e., by specifying a performance target, or other measurable objective)

For the auditor (or person assigned to review the CAP)

8. Review the CAP and record the result (i.e., Approved, Rejected, or Clarification needed) along with reviewer name and date of revie

For the auditor (or person assigned to verify the CA implementation and effectiveness)

9. Verify that the CA was implemented, and is effective (using the details provided in 7. pertaining how to assess effectiveness).

Corrective Action Plan:

1. Audit Finding: (including potential nonconformity or undesirable situation)
Long response times:
Time to provide a response to complainant is too long (e.g., more than 2 months for CC1A)

2. Interdepartmental collaboration required? ☑ Yes ☐ No Specify: **Long response times usually a result of delays in interdepartmental interactions, so a collaborative solution would likely be more effective**

3. Correction needed? (remedial or containment action) ☐ Yes ☑ No Specify: **No need for correction (concerns examined were already closed)**

4. Cause identified:
Delays in response obey different causes, for example:
- Increasing complexity of complaint investigation: concerns are added through the investigation process [usually due to complainant being dissatisfied with preliminary results and pushing for a different response], thus increasing work-load and pushing into the future the date for resolution
- Delays due to personnel leaving for, or being, on vacation (at CSO or Operations)

✪ It may be needed to perform Root-Cause Analysis to identify the true cause related to the audit finding.

5. Corrective action (CA):
It would be appropriate to perform a detailed analysis of common causes (e.g., an RCA) for delays in providing responses to complainants. Once those causes are identified, a Pareto analysis could help identify which causes should be addressed or removed first.

✪ It may be necessary to assess different potential solutions via a cost/benefit analysis in order to select an appropriate CA

6. CA implementation steps: (attach more paper if needed)

Activity	Person responsible	Date expect. completion
Prepare plan for detailed RCA of causes of delays in concern investigations	**Jane Smith (CSO)***	**30-Jun-16**
Implement plan, draw conclusions, present results to management	**Jane Smith (CSO)**	**30-Aug-16**
	**** Names are fictittious***	

7. How to measure CA effectiveness: (Ideally with performance targets)
RCA was performed, a report prepared and presented to management by August 30, 2016

8. CA Plan review result: ☑ Approved ☐ Rejected ☐ Clarification needed
[By auditor/assignee] Reviewer observations:
Reviewed by: **RD, Audit leader**
Date reviewed **May 20, 2016**

9. Verification results: [By auditor/assignee]
CA Implementation ☐ OK ☐ Not OK **Comments:**
CA Effectiveness ☐ OK ☐ Not OK **Comments:**
Verified by: _____ Date verified: _____

☐ Attach more paper if needed

D.3.7.2 Preventive Action Plan – Example

Boundary audit Preventive Action Plan

Audit Phase Closure

Unique identifying no.: PAP 01

Date: March 20, 2014

Form objectives
To be used by the auditee to plan a preventive action to address a threat-type audit finding
To be reviewed by the auditor (or assignee), implemented by the auditee, and verified by the auditor (or assignee)
To serve as evidence of audit effectiveness, and an input to the management review process.

Instructions

For the auditee

Enter a unique identifying number in the top right corner (i.e., a consecutive number next to the letters "PAP"), and the date

1. Document the original audit finding (from audit finding sheet), include the potential nonconformity or undesirable situation
2. Specify whether and to what extent is interdepartmental collaboration required during the preventive action process
3. Document the potential causes of nonconformity or undesirable situation. Use of RCA and FMEA is encouraged
4. Specify whether a preventive action is required or if the small probability of occurrence or impact favors a do-nothing decision.
5. Provide the preventive action that will be implemented
6. Provide the activities needed to implement the preventive action, the people responsible, and corresponding deadlines
7. Determine how should PA effectiveness be assessed (i.e., by specifying a performance target, or other measurable objective)

For the auditor (or person assigned to review the PAP)

8. Record the result of the PAP review either as Accepted, Rejected, or Clarification needed, along with name and date of review

For the auditor (or person assigned to verify the PA implementation and effectiveness)

9. Verify that the PA was implemented, and is effective (using the details provided in 7. pertaining how to assess effectiveness).

Preventive Action Plan:

1. Audit Finding: (including potential nonconformity or undesirable situation)
Wording of "Concerns Memo"
The wording of the notice at the end of the Concerns Memo (under "Please note") fails to communicate in an appropriate manner because it may create a sense of exclusion on non health-care employees.

2. Interdepartmental collaboration required? ☑ Yes ☐ No Specify: **Feedback from Operations would help to ensure the reworded notice in the concerns memo is suitable**

3. Potential causes:
- When preparing a Concerns Memo, the last part of the template is not adapted to the destinatary

✪ It may be needed to perform Root-Cause Analysis or FMEA to identify the potential causes of the threat or risk

4. Preventive action needed? ☑ Yes ☐ No Specify: **A preventive action is deemed appropriate**

5. Preventive action (PA):
New wording of the notice will be suggested in the template when addressing non-health care workers
A memo will be sent to PCCs notifying them of the change.

✪ It may be necessary to assess different potential solutions via a cost/benefit analysis in order to select an appropriate PA

6. PA implementation steps: (attach more paper if needed)

Activity	Person responsible	Date expect. completio
1. Draft new wording of notice of "Concerns memo" template	Jane Smith* (CSO)	April 15, 2014
2. Get feedback from Operations on new wording	John Doe (Op)	April 20, 2014
3. Finalize wording in template	Jane Smith (CSO)	April 25, 2014
4. Send memo to PCCs re: change to template	Jane Smith (CSO)	April 25, 2014
5. Start using new template	PCCs (CSO)	May 1, 2014

** Names are fictitiuous*

7. How to measure PA effectiveness: (Ideally with performance targets)
100% of "Concerns memos" send to non-health care workers contain the reworded notice between May 15 and June 30, 2014

8. PA Plan review result: ☑ Approved ☐ Rejected ☐ Clarification needed

Reviewer observations: **Approved without changes**

Reviewed by: **RD, Audit leader**

Date reviewed: **March 28, 2014**

9. Verification results: PA Implementation ☐ OK ☐ Not OK **Comments:**

PA Effectiveness ☐ OK ☐ Not OK **Comments:**

Verified by: _____ Date verified: _____

☐ Attach more paper if needed

D.3.7.3 Advancement Action Plan Template (Post-validation version)

Boundary audit Advancement Action Plan

Audit Phase Closure

Unique identifying no.: AAP

Date:

Form objectives
To be used by the auditee to plan an advancement action to address a positive audit finding
To be reviewed by the auditor (or assignee), implemented by the auditee, and verified by the auditor (or assignee)
To serve as evidence of audit effectiveness, and an input to the management review process.

Instructions

For the auditee

Enter a unique identifying number in the top right corner (i.e., a consecutive number next to the letters "AAP"), and the date

1. Document the original audit finding (from audit finding sheet)
2. Document the recommendation provided in the audit finding sheet
3. Document the expected benefits provided in the audit finding sheet, organized by Balanced Scorecard (BSC) categories
4. Provide a response stating whether the recommendation will be pursued (within a year or within three years), or disregarded
   If the answer to 4. is "Disregard", specify rationale, and attach it as is to the audit report (as a record)
5. Specify whether and to what extent is interdepartmental collaboration required during the advancement action process
6. Provide the advancement action (AA) that will be taken (i.e., a change or addition to the process or activity)
7. Provide the activities needed to implement the advancement action , the people responsible, and corresponding deadlines
8. Determine how should AA effectiveness be assessed, preferably in relation to one or more of the BSC categories mentioned in sectior
   and by specifying a performance target, or other measurable objective (i.e., SMART goal); if not possible, provide a reason

For the auditor (or person assigned to review the AAP)

9. Review the AAP and record the result (i.e., Approved, Rejected, or Clarification needed) along with reviewer name and date of reviev

For the auditor (or person assigned to verify the AA implementation and effectiveness)

10. Verify that the AA was implemented, and is effective (using the details provided in 8. pertaining to how to assess effectiveness).

Advancement Action Plan:

1. Audit Finding:

2. Recommendation:

3. Expected benefits: (organized by BSC categories, e.g., Customer, Financial, etc.)

4. Response to recommendation? (Select one)
☐ **Pursue** (continue to 5.)
☐ **Postpone (≥1 yr)** (continue to 5.)
☐ **Disregard** (stop and file with audit report)
Specify: (Optional)

5. Interdepartmental collaboration required? ☐ **Yes** ☐ **No** **Specify:**

6. Advancement action (AA):

7. AA implementation steps: (attach more paper if needed)

Activity	Person responsible	Date expect. completion

8. How to measure AA effectiveness: (Ideally with relation to BSC categories and with performance targets; i.e., SMART goal, if not give reason)

9. AA Plan review result: ☐ **Approved** ☐ **Rejected** ☐ **Clarification needed**

Reviewer observations:

Reviewed by:
Date reviewed

10. Verification results: AA Implementation ☐ **OK** ☐ **Not OK** **Comments:**

AA Effectiveness ☐ **OK** ☐ **Not OK** **Comments:**

Verified by: Date verified:

☐ Attach more paper if needed

D.3.7.4 Advancement Action Plan Example (Post-validation version)

Boundary audit Advancement Action Plan

Audit Phase Closure

Unique identifying no.: AAP 01

Date: May 13, 2016

Form objectives
To be used by the auditee to plan an advancement action to address a positive audit finding
To be reviewed by the auditor (or assignee), implemented by the auditee, and verified by the auditor (or assignee)
To serve as evidence of audit effectiveness, and an input to the management review process.

Instructions

For the auditee

Enter a unique identifying number in the top right corner (i.e., a consecutive number next to the letters "AAP"), and the date

1. Document the original audit finding (from audit finding sheet)
2. Document the recommendation provided in the audit finding sheet
3. Document the expected benefits provided in the audit finding sheet, organized by Balanced Scorecard (BSC) categories
4. Provide a response stating whether the recommendation will be pursued (within a year or within three years), or disregarded
   If the answer to 4. is "Disregard", specify rationale, and attach it as is to the audit report (as a record)
5. Specify whether and to what extent is interdepartmental collaboration required during the advancement action process
6. Provide the advancement action (AA) that will be taken (i.e., a change or addition to the process or activity)
7. Provide the activities needed to implement the advancement action , the people responsible, and corresponding deadlines
8. Determine how should AA effectiveness be assessed, preferably in relation to one or more of the BSC categories mentioned in sectior
   and by specifying a performance target, or other measurable objective (i.e., SMART goal); if not possible, provide a reason

For the auditor (or person assigned to review the AAP)

9. Review the AAP and record the result (i.e., Approved, Rejected, or Clarification needed) along with reviewer name and date of reviev

For the auditor (or person assigned to verify the AA implementation and effectiveness)

10. Verify that the AA was implemented, and is effective (using the details provided in 8. pertaining to how to assess effectiveness).

Advancement Action Plan:

1. Audit Finding: "Direct response to concern"
The Operational Reviewer from Physicians reviewed the concern with other doctor and talked to the complainant to convey the response. The conversation served to provide assurance to the complainant of the usefulness of the feedback, and left the complainant satisfied with process and outcome.

2. Recommendation: To encourage Operational Reviewers, where possible, respond directly to the complainant.

3. Expected benefits: (organized by BSC categories, e.g., Customer, Financial, etc.)
CUSTOMER: Increased cust. satisfaction since the customer talks directly to the Op. Reviewer
CUSTOMER: Increased cust. satisfaction because less time taken to respond to concern
INT. BUS. PROC: Less handling of the concern by an intermediary (i.e., the PCC)
LEARNING & GROWTH: Operational Reviewers gain experience in talking to complainants

4. Response to recommendation? (Select one)
☑ **Pursue** (continue to 5.)
☐ **Postpone (≥1 yr)** (continue to 5.)
☐ **Disregard** (stop and file with audit report)

Specify: (Optional) The expected benefits are promising and a decision is made to act on the recommendation

5. Interdepartmental collaboration required? ☑ Yes ☐ No

Specify: CSO plans communication campaign; Operations gives feedback; CSO makes changes if needed and executes the communication campaign

6. Advancement action (AA): To regularly communicate to Operational staff the possibility and benefits of directly responding to complainants

7. AA implementation steps: (attach more paper if needed)

Activity	Person responsible	Date expect. completion
1. Plan communication campaign	Jane Smith (CSO)*	June 15, 2016
2. Test communication campaign, get feedback from Operations	Jane Smith (CSO)	July 1, 2016
3. Execute communication campaign	Jone Doe (Op)	July 30, 2016
4. Measure results	Jane Smith (CSO)	January 1, 2017

** Names are fictitious*

8. How to measure AA effectiveness: (Ideally with relation to BSC categories and with performance targets; i.e., SMART goal, if not give reason)
Int. Bus. Proc.: Number of 'Resolutions relayed to complainant directly by Operational staff' increased by 20% from the previous year.

9. AA Plan review result: ☑ Approved ☐ Rejected ☐ Clarification needed

Reviewer observations: Approved without changes

Reviewed by: RD, Audit leader

Date reviewed May 20, 2016

10. Verification results:

AA Implementation ☐ OK ☐ Not OK Comments:

AA Effectiveness ☐ OK ☐ Not OK Comments:

Verified by: _____ Date verified: _____

☐ Attach more paper if needed

Appendix D.4 - Proposed but rejected components

After the validation, a few components were removed from the Boundary Audit Method, such as a 'Process ownership' test, called 'Test 3. Centrality'; the Interaction Classification System (ICS), and the Reframed Process Elements (RPEs). In this sub-appendix, the components that were removed as presented for information and archival purposes.

Appendix D.4.1 - Process ownership (post-verification, but pre-validation)

An interdepartmental process is defined as a process performed by two or more departments. "Process ownership" is a term used to represent the greater interest of a department in the success of the process and it is a consequence of organizational structure. Process ownership can be determined by examining incrementally until the process owner is identified, the following characteristics: responsibility for the process, workload distribution, and centrality of the department. Figure 57 presents an algorithm depicting how to identify process ownership. The steps are described in the following subsections.

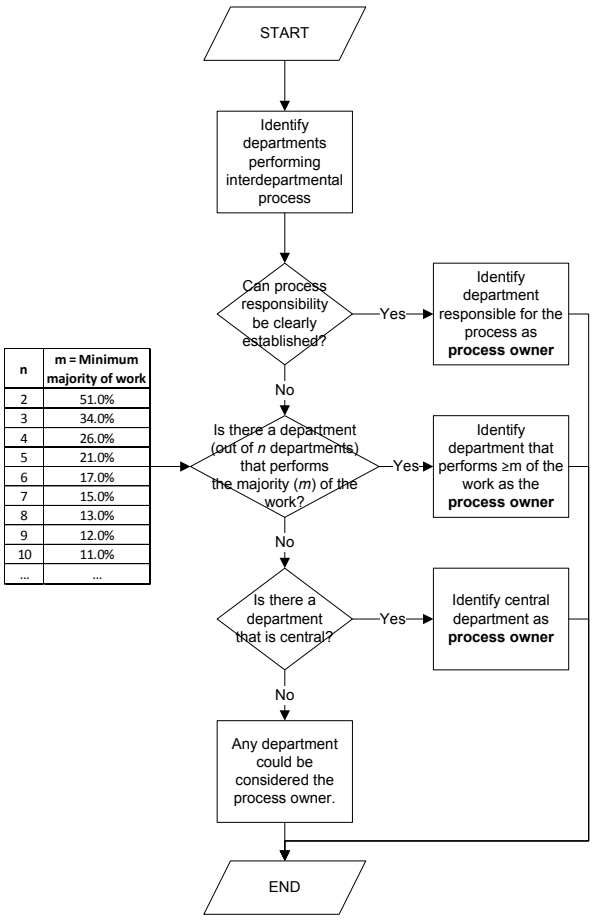


Figure 57 - How to identify the process owner (includes Test 3. Centrality) [out of date]

…When neither process responsibility nor majority of workload can be determined, a third test can be utilized to recognize process ownership by assessing the relative importance of the departments, for which "centrality" can be used as a measure, and which is explained next.

D.4.1.3 Centrality of the department

If after the first two tests process ownership is still undefined (for example, because responsibility was either shared by the departments or just not officially determined; or because the work load was evenly distributed), a third test can be used, namely centrality. In graph theory and network analysis, centrality "determines the relative importance of a vertex within a graph" (Blanchard and Volchenkov, 2011), in other words, a department (herein considered as a 'vertex') with the greatest number of interactions (represented by 'edges') is considered to be *central*. Even though graph theory makes use of mathematics to estimate many characteristics of graphs, the boundary audit solely uses graphical representations and arithmetic to identify the node with the greatest number of edges.

An interesting example of centrality would be the right branch of the "Process for Management of Concerns Received by the CEO office", namely when the CSO is not already managing a concern (CSO, 2009a, p. 20). Said process involves 3 parties, the patient, the CEO office, and the CSO; it should be noted that the Patient is considered as a department in order to make the example more illustrative by having 3 departments as opposed to just two. Assuming that process ownership cannot be determined by "responsibility" since the responsibility is shared by the CEO office and the CSO, and that test for majority of work distribution is unhelpful because both the CEO office and the CSO perform (hypothetically) the same amount of work, the centrality test should be performed. Centrality is calculated by finding the department with the greatest number of edges in a graph, where the departments represent the nodes (or vertices), and the edges represent interactions. An interaction graph (see) was built the following way:

1. Identified the number of departments involved in the process and create nodes that represent them (i.e., Patient, CEO office, and CSO)
2. Identified the sequence of interactions that take place through the process and represent them by means of arrows. The steps represented in the process flowchart include (CSO, 2010, p. 20):
    1. Patient contacts the CEO office (Interaction no. 1, type "Request")
    2. CEO office contacts CSO (Interaction no. 2, type "Request")
    3. CSO advises CEO that "concern has been forwarded to Patient Concerns contact of area involved" (Interaction no. 3, type "Response")
    4. CEO office advises complainant in writing that complaint is being forwarded for investigation (Interaction no. 4, type "Response")
    5. CSO advises complainant of next steps (Interaction no. 5, type "Response")
    6. CSO relays outcome to CEO (Interaction no. 6, type "Response")

3. Labeled the arrows (preferably at their origin or tail) according to the sequential order (number) and type of interaction (letter inside the circle according to the *Legend* in)
4. Counted the number of arrows (technically referred to as edges) touching each node, for example: Node "Patient" has 3 edges, Node "CEO office" has 5 edges, and node "CSO" hast 4 edges.
5. The department with the largest number of edges was determined to be 'central', therefore as the process owner. The CEO office is considered as the process owner.

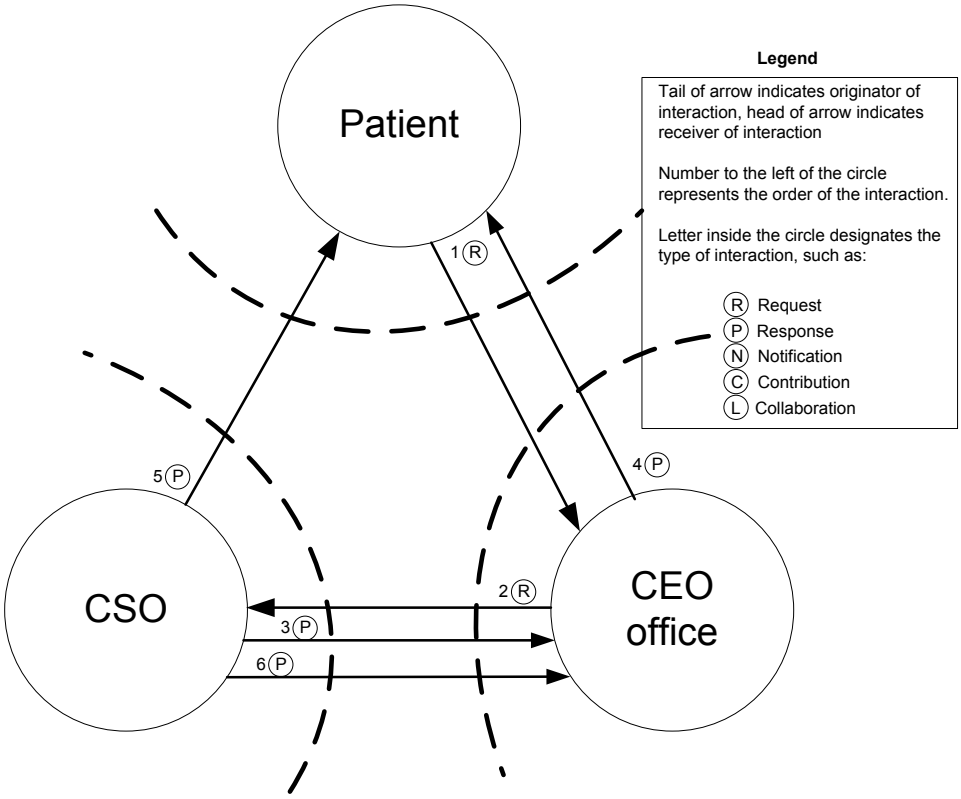


Figure 58 - Interactions graph used to find centrality [out of date - removed from BAM]

For graphs with only two departments and an equal number of arrows on both nodes, the identification of centrality could then be performed by identifying the node with the greatest number of originating edges (or tails of the arrows). If such a test is not helpful to determine centrality, then the auditor (or analyst) can use their judgment to determine the process owner.

Appendix D.4.2 - Interaction Classification System - Guidance (removed post-validation)

As a result of the BAM verification, it was identified that more detailed guidance regarding Interaction Classification was needed. Therefore, the following table was prepared in order to provide more details and examples of the types of interactions that can be encountered when documenting an interdepartmental process (i.e., model), or process-instance (i.e., record or occurrence).

Interaction Classification System - Guidance

Audit Phase **Planning**

Objectives
To support the Boundary Audit by providing a system to classify interdepartmental interactions
To serve as guidance to classify interactions
To support auditors when preparing IdPFDs or OPIs
To ensure repeatability of interaction classification

Guidance

Type	Letter	Definition	Examples [not exhaustive list]
Request	**R**	When a member of a given department (or even the customer) asks a member of another department for something (i.e., information or action) that is needed during the performance of the interdepartmental process.	1. Email requiring to provide information to advance the interdepartmental process 2. Phone call requiring a document 3. A letter that expresses dissatisfaction with a response and is, even if implicitly, requiring an improved response.
Response	**P**	When a member of a department answers a request for action or information and communicates it to the request originator. A response addresses the subject of the original request (i.e., acknowledging a request is not a response, but rather a notification, see below).	1. Email providing information that was solicited by a request [R] 2. A phone call that extends or supplements a prior response [P] 3. A letter that corrects a prior response [P]
Notification	**N**	When a member of a department provides supporting (i.e., ancillary) information or informs about something related to an interdepartmental process.	1. An acknowledgment (e.g., a "thank you" email), or a self-introduction by a new participant in the process 2. A voice mail message asking to call back or informing about an appointment 3. A "please respond" reminder email, or a courtesy update 4. A forwarded email (i.e., making someone aware of a communication, or delegating a request to the appropriate person)
Contribution	**C**	When a member of a department provides a piece of material or information to an activity that is mostly being performed by a member (or members) of another department, and can be solicited or unsolicited.	1. When a member of a department reviews a draft document and suggests changes to the document 2. A suggestion made in writing or on the phone to follow a course of action
Collaboration	**L**	When members of different departments work together at an activity that is part of the interdepartmental process.	1. A phone call where a relevant exchange takes place between process participants 2. A meeting where analysis and decisions take place in order to advance the process

Important notes

Combined interactions are not uncommon, and the following guidance could be followed to select the most appropriate classification:
An interaction consisting of a notification and a request, should be classified as a request
An interaction consisting of a response and a request, should be classified as a request.
A phone call where a response was provided, and a request was made should be marked as a collaboration

Interactions not considered in this classification system can be classified as the closes approximate. For example, if a customer issues a "threat" because he is angry, it could be classified as a Response [P], or if the threat also includes a request of any kind, it could classified as a Request [R]

Figure 59 - Interaction Classification - Guidance [out of date – removed from BAM]

Appendix D.4.3 - Reframed Process Elements for "Observe Process Result" sub-method

One sub-method of product tracing is "Observe process result", and it refers to examining the process output (Arter, *et al.,* 2013). On one hand, since the output is a definite object, be it tangible (i.e., a product) or intangible (i.e., a service), the application of PEEMMM process elements becomes less straight forward. In other words, it is not as easy to identify how People, Environment, Equipment, Materials, Measures, and Methods interact with a resulting product because the product, being an output, is no longer interacting with people, materials, and so on, but the product or output has been processed and is now deemed complete (even if it still has to undergo other processes). On the other hand, the transformation steps (i.e., process activities) will be examined during the "Observe the process" sub-method where the process elements are a more suitable framework to guide observations and questions. However non-apparent, framing the examination of the *process result* (again, a definite product) in terms of process elements can bring value since the six PEEMMM process elements may offer a comprehensive palette for auditors to assess an output.

A possible approach on how to use PEEMMM process elements to guide the evaluation of the product is to recognize that the product is intended to go next to a *customer* (be it external or internal). As such, the product or output "result of the process" can be examined with relation to said customer. Furthermore, specific representations relating customer and product can be derived from the original six process elements. The six representations are: Customer, Packaging, Customer Experience, Final Product, Satisfaction and feedback, and Delivery method.

It is worth mentioning that the customer of the process may have already been identified when the objectives of relevant stakeholders were identified, i.e., during the preparation of the OMT. The table below displays the original process element, their representations and definitions, followed by a justification explaining why the representation was deemed appropriate.

Original Process Element	**Representation**		**Justification**
	Represented by:	**Defined as:**	
People	Customer	The entity that intends to receive the product (can be internal or external)	In the original framework, the process element *people* refers to the *persons* transforming the material into the product. The customer, being a type of person (though it can refer also to a group or organization), is expecting to interact with, by means of reception, the final product.
Equipment	Packaging	The material protecting the product	In the original framework, *equipment* is what enables transformation of the material. *Packaging* enables the product to be transferred (a type of transformation of ownership).

Environment	Customer experience	The perception by the customer when receiving the product, including physical and emotional stimuli deliberately caused by the supplier.	In the original framework, *environment* refers to the atmosphere surrounding the process. *Customer experience* represents a type of atmosphere surrounding product delivery.
Materials	Product	The output of the process (tangible or intangible)	In the original framework, *materials* refers to the inputs that are transformed during the process. *Final product* represents the process output because it undergoes a transformation of ownership, not of substance.
Measures	Satisfaction & feedback	The level of customer satisfaction as measured by a survey or questionnaire, including positive, neutral, or negative statements about the product	In the original framework, *measures* refers to how the activity is measured to keep it under control. *Satisfaction and feedback* are types of measurements aiding control of the relationship between the customer and the product.
Methods	Delivery method	How the product is taken to the customer	In the original framework, *methods* refers to 'how things are done'. *Delivery method* represents how the product is provided to the customer.

Two examples of the adaptation described above are presented next:

Observe-process-result representation (Original Element)	**Example 1 (service): Resolving a complaint**	**Example 2 (product): Dry-cleaning a garment**
Customer (People)	Person who lodged a complaint and requires a resolution (i.e., complainant)	Person who took garment for dry-cleaning
Packaging (Equipment)	The letter containing the response to the complaint including language used, and appropriateness and comprehensiveness of response	The bag and hanger protecting the clean garment
Customer experience (Environment)	The intangible aspects of receiving the letter, i.e., the customer feels *valued* and *respected* by the comprehensiveness and promptness of the response, and by the language used in the letter.	The atmosphere of the store where the customer picks up the clean garment is *welcoming* and conveys *cleanliness*; while the expeditiousness of staff in delivering the clean garment makes the customer feel *appreciated.*
Product (Material)	Resolved complaint (which may include a redress)	Clean garment
Satisfaction & feedback (Measures)	The complainant's level of satisfaction with the resolved complaint and redress (if applicable). It could be measured by asking the customer how satisfied he/she is with the resolved complaint (and recording the answer).	The level of satisfaction of the customer with the clean garment. It could be measured by having the customer fill out a satisfaction survey.
Delivery method (Method)	Letter delivered by snail mail to the correct addressee and address	Customer in-store pick up of the clean garment.

D.4.3.1 OPRC using RPEs (pre-validation)

Pertaining to 'audit planning' stage

The checklist Observe Process Result was adapted in two steps: first, PCRP-specific representations for the reframed PEEMMM process elements were identified, and then, questions in the checklist were adapted to utilize those representations PCRP-specific representations were assigned to the reframed PEEMMM process elements as shown in Table 50

Table 50 - Example of process-specific representations of reframed PEEMMM process elements

Reframed PEEMM process element	Process-specific (i.e., PCRP) representation
Customer	Complainant
Packaging	Response letter
Customer experience	Response experience
Product	Resolved complaint (and redress if applicable)
Satisfaction & feedback	Satisfaction with resolved complaint and redress
Delivery method	Letter delivery

The process-specific representations should be entered at the top of the Observe Process Result Checklist, in order to help the audit team in adapting the checklist questions with regards to the process-specific representations, as shown in the second column of Table 51.

Table 51 - Example of the adaptation of questions for Observe Process Result Checklist

Original question from template	Process-specific adapted question
Are the customer requirements known?	Are the complainant (patient/family) requirements known?
Does the packaging meet customer requirements?	Does the response letter meet complainant requirements?
How is the customer experience meeting customer objectives?	How is the complaint-response experience meeting complainant objectives?
How is the product meeting customer objectives?	How is the resolved complaint (and redress if applicable) meeting complainant objectives?
How can measuring satisfaction be rendered useless or sabotaged?	How can measuring satisfaction with the resolved complaint be rendered useless or sabotaged?
How can the delivery be delayed or performed wrongly?	How can the response delivery be delayed or performed wrongly?
How can the customer be surprised or delighted?	How can the complainant be surprised or delighted?
What waste can be removed from the packaging?	What waste can be removed from the response letter?

Pertaining to 'audit performance' stage

The audit team needs to look at the process result, for instance a finished or unfinished product, or a service, and compare it against process customer requirements. The information being sought during this audit sub-method will depend on the audit objectives, which can range from compliance to improvement opportunities, including effectiveness, and risks. As could be expected, the more complex the objectives of the audit, the more aspects that need to be examined of the process result.

Since the process result of an interdepartmental process aims to be used by the customer (be it internal or external), the process result is assessed in terms of its relationship to said customer, for example, how does the process result: (1) address customer requirements, (2) meet customer objectives, (3) what risks does it pose to the customer, and (4) how could the process result be improved.

The checklist "Observe Process Result" (OPRC) can be used to guide the observation of the process output. The checklist allows the auditor to fill out details of the audit and of the process. The auditor is encouraged to adapt the checklist to include questions related to the audit criteria specific to the audit, thus ensuring that the guiding questions are suitable to the process being audited. For example, an auditor can decide to include questions referring to specific customer objectives or requirements such as product attributes or specifications. The body of the checklist is divided in four subsections, one for each audit objective. The questions, in turn, refer to the customer-related representations of the adapted PEEMMM process elements.

Appendix E - Supporting materials for "BAM Verification"
Appendix E.1 - Verification of tools
Appendix E.1.1 - Verification of tools: Tool selection based on originality

Table 52 - Tool selection, original value and criteria (part 1 of 2)

Tool	Original value	Verification criteria (i.e., design objectives)
1. Objective Mapping Template	New tool: used to map objectives of involved departments in addition to the customer, and the organization, in order to facilitate auditing for "effectiveness"	To allow documentation of different stakeholders' objectives To classify and organize objectives in one of three categories: unique, common, or conflicting. To suggest to the auditors the most relevant stakeholders in a boundary audit (i.e., the organization, the customer of the organization, the process owner and the process partner). To highlight conflicting objectives which may be the root cause of problems at the boundary (i.e., between the two departments) and may later surface as audit findings. To provide accurate instructions for use on the template.
2. Interdepartmental Process Flow Diagram (IdPFD)	Significantly-adapted tool: used to map a process that is performed between two departments and to identify the interactions that will be examined by the boundary audit.	To facilitate planning and performance of boundary audit by enabling auditors to identify the different activities and interactions of a process, including process elements To highlight hand offs To display type of activity, inputs, outputs To be used during the auditing process To be usable and understandable To help identify process ownership by means of quantifying work load To provide accurate instructions for use on the template. Format consistency
3. Observe Process Result Checklist	Significantly-adapted tool: Adaptation The tool makes use of the reframed PEEMMM process elements to assess process result	Effectiveness of reframed PEEMMM process elements to guide the evaluation of the process result "Customer" should be an appropriate representation of People "Packaging" should be an appropriate representation of Equipment "Customer Experience" should be an appropriate representation of Environment "Product" should be an appropriate representation of Materials "Satisfaction & feedback" should be an appropriate representation of Measures "Delivery method" should be an appropriate representation of Method To provide guidance to the auditor as to what to observe, and what questions to ask regarding the process result. To be comprehensive To be consistent (for observation and interview sub-methods) To be flexible (i.e., customizable) To provide accurate instructions for use on the template.
4. Observe Process (Interactions) Checklist	Significantly-adapted tool: allows the examination of interactions with regards to the four possible audit objectives using the PEEMMM process element framework	To provide guidance to the auditor as to what to observe, and what questions to ask regarding the process result. To be comprehensive To be consistent (for observation and interview sub-methods) To be flexible (i.e., customizable) To provide accurate instructions for use on the template.

Table 53 - Tool selection, original value and criteria (part 2 of 2)

Tool	Original value	Verification criteria (i.e., design objectives)
5. Audit Finding Summary Template (AFST)	New tool: Used to summarize and categorize findings according to the department to which they belong, or to the boundary if applicable. The finding summary table is also used during the oral presentation in the exit meeting as a visual aid to quickly and accurately convey results; and also to guide the preparation of individual audit findings	To allow classification and organization of audit findings to facilitate presenting results To summarize findings To allow structure of information help convey the meaning of the information To use a framework that may be already known between manager (such as SWOT) to display audit findings To serve as a table of contents of audit findings To serve as a visual aid when presenting results during the closing meeting To display audit findings pertaining to interdepartmental interactions
6. Finding Sheet (1. Weaknesses and Threats)	Essential tool in an audit: it links the AFST and the response plans (i.e., CAP, PAP), apart from serving as essential part of the audit report	To help auditors to document audit findings identified during the boundary audit To clearly state what elements need to be documented in the audit finding (e.g., audit finding, requirement, and audit evidence). To maintain the use of the SWOT framework categories to document findings, as well as the distinction between findings pertaining to a department vs. those pertaining to the interdepartmental interaction, in order to keep coherence of the method. To explicitly and non-ambiguously request the auditee to take action regarding negative findings, i.e., corrective action or preventive action for weaknesses and threats To allow entering auditor-made recommendations and potential benefits for positive findings such as opportunities and strengths To provide guidance on how to fill out the template (i.e., instructions) To provide guidance on follow-up activities pertaining to negative audit findings
7. Finding Sheet (2. Opportunities and Strengths)	Significantly-modified tool: Adapted from the Finding Sheet (1. Weakness and Threat) to enable documentation of improvement opportunities and strengths; it links the AFST and the Advancement Action Plans (AAP), while also being a part of the audit report	Same criteria as for "Finding Sheet (1. Weaknesses and Threats)", plus: To help auditors document recommendations To provide auditors with an effective framework to document benefits deriving from implementation of recommendations To allow management of the auditees (and of the respective organizations) to understand the potential benefits of the recommendations resulting from the boundary audit To serve as a robust classification system that could also be used when preparing advancement action plans
8. Preventive Action Plan (PAP)	Expanded tool: Designed to guide not only planning, but also enable review of plan, and verification of implementation and effectiveness.	To allow the identification of "interdepartmental collaboration" in the response plan
9. Advancement Action Plan (AAP)	Expanded tool: Designed to guide not only planning, but also enable review of plan, and verification of implementation and effectiveness	To allow the identification of "interdepartmental collaboration" in the response plan To allow the recording of the recommendation as documented in the "Finding Sheet (2. Opportunities/Strengths)" To allow the recording of the expected benefits from the recommendation as documented in the "Finding Sheet (2. Opportunities/Strengths)" To allow the auditee to make a decision regarding the recommendation

Appendix E.1.2 - Verification of tools: Tool verification results

Table 54 - OMT verification against design objectives

OMT Verification		
Criteria	**Result**	**Example**
To allow documentation of different stakeholders' objectives	Yes, the objectives of different stakeholders involved with the interdepartmental process can be entered in the OMT	Using the example of the PCRP, objectives of the CSO, Operations, the Customer, and the Organization, were entered into the matrix.
To classify and organize objectives in one of three categories: unique, common, or potentially conflicting.	Yes, the OMT allows to classify objectives as unique, common or potentially conflicting by using the adapted matrix format.	From the table in the template: Vertical left row allowed to identify unique objectives; central matrix to identify potentially conflicting; and horizontal bottom, unique objectives.
To suggest to the auditors the most relevant stakeholders in a boundary audit (i.e., the organization, the customer of the organization, the process owner and the process partner).	Yes, relevant stakeholders are named at the top and require to be identified by the auditor in the space provided.	Relevant stakeholders from verification example: CSO (Process Owner), Operations (Process Partner), Patient/Family (Customer), Parent Organization of CSO and Operations (Organization)
To highlight potentially conflicting objectives which may be the root cause of problems at the boundary (i.e., between the two departments) and may later surface as audit findings.	Yes, potentially conflicting objectives can be entered in the cell where two stakeholders intersect.	Example of potentially conflicting objective: "To provide a balance between the interests of the complainant, the public, the health care system, and the providers…" because the customer may not care about balance of interests, but rather about satisfactory resolution.
To provide accurate instructions for use on the template.	Yes, instructions are correct.	By following the instructions, the template can be completed.

Table 55 - IdPFD verification against design objectives

IdPFD Verification		
Criteria	**Results**	**Example**
To facilitate planning and performance of boundary audit by enabling auditors to identify the different activities and interactions of a process, including process elements	Planning and performance of boundary audit: Yes, from the method verification. Identify activities and interactions: yes, because each row allows to record events, and events can be classified as activities or interactions (using flowchart symbols) Process elements can be entered in the appropriate column	Template was filled out using process documentation (CSO, 2010, POCSO, 2012a, 2012c) which allowed to break down the process into activities and interactions, including resources and person responsible.
To highlight hand offs	Hand offs were not identified	Hand-offs between departments were not originally visible, because it was confusing to represent 'and/or' relationships between departments.

To display type of activity, inputs, outputs	Yes, activities can be classified as operation, inspection, etc., by means of flowchart symbols. Inputs are the "Materials" entered under process elements, while the output is described in the event description. Observation: Supervisor considered that inputs need to be more clearly indicated. This triggered a change request.	The first version of the template only identified activities as one of the traditional symbols (circle, square, arrow, etc.), plus a "Data Transfer" [hexagon] meant to identify interactions. The first version of the template only identified resources (labeled as PEEMMM), but did not explicitly identified inputs.
To be used during the auditing process	Yes, the IdPFD is used during the audit	The IdPFD that is prepared during planning was also used during audit performance to guide the auditor when examining records.
To be usable and understandable	No. There was confusion regarding what department checkbox to check for interactions (i.e., one for the performer, or two to show the departments involved in an interaction, which conflicts with the showing that two departments could perform a given activity/interaction, i.e., the event is not exclusive).	There was confusion regarding what department checkbox to check for interactions (i.e., one for the performer, or two to show the departments involved in an interaction, which conflicts with the showing that two departments could perform a given activity/interaction, i.e., the event is not exclusive).
To help identify process ownership by means of quantifying work load	Yes, summary table can help identify work load, thus process ownership	The summary table filled during the verification stage yielded that the Process Owner performed 14 activities, vs. 9 by the Operations department, which could be used to confirm "Process Ownership" according to the "Majority of work test"
To provide accurate instructions for use on the template.	Yes (after updating the instructions)	Yes, by following the instructions, the template was completed.
Format consistency	Yes (after tweaking summary table to have enough columns to accommodate 3 departments)	The format of the template maintains consistency with other templates of the BAM (e.g., checklists, and OMT), because the instructions are at the top (under a headline that identifies the name of the template), and at the end, space for references is provided.

Table 56 - OPRC verification against design objectives

OPRC Verification		
Criteria	**Result**	**Example**
Effectiveness of reframed PEEMMM process elements to guide the evaluation of the process result	The reframed PEEMMM process elements (e.g., customer, packaging, etc.) were helpful in preparing the questions used to examine compliance, effectiveness, risks, and improvement opportunities with relation to the process result.	A checklist was prepared using data from closed complaint CC1A. By adapting the PEEMMM process elements to elements related to the customer (i.e., complainant), questions in the OPRC were better targeted to the user [customer] of the product [process output]. For example, questions explicitly asking about "satisfaction and feedback" and "delivery method" of the product were used, as opposed to generic questions about "measures" or "methods", respectively
"Customer" should be an appropriate representation of People	Yes, it is an appropriate representation, because by asking questions relating the customer to the audit objectives, useful information was produced by the checklist.	"Customer" prompted the identification of the "complainant" as the person receiving the process output, and questions were tailored to assess the process output with relation to the patient/family.
"Packaging" should be an appropriate representation of Equipment	Yes, it is an appropriate representation, because "packaging" was a helpful construct when examining how the packaging of the product related to the customer with relation to the audit objectives.	"Packaging" prompted the identification of the "response letter" as the way the output is relayed as to enable tailoring of questions, for example: to assess if the response letter met complainant requirements and objectives.
"Customer Experience" should be an appropriate representation of Environment	Yes, it is an appropriate representation, because it helped examining how the customer experience influences the satisfaction with the product	"Customer experience" representation allowed to frame questions connecting how the complainant perceived the interaction with the product, such as "experiencing frustration" (as per the closed complaint used during verification).
"Product" should be an appropriate representation of Materials	Yes, through the asking of questions relating the product with compliance, effectiveness, risks, and improvement opportunities.	The "product" representation allowed to use the 'response to complaint' to be examined against customer requirements, and to identify that the complainant "did not obtain what he/she was seeking"
"Satisfaction & feedback" should be an appropriate representation of Measures	Yes, because they help to identify how are satisfaction with the product measured, and feedback collected, as well as related risks and opportunities.	The closed complaint was used to assess if "Satisfaction and feedback" were measured, and how. The result was that the patient was asked about satisfaction with process and outcome at the end of the resolution process.
"Delivery method" should be an appropriate representation of Method	Yes, since the specifics of the delivery of the process result can also influence satisfaction with the product.	"Delivery method" referred to how the delivery of the "response letter" is performed, and it was done through the complainant's psychiatrist (because the complainant did not have a residence).
To provide guidance to the auditor as to what to observe, and what questions to ask regarding the process result.	Yes, the checklist accomplishes the goal of helping the preparation of custom questions thanks to the availability of pre-existing questions that can be tweaked or substituted. In addition, space at the end of the template allows entering custom questions.	The questions tailored as per the reframed process elements provided the auditor with numerous questions to examine several aspects of the process result with regards to complaint requirements and complainant objectives.
To be comprehensive	Yes, the checklist provides questions relating to the four objectives of the boundary audit (i.e., compliance, effectiveness, risks, and improvement opportunities). Moreover, questions are provided examining each of a variety of aspects (i.e., the reframed PEEMMM process elements) related to the process result (from meeting customer objectives and requirements, to risks regarding the measuring of satisfaction).	The checklist used 28 questions to examine the product output in terms of compliance, effectiveness, risks and improvement opportunities.

To be consistent (for observation and interview sub-methods)	Yes, the format of the Observe-process-result checklist is very similar to the formats for Observe – the-process, and Interviews, thus facilitating understanding and use through consistency of their application.	The questions from 'observations' checklist are very similar to the ones from 'interviews'. In addition, the template format is very similar (instructions at the top), 5 sections of the main body (one for each objective plus "custom questions").
To be flexible (i.e., customizable)	Yes, the questions of the checklist can be tweaked (electronically), replaced (by entering replacement questions under "enter your own question"), and by entering completely new questions in the space provided at the end of the template.	The questions were customized by the auditor by using generic objectives from the customer (i.e., complainant) as per the OMT (i.e., "to have concerns addressed"), and by using the complainant requirements as documented in the closed complaint (such as "having access to CC video regarding the altercation")
To provide accurate instructions for use on the template.	Yes, the instructions are correct, and following them enable the use of the tool	When filling out the template, the instructions were followed.

Table 57 - OPIC verification against design objectives

OPIC Verification		
Criteria	**Result**	**Example**
To provide guidance to the auditor as to what to observe, and what questions to ask regarding the process interactions.	Yes, the checklist helps the auditor in what to observe with regards to an interaction.	A checklist was prepared using data from closed complaint CC1A. The template questions provide guidance for examining interactions with respect to the four audit objectives, plus allow for customization; furthermore, space is provided for new questions (bottom of page 4 of the template)
To be comprehensive	Yes, the checklist provides questions relating to the four objectives of the boundary audit (i.e., compliance, effectiveness, risks, and improvement opportunities).	24 questions are provided, to examine the different components of an interaction (i.e., PEEMMM), with regards to meeting requirements (i.e., compliance), meeting objectives (i.e., effectiveness), and risk and improvement opportunities.
To be consistent (for observation and interview sub-methods)	Yes, the format of the Observe Process (Interactions) is very similar to the other checklists, thus facilitating understanding and use.	The questions from OPIC are very similar to the ones from 'interviews'. In addition, the template format is very similar (instructions at the top), 5 sections of the main body (one for each objective plus "custom questions").
To be flexible (i.e., customizable)	Yes, the questions of the checklist can be tweaked (electronically), replaced (by entering replacement questions under "enter your own question"), and by entering completely new questions in the space provided at the end of the template.	The questions provided can be customized by referring to process-specific or interaction-specific criteria (such as using the allowed communication equipment like mail or fax to send letters), or by adding new questions that may be of relevance to a particular interaction (such as "what standards or best practices could improve this type of interaction").
To provide accurate instructions for use on the template.	Yes, the instructions are correct.	By following the instructions, the template was completed.

Table 58 - AFST verification against design objectives

AFST Verification		
Criteria	**Result**	**Example**
To allow classification and organization of audit findings to facilitate presenting results	Yes, the template allows to enter four types of findings and to arrange them according to the department to which they belong, or to the boundary	One finding, namely "Wording of concerns memo" was categorized as a threat belonging to the 'boundary', while "excellent communication skills" was a strength of the process owner (CSO) and so on for six other findings.
To summarize findings	Yes, by entering keywords or short statements, the findings are summarized on the template.	The findings, as stated in the instructions, are summarized using short statements or keywords, such as ""timely response", or "excellent communication skills" two strengths entered into the AFST.
To allow structure of information help convey the meaning of the information	Yes, vertical arrangement conveys decreasing urgency (from weakness to strengths) and horizontal arrangement helps identify to which department the finding belongs, incl. the boundary.	A finding such as "timely response" that is presented as a "strength" assigned to the "interdepartmental boundary" conveys the meaning that responses by both departments are timely, and that such occurrence is a strength.
To use a framework that may be already known between manager (such as SWOT) to display audit findings	SWOT framework is widely known in management, and is used by the Audit Finding Summary Template.	The template uses the SWOT categories to organize findings and the categories are displayed vertically along the left side of the matrix in the following order from top to bottom: Weaknesses, Threats, Opportunities and Strengths.
To serve as a table of contents of audit findings	No. A table of contents is usually linear, whereas the table is a matrix. Also, the Audit Finding Summary Template does not contain page numbers, like a Table of contents would.	Page numbers, a vital component of any table of contents, are difficult to present in the AFST format.
To serve as a visual aid when presenting results during the closing meeting	Presumably yes, if a larger version can be reproduced during the closing meeting.	The AFST presents summarized information pertaining to audit findings because it shows short statements or keywords organized per rows (SWOT categories) and columns (departments or boundaries)
To display audit findings pertaining to interdepartmental interactions	Yes, the findings in the middle column represent findings pertaining to the interdepartmental interaction.	The following findings pertaining to the boundary were entered into the AFST: "Wording of 'concerns' memo", and "Response letter delivery limitation" as Threats; "Fill in or escalation process" as an Opportunity, and ""Timely response" as a Strength.

Table 59 - Finding Sheet Templates verification against design objectives

Finding Sheet [O/S and W/T] Templates Verification		
Criteria	**Result**	**Example**
To help auditors to document audit findings identified during the boundary audit	Yes, the finding sheets help to document finding sheets with enough details.	Two Finding Sheets (one for Opportunities/Strengths and one for Weaknesses/Threats) were prepared to document findings encountered during the tool-verification stage.
To clearly state what elements need to be documented in the audit finding (e.g., audit finding, requirement, and audit evidence).	Yes, space to enter audit finding details, applicable requirement and audit evidence are available on both types of finding sheets.	The format of the two Finding Sheets clearly identifies the required details that need to be entered, in addition, the template provides instructions at the top. It also uses sequential numbers to identify the required fields, and a top-to-bottom organization so as to guide the auditor when filling out the template.
To maintain the use of the SWOT framework categories to document findings, as well as the distinction between findings pertaining to a department vs. those pertaining to the interdepartmental interaction, in order to keep coherence of the method.	Yes, the finding sheets continue the categorization of findings as weaknesses, threats, strengths or opportunities. In addition, the recognition of whether a finding belongs to a department, or to the boundary is possible by checking the respective checkboxes in the finding sheets.	A finding "direct response to concern" was documented using the Finding Sheet (Opportunities and Strengths). Therein, the first field of the template required to identify the Department where the finding pertained (i.e., "Operations [Physicians]"), and to identify the department as either "Process owner" or as "Process Partner" (the latter was selected). The type of finding was identified in the second field, as "Strength".
To explicitly and non-ambiguously request the auditee to take action regarding negative findings, i.e., corrective action or preventive action for weaknesses and threats	Yes, Finding Sheets (W/T) have a clear 'call for action' to prepare response plans, including person responsible and deadline date.	A finding sheet (Weaknesses/Threats) was used to document the finding "wording of 'concerns memo' [a threat- type of finding], where a preventive action is requested in order to mitigate the identified risk of how the wording may "create a sense of exclusion on non-health-care employees"
To provide guidance on how to fill out the template (i.e., instructions)	Yes, there instructions are clear and accurate.	The instructions are available at the top of both finding sheets (Opportunities/Strengths; and Weaknesses/Threats) and were followed when filling out the templates.
To provide guidance on follow-up activities pertaining to negative audit findings	Yes, finding sheet (W/T) provides guidance on the follow up steps.	Follow up activities are presented at the bottom of the Finding Sheet (Weaknesses/Threats) and include: preparing a response plan, having the auditor or assignee review the plan, then the auditee(s) implement the plan, then verify that the plan was implemented and is effective.
Additional criteria for Finding Sheet (2. Opportunities/Strengths)		
Criteria	**Results**	**Example**
To help auditors document recommendations	Yes, the Finding Sheet (2. Opportunities and Strengths) provides a field to enter a recommendation in connection to the Opportunity or Strength identified during the audit.	A finding sheet (Opportunities/Strengths) was used to document the finding "direct response to concern" [a strength-type of finding], where a recommendation is made to "try to have Operational Reviewers, where possible, respond directly to the complainant".
To provide auditors with an effective framework to document benefits deriving from implementation of recommendations	Yes, the framework (i.e., Balanced Scorecard) allows to document and classify expected benefits of the recommendation in four categories (i.e., Customer, Financial, Internal Business Processes, and Learning and Growth, as per Kaplan and Norton 1996)	A finding sheet (Opportunities/Strengths) was used to document the finding "direct response to concern" [a strength-type of finding], for which four potential benefits were identified, such as "increased customer satisfaction since the customer talks directly to the Operational reviewer", and "less handling of the concern by an intermediary (i.e., the PCC)", to name two.

To allow management of the auditees (and of the respective organizations) to understand the potential benefits of the recommendations resulting from the boundary audit	The 4-type classification (and expected beneficiaries) help the reader (i.e., management) understand the expected benefits from the recommendation (including the beneficiaries)	The four benefits mentioned above were categorized following the Balanced Scorecard Categories. For example: "Increased customer satisfaction since the customer talks directly to the OP. Reviewer" was categorized as "Customer", while "Less handling of the concern by an intermediary" as "Internal Business Process." In addition, both benefits were identified as benefitting both of the departments (as opposed to one or the other).
To serve as a robust classification system that could also be used when preparing advancement action plans	Yes, the 4-type classification can be carried to the AAP when specifying how the Advancement Action will be measured.	Having organized the potential benefits as per the Balanced Scorecard Categories was carried on to the Advancement Action Plan, where they were also used to identify expected benefits, and how to measure action effectiveness, as described in the second section of the table below.

Table 60 - Response Plans verification against design objectives

Response Plans [CAP, PAP, AAP] Verification		
Criterion	**Results**	**Example**
Interdepartmental collaboration can be specified in the response plans.	Yes, all three response plans, i.e., CAP, PAP, and AAP allow to identify whether interdepartmental collaboration is required during the response, and to enter details regarding the interdepartmental collaboration.	Interdepartmental collaboration was selected as needed in one of the response plans (namely the AAP prepared to address the "Direct response to concern" finding). The other two plans (CAP, PAP) also allow to identify if "interdepartmental collaboration" is needed.
Advancement Action Plan (AAP) Verification		
Criteria	**Results**	**Example**
The template is suitable to record the recommendation as documented in the Finding Sheet (2. Opportunities/Strengths)	Yes, the template provides the same amount of space as the Finding Sheet template to enter the recommendation	The recommendation, as provided in the Finding Sheet, was entered in the second field of the template "2. Recommendation" of the AAP.
The template is suitable to record the expected benefits from the recommendation as documented in the Finding Sheet (2. Opportunities/Strengths)	Yes, the template provides enough room to enter the expected benefits, albeit not organized by the balanced scorecard categories.	The expected benefits, as provided in the Finding Sheet, were entered in the third field of the template, "3. Expected benefits" of the AAP.
The template allows the auditee to make a decision regarding the recommendation.	Yes, the template allows the auditee to make a decision (and record it) whether to pursue, postpone, or disregard the recommendation.	The auditee can select whether to pursue the recommendation (as noted in the AAP that was prepared), to postpone the response for a period of a year or more, or to disregard the finding.

Appendix E.1.3 - Verification of tools: Change plan for tools

Table 61 - Changes identified and implemented

Tool	Changes to Template	Changes to Example
1. Objective Mapping Template (OMT)	Add a column to accommodate more than one process partner	Add example of potentially conflicting objective to in-text example of OMT
2. Interdepartmental Process Flow Diagram (IdPFD)	- Make 'inputs' more prominent - Highlight hand-offs - Clarify AND/OR responsibility - Show the type of interaction - Show interaction direction (originator/receiver) [Later discarded, deemed as unnecessary] - Use 'people' process element to document training skills as opposed to interaction co-performer - Accommodate at least 2 process partners - Allow for decision points in the template	Update in-text example using updated template of IdPFD
3. Observe Process Result Checklist	- Allow to enter names of all involved departments (or none) - Clarify connection between objectives entered in the OMT and audit criteria and the checklist regarding the customer with relation to effectiveness. - Indicate the work needed from the auditors to assign process-specific PEEMMM representations (either in-template or as a new sub-template) - Add to instructions that questions need to be reworded according to process-specific representations - Allow to document record examined - Allow to document criteria used during examination - Verify 'method' is used as opposed to 'strategy'	Update in-text example of OPRC usage
4. Observe Process (Interactions) Checklist	- Clarify connection between objectives entered in the OMT and audit criteria and the checklist regarding the customer with relation to effectiveness. - Allow to document record examined - Allow to document criteria used during examination - Verify 'method' is used as opposed to 'strategy' - Extend changes to other Checklists where applicable (unify instructions)	Make sure two process partners can be entered and info about them examined during the checklist responses in-text example of OPIC usage
5. Audit Finding Summary Template (AFST)	Add a column to accommodate more than one process partner	Update in-text example of AFST illustration
6. Finding Sheet (1. Weaknesses and Threats)	Clarify that Threats should trigger a Preventive Action Plan, and Weaknesses a Corrective Action Plan (section 6)	Update in-text example of FS (W/T)
7. Finding Sheet (2. Opportunities and Strengths)	No changes	Update in-text example of FS (O/S)
8. Preventive Action Plan (PAP)	- Fix instructions (i.e., unify "approved" or "accepted") - Extend instructions changes to CAP	Update in-text example of PAP
9. Advancement Action Plan (AAP)	- Fix instructions (i.e., unify "approved" or "accepted") - Error proof so that "How to measure PA effectiveness" is presented in terms of BSC categories	Update in-text example of AAP

Appendix E.2 - Verification of method

Appendix E.2.1 - Verification of method: Evaluation of BAM steps

Table 62 - Analysis of BAM steps (part 1 of 6)

BAM step / sub-step	Original value	Who performs the step	Required resources	Sources of data for verification
1. Identify and categorize departments at each side of the boundary (incl. determination of Process Ownership)	Concept of process ownership, and the corresponding importance as an internal customer of the process, 3 tests to determine P. Ownership	Auditor	- Information about the process (departments involved) - Responsibility for the process, work distribution, interactions involved	CSO documentation Closed concerns PCO Closed concerns CSO
2. Determine access and collaboration	Traditionally lack of accessibility means that the audit is not feasible. The boundary audit aims to still gain information about compliance, effectiveness, risks, and opportunities by examining interaction records. Collaboration of auditees during audit (reporting, responding to findings) needs to be determined during planning.	Auditees' decision with auditor facilitation	- Case-specific conditions: - Will access be given to auditors to examine the process (observe, interview) at all departments involved? - Agreement regarding level of collaboration during reporting and responding to findings.	Agreement during planning of audit
3. Understand process (IdPFD and Checklists)	Adaptation of PFD to accommodate up to 3 departments, and allow the recording of interactions Development of checklists, to observe and ask questions, to examine process result, activities, and interactions with relation to audit objective.	Auditor	- Information about the process (sequence of activities, resources required, process output) - Requirements the process (and product) need to comply with. - Objectives of the departments involved in the process, of the parent organization, and of the customer.	CSO documentation Closed concerns PCO Closed concerns CSO
4. Identify and compile applicable requirements and objectives (OMT)	Organizing objectives by common, unique and potentially conflicting allows to early on identify potential misalignments between departments performing an interdepartmental process.	Auditor	- Objectives of the departments involved in the process, of the parent organization, and of the customer.	CSO documentation

Table 63 - Analysis of BAM steps (part 2 of 6)

BAM step / sub-step	Original value	Who performs the step	Required resources	Sources of data for verification
5. Define audit objectives, scope, and criteria	4 objectives by design: compliance, effectiveness, risks, and improvement opportunities; Scope: interdepartmental process; Criteria includes traditional process audit criteria plus "organizational communication guidelines, agreed upon practices, and interaction-specific escalation procedures"	Objectives: Audit client Scope: Audit client and auditor Criteria: Audit client and auditor Russell (2005)	- Audit objectives that the audit client desires of the audit - Scope: Interdepartmental process and any exclusions - Criteria: Traditional process-audit criteria plus interaction-specific criteria such as: "organizational communication guidelines, agreed upon practices, and interaction-specific escalation procedures"	Verification of objectives already existing in literature Verification of scope: OK from case study Verification of criteria regarding interactions: if available: "organizational communication guidelines, agreed upon practices, and interaction-specific escalation procedures" adapted from Code of Conduct (POCSO,2013a)
6. Define audit team	Competent auditors	Auditor	Knowledge, experience, and personal skills and traits (Russell 2005, p. 67) of potential audit team members	Verification of audit team already existing in literature
7. Prepare the audit plan	Complete and accurate	Auditor	Audit objectives, scope, criteria, schedule, team, report distribution list	Verification of audit plan already existing in literature
8. Share audit plan with management representatives	Inform management representatives (i.e., auditees) of audit plan	Auditor	Share audit plan to make them aware of plan and receive feedback on potential conflicts	Step already existing in literature
9. Determine concurrent or sequential approach	When 2 or more departments are accessible for the boundary audit, such determination needs to be made	Auditor + auditees	Accessibility considerations (from step 2), resources available (people, time), auditees' availability.	Agreement during planning of audit Validation with human subjects

Table 64 - Analysis of BAM steps (part 3 of 6)

BAM step / sub-step	Original value	Who performs the step	Required resources	Sources of data for verification
10. Opening meeting	Common step to start the audit	Auditor + auditee(s)	According to step 9 (i.e., approach), it will be joint for all auditees or individually for each/some of them.	Step verified in existing literature
11. Tour	Step suggested by Arter (2003) and Russell (2003) per Russell (2005) on p. 76 to get acquainted with the process. No special considerations for boundary audit.	Auditor	Dependant on the type of approach (i.e., concurrent or sequential, step 9).	Step verified in existing literature
12. Observe process result	Adaptation of PEEMMM process elements to examine a process output via a checklist	Auditor	- Process documentation to understand the process result (to adapt the Observe Process Result Checklist) - A [physical] sample of the process result, or records of process result delivery to be examined against the checklist.	Closed concerns PCO Closed concerns CSO
13. Observe process (interactions)	Guidance on what to observe, via the PEEMMM process elements, of interactions with respect to 4 objectives (i.e., compliance, effectiveness, risks, and improvement opportunities).	Auditor	Interaction performed between different people, or records with information about interaction	Closed concerns PCO Closed concerns CSO
14. Observe process (activities)	Guidance on what to observe, via the PEEMMM process elements, of activities with respect to 4 objectives (i.e., compliance, effectiveness, risks, and improvement opportunities).	Auditor	Activities performed at individual departments, or records with information about activities	Closed concerns PCO Closed concerns CSO
15. Interview personnel (interactions)	Questions to ask personnel about interactions with respect to 4 objectives	Auditor + personnel	Interaction performed between different people, or records with information about interaction	Validate appropriateness of questions with human subjects

Table 65 - Analysis of BAM steps (part 4 of 6)

BAM step / sub-step	Original value	Who performs the step	Required resources	Sources of data for verification
16. Interview personnel (activities)	Questions to ask personnel about activities with respect to 4 objectives	Auditor + personnel	Activities performed at individual departments, or records with information about activities	Validate appropriateness of questions with human subjects
17. Analyze information	Common step in audits. Completeness, reliability, validity of information?	Auditor	Examine collected information, use experience to assess its adequacy to draw conclusions.	Step verified in existing literature
18. Assess the boundary (AFST)	Categorize and organize findings using AFST with regards to location (i.e., departments or boundary) and type of finding (i.e., SWOT)	Auditor	Audit findings from checklists	Audit findings obtained from PCO's and CSO's closed concerns
19. Reach conclusions	Common step in audits, extended to include the evaluation of the boundary by means of AST.	Auditor	Audit Finding Summary Template	AFST prepared by examining PCO's and CSO's closed concerns
20. Closing meeting	Common step in audits.	Auditor + auditee(s)	- Depending on step 9 (i.e., approach), it will be joint for all auditees or individually for each/some of them. - Info needed: AFST + conclusions	Step verified in existing literature
21. Generate finding sheets	Common templates slightly modified to identify whether finding belongs to a given department or to the boundary; and to allow classify findings as Weaknesses/Threats or Strengths/Opportunities. Use of Balanced Scorecard (BSC) categories to document expected benefits of recommendations for S/O	Auditor	AFST and conclusions	AFST + conclusions using PCO's and CSO's closed complaints
22. Determine if audit reporting is jointly or separately	Defined during audit planning (step 2. Determine access and collaboration)	Auditees' decision with auditor facilitation	Accessibility considerations (from step 2), resources available (people, time), auditees' availability.	Agreement during planning of audit

Table 66 - Analysis of BAM steps (part 5 of 6)

BAM step / sub-step	Original value	Who performs the step	Required resources	Sources of data for verification
23. Prepare audit report	Common step in audits.	Auditor	Introduction, summary of audit conclusions, and finding sheets	Step verified in existing literature
24. Delivery of oral report (Exit meeting)	Common step in audits (Arter *et al.,* 2013)	Auditor + audit client (auditee(s) for internal audit)	- Depending on step 9 (i.e., approach), it will be joint for all auditees or individually for each/some of them. - Info needed: Audit report	Step verified in existing literature
25. Delivery of written report	Common step in audits (Arter *et al.,* 2013)	Auditor + audit client (auditee(s) for internal audit)	- Depending on step 9 (i.e., approach), it will be joint for all auditees or individually for each/some of them. - Info needed: Audit report	Step verified in existing literature
26. Determine joint or separate response planning	Defined during audit planning (step 2. Determine access and collaboration)	Auditees' decision with auditor facilitation	Accessibility considerations (from step 2), resources available (people, time), auditees' availability.	Agreement during planning of audit
27. Assess findings	Common step in audits.	Auditees	Finding sheets from audit report	Step verified in existing literature (Arter *et al.,* 2013)
28. Prepare response plans	Conventional templates with slight modification to indicate whether interdepartmental collaboration will be needed to plan and execute response. Positive response plans use BSC categories to identify effectiveness measures for the planned response regarding S/O	Auditees	Finding sheets from audit report	Step verified in existing literature For Interdepartmental collaboration: finding sheets from examination of closed concerns from CSO and/or PCO
29. Revise response plans	Common step in audits.	Auditor	Response plans	Prepared response plans for audit findings related to closed concerns from CSO/PCO

Table 67 - Analysis of BAM steps (part 6 of 6)

BAM step / sub-step	Original value	Who performs the step	Required resources	Sources of data for verification
30. Implement response	Conventional step in audit. Original value regarding the possibility of having interdepartmental collaboration during the implementation of the response	Auditees	Response plans	Step verified in existing literature For Interdepartmental collaboration: implementation can be examined by inspecting evidence, see below.
31. Verify implementation and effectiveness	Conventional step in audit. Original value regarding use of BSC-specific measures to assess response action effectiveness.	Auditor or assignee	Response plans	Examine records of implementation; focus on BSC measure of effectiveness
32. Keep records	Conventional step in audit.	Auditor and auditees	Audit report, response plans (incl. verification records)	Records of auditees Step verified in existing literature (Russell 2005)

Appendix E.2.2 - Verification of method: Sample selection (for CSO data)

23 closed concerns from the CSO were originally available. A sub-set of 6 closed concerns was selected by using the online tool "Research Randomizer" (see Figure 60) to generate random numbers that allowed to select the closed complaints that would be used during the verification.

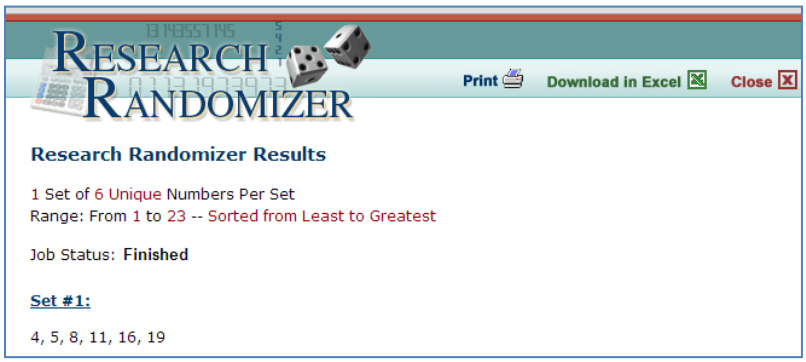


Figure 60 - Random numbers generation (Source: www.randomizer.org accessed on April 28, 2014)

Appendix E.2.3 - Verification Part 2: Interaction Criteria

Since no 'organizational communication guidelines' were available at the CSO or the PCO, the interaction criteria shown in Figure 61 were extracted from a publicly available document called 'Code of Conduct' (POCSO, 2013a).

First, the document (POCSO, 2013a) was read and understood, and then, items were selected that could be used to guide interactions (i.e., interdepartmental communications). For the purpose of verification, the following items from the Code of Conduct (POCSO, 2013a) were used as interaction criteria, since they represent good practices to take during interdepartmental interactions and communications:

Interaction Criteria for Verification of method

1. **Treat people with respect, compassion, dignity and fairness**
2. **Communicating in a timely and appropriate manner**
3. **Taking responsibility for, correcting, and learning from mistakes**
4. **Displaying integrity and ethical behavior**
5. **Recognizing and addressing real, potential or perceived conflicts of interest**
6. **Doing what we say we are going to do**
7. **Promoting excellence, innovation and continuous improvement**
8. **Respect confidentiality and privacy**

Source: Select excerpts from Code of Conduct (POSCO 2013a)

Figure 61 - Interaction Criteria (Excerpted from POCSO, 2013a)

Appendix E.2.4 - Verification of method using second set of data (i.e., from CSO)

The same BAM steps applied to the PCO-review records were applied to the records from the CSO. The main difference was that not all tools were applied for all closed complaints, due to time limitations. Table 68 presents a summary of the steps and tools that were used for each closed complaint from the CSO, as explained below:

- For step 1. "Identify and categorize departments at each side of the boundary (incl. determination of Process Ownership)", the number of departments interacting in each closed complaint is provided (e.g., 3 departments in record CC9). Also, for all records the CSO was identified as the Process Owner, using "Test 1: Responsibility for the process".
- The application of Step 2. "Determine access and collaboration" was limited because only records from one department (i.e., the CSO) were available; therefore no departmental collaboration with regards to audit planning or performance activities was tested.
- Step 3. "Understand process (IdPFD)" was performed for records CC9, CC13, CC16 and CC24. The selection of closed complaints for which to prepare IdPFDs followed a semi-random process with the following constraints: to have at least two tools (out of the following three: IdPFD, OPRC, and OPIC), applied on each of the closed complaints; while also having each tool applied at least four times using the data from the CSO (i.e., out of the six closed complaints). A schedule that met those constraints was prepared and used to apply the tools selectively along the closed complaints, as reported on Table 68.
- Regarding item 4. "Interaction categories", each interaction from the closed complaints was categorized as one of the following: Request, Response, Notification, Contribution, or Collaboration. Worth noting is that interaction categorization was performed even for those closed complaints that were not documented using the IdPFD, such as CC10 and CC21, in order to use as much data as possible to test the interaction categories. It was concluded that the categories were appropriate.
- For step 5. "Identify and compile applicable requirements and objectives (OMT)", one OMT was prepared which identified the complainant as the customer. As with the application of step 5 using data from the PCO, information from Operations, (i.e., process partner 1) was unavailable, and required the author to assume the following statement "to provide health care services" as the objective for the Operations department.
- Similarly, for step 6. "Define audit criteria [interactions]", the same interaction criteria used to examine the data from the PCO was used to examine the interactions from the CSO's PCRP.
- For step 7. "Observe Process Result", OPRCs were prepared and used to examine the outcome as reported in the "Resolution response" field for the electronic database print-outs available to the author. The records examined comprised: CC9, CC10, CC16, and CC21.

Table 68 - Verification plan (BA tools usage with data from CSO's PCRP)

	CSO's PCRP						Total times step was performed (or tool used)
Sample	**1**	**2**	**3**	**4**	**5**	**6**	
Random number*	**4**	**5**	**8**	**11**	**16**	**19**	
BAM step \ Record ID number**	**CC9**	**CC10**	**CC13**	**CC16**	**CC21**	**CC24**	
1. Identify and categorize departments at each side of the boundary (incl. determination of Process Ownership)	3 Departments	10 Departments	5 Departments	4 Departments	5 Departments	3 Departments	6
	Process Owner: CSO, identified using "Test 1: Responsibility for the process" (as described in Appendix D.1.2)						
2. Determine access and collaboration	Access: CSO only, review of CSO closed complaints						N / A
3. Understand process (IdPFD)	✓		✓	✓		✓	4
4. Interaction categories	3 interactions, Categories used were appropriate	35 interactions, Categories used were appropriate	9 interactions, Categories used were appropriate	9 interactions, Categories used were appropriate	8 interactions, Categories used were appropriate	4 interactions, Categories used were appropriate	6 *[68 interactions]*
5. Identify and compile applicable requirements and objectives (OMT)	✓ (One per audit) CSO objectives: OK Other department objectives unavailable						1
6. Define audit criteria [interactions]	✓ (One per audit) Select guidance from Code of Conduct (POCSO, 2013a) [The same that was used for audit of PCO-review records]						1
7. Observe process result	✓ Resolution Response field from print-out	✓ Resolution Response field from print-out		✓ Resolution Response field from print-out	✓ Resolution response field from print-out		4
8. Observe process (interactions)		✓ Phone call b/w PCC, Sr. PCC and patient	✓ Outcome review from AZMD to PCC		✓ Intake of concern	✓ PFIC forwards concern	4
9. Assess the boundary (AFST)	✓ (One per audit) Preliminary table with 13 Potential Findings → 7 Corroborated Findings entered into the AFST						1
10. Generate finding sheets	✓ (Four finding sheets prepared) Two department-specific W/T finding sheets, Two O/S finding sheets: one department-specific and one boundary-related						4
11. Prepare response plans (AAP)	✓ (Two AAPs prepared) One for an opportunity-type finding, and one for a strength-type finding						2

Legend
✓ checkmark indicates that the tool in the row was applied once (unless otherwise specified) to the record in the intersecting column
* From www.randomizer.org
** From author's internal classification of records

- For item 8. “Observe Process (Interactions)”, four OPIC were prepared and used each to examine one interaction of the following records: CC10, CC13, CC21 and CC24. The author selected interactions that contained sufficient information as reported in the “Communications log” field of the electronic database print outs, or that contained information communicated from one department to another, even if reported under the “Resolution response” field. Interactions examined included, for example, a phone call between the a Patient Concerns Consultant (PCC), a Sr. PCC, and the patient; or the outcome review from an Associate Medical Director as communicated to the CSO, to name two.
- Step 9. “Assess the boundary (AFST)” was applied once during the audit. Using information from the checklists (i.e., OPRs and OPIs), tentative audit findings were extracted and assessed in terms of recurrence or criticality. An example of a critical finding was “long response times” a result of having identified that the resolution time as reported in record CC10, was 95 natural days. Six other findings were entered into the AFST, two of which include: “No comparing of process times vs. targets” (a weakness of the process owner, CSO) which referred to not comparing process-times against targets, whether or not defined; and “Medical Reviewer not providing references to ‘standard or care’” (a threat of the process partner, Operations) that related to the lack of details about which ‘standard’ he/she referred to when providing a response to a concern.
- Step 10. “Generate finding sheets” included the preparation of two negative-type findings (i.e., W/T), and two positive-type findings (i.e., O/S), in order to thoroughly document four of the findings entered into the AFST as per the prior step. The two documented negative-type findings were: “Long response times” and “Medical reviewer not providing references to ‘standard of care’”, a weakness at the Process Owner (CSO) and a threat at the Process Partner (Operations) respectively; while the two positive-type findings were “Satisfaction measuring opportunities” and “Instances of resolution within 1 or 2 days from intake”, an opportunity at the Process Owner (CSO), and a strength at the boundary (i.e., for both CSO and Operations), respectively.
- Step 11. “Prepare response plans (AAP)” consisted of preparing two response plans (i.e., AAPs) addressing the positive-type findings from step 10, namely opportunity “Satisfaction measuring opportunities”, and strength “Instances of resolution within 1 or 2 days from intake”.

The decision to use the same interaction criteria (related to step no. 6) when examining the data from the PCO and from the CSO obeyed the fact that both departments ought to communicate within the same environment since they (1) belong to the same parent organization; and (2) interact with the same stakeholders, including complainants, operational departments, and among each other. Just as with the data from the PCO, preliminary results and observations were kept throughout the application of the BAM steps to the CSO records; and upon completion, they were merged with the results from first part of the “Verification of method” stage in order to compare the BAM vs. the method design objectives.

Appendix E.3 - Analysis of records and tool usage

The two sources of data used during the "Verification of method" stage allowed to examine a comprehensive amount of data. Table 69 presents some figures related to the records and their relevant attributes (i.e., departments and interactions), as well as the number of times that individual tools were applied for each data-source and in total.

Table 69 - Verification data source/use statistics

	Data source		Total
	PCO	CSO	
Pertaining to records and relevant attributes			
Records examined	5	6	11
Total number of departments involved (unique)	43 (24)	30 (19)	73 (36)
Median number of departments involved per record	8	4.5	*N/A*
Total number of interactions	202	68	270
Median number of interactions per record	39	8.5	*N/A*
Pertaining to tool application			
OMTs prepared	2	1	3
IdPFDs prepared	5	4	9
OPRCs applied	6	4	10
OPICs applied	10	4	14
AFSTs prepared	1	1	2
Finding sheets (W/T) prepared	3	2	5
Finding sheets (O/S) prepared	3	2	5
AAPs prepared	3	2	5
Total tool application	33	20	53

The first part of Table 69 contains select statistics related to the records examined, departments involved, and interactions performed. From the five PCO records examined: 43 departments (24 unique) performed a total of 202 interactions; whereas from the six CSO records, a total of 30 departments (19 unique) performed 68 interactions. The median number of departments interacting during the performance of their respective processes was 8 at the PCO, and 4.5 at the CSO. Such a difference is likely a result of the fact that while the CSO usually interacted with Operations and the Complainant, the PCO would usually interact with the CSO itself, Operations, the Complainant, in addition to the Ombudsman and even the CEO Office. In other words, the PCO review process involved several more departments during the resolution of a complaint. Correspondingly, the median number of interactions per record was 39 for the data from the PCO, and 8.5 for the data from the CSO, also a reflection that the PCO-review is a process involving more stakeholders than the CSO's PCRP. No medians were calculated for departments or interactions on a per-record basis aggregating all records, since the two sets of data belong to different processes and involve different resources. Therefore, the calculation of aggregate medians would be mixing elements from different populations.

The second part of Table 69 compares the application of 8 tools used during the BAM verification on a per-data-source basis (i.e., PCO, CSO), and in total. For example, two OMTs were prepared using PCO data, while only one was prepared using CSO data, for a total of three applications. From the table, it is clear that OPRCs were the most applied tool with 14

applications (10 with PCO data, and 4 with CSO data); while the AFST was used only twice, once for each set of data. The reason for the high application of OPICs is that their purpose is to allow the examination of interactions, the preeminent target of the BAM (i.e., the interfaces).

Summarizing, eleven records were used during the verification effort and contained 270 interactions involving 36 unique departments. PCO data was used to prepare 33 tools, while CSO data was used to prepare 20 tools, for a total of 53. The amount of data examined and tools prepared, limited as they may be, provide assurance regarding the appropriateness of the verification of the BAM.

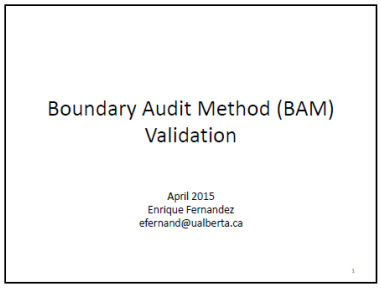
Appendix F - Supporting materials for "BAM Validation"
Appendix F.1 - Planning

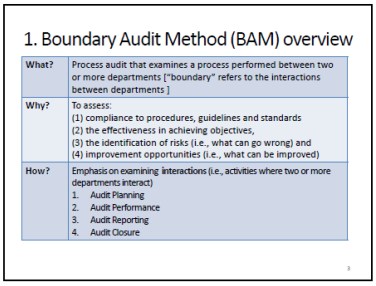
Table 70 - Tool selection (per BAM step) for validation based on originality and whether previously verified

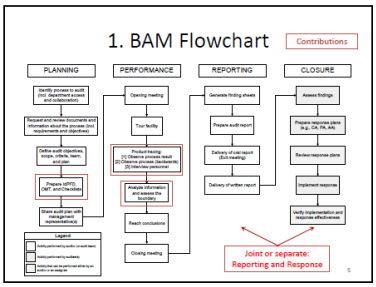
BAM step	Generic?	If original or significantly-adapted:	
		Verified?	To validate?
1. Identify and categorize departments at each side of the boundary (incl. determination of process ownership)		Yes	**Yes**
2. Determine access and collaboration		Yes	**Yes**
3. Understand process (IdPFD and Checklists)		Yes	**Yes**
4. Identify and compile applicable requirements and objectives (OMT)		Yes	**Yes**
5. Define audit objectives, scope, and criteria		Yes (interaction criteria)	**Yes (interaction criteria)**
6. Define audit team	Yes	Not needed	Not needed
7. Prepare the audit plan	Yes	Not needed	Not needed
8. Share audit plan with management representatives	Yes	Not needed	Not needed
9. Determine concurrent or sequential approach		No (not applicable)	**Yes**
10. Opening meeting	Yes	Not needed	Not needed
11. Tour	Yes	Not needed	Not needed
12. Observe process result		Yes	**Yes**
13. Observe process (interactions) Checklist		Yes	**Yes**
14. Observe process (activities) Checklist	Yes	Not needed	Not needed
15. Interview personnel (interactions) Checklist		No (not applicable)	**Strong Yes**
16. Interview personnel (activities) Checklist	Yes	Not needed	Not needed
17. Analyze information	Yes	Not needed	Not needed
18. Created after verification: Selection of audit findings based on recurrence or criticality	Yes	Yes [unavoidable]	Not needed
19. Assess the boundary (AFST)		Yes	**Yes**
20. Reach conclusions	Yes	Not needed	Not needed
21. Closing meeting	Yes	Not needed	Not needed
22. Generate finding sheets		Yes	**Yes**
23. Combined or separate reporting		No (not applicable)	**Yes**
24. Prepare audit report	Yes	Not needed	Not needed
25. Delivery of oral report (Exit meeting)	Yes	Not needed	Not needed
26. Delivery of written report	Yes	Not needed	Not needed
27. Combined or separate responding		Not (not applicable)	**Yes**
28. Assess findings	Yes	Not needed	Not needed
29. Prepare response plans		Yes	**Yes**
30. Revise response plans	Yes	Not needed	**Yes**
31. Implement response	Yes	Not needed	Not needed
32. Verify implementation and effectiveness	Yes	Not needed	Not needed
33. Keep records	Yes	Not needed	Not needed

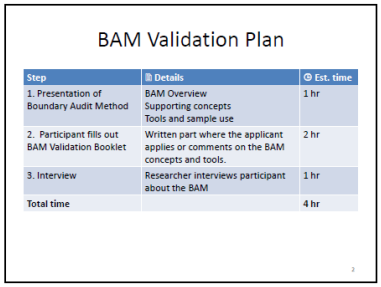
Appendix F.2 - Performance

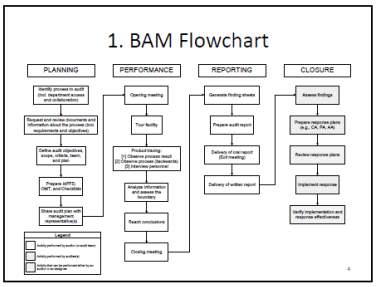
Appendix F.2.1 - Sample of BAM Validation presentation slide deck

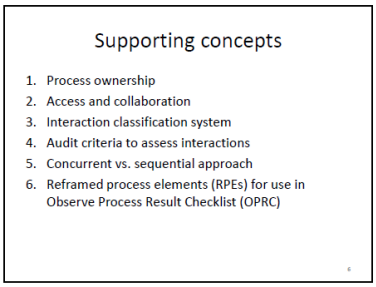


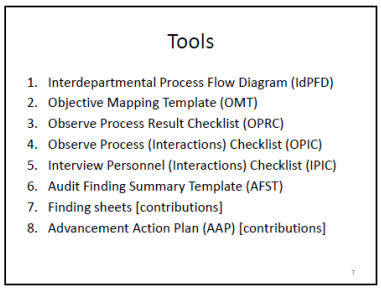




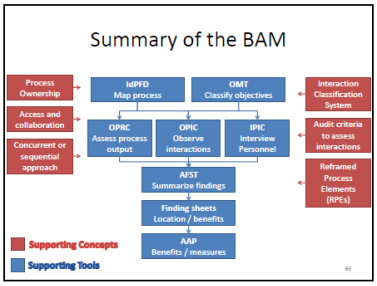


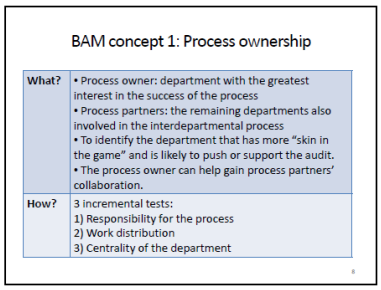


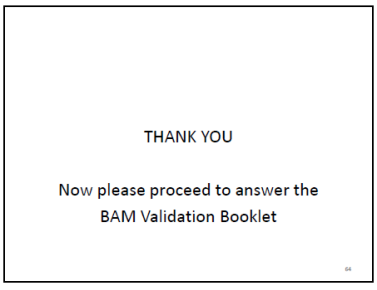




[Slides 9 – 62 omitted]







Appendix F.2.2 - Excerpt of Booklet with questions

BOUNDARY AUDIT METHOD

VALIDATION PROCESS DESCRIPTION

1. Study purpose

As an expert in complaints handling and/or auditing, you are being asked to participate in a study to test the effectiveness of an audit method called 'boundary audit method' (BAM). The purpose of the BAM is to assess interdepartmental processes (i.e., a process that involves two or more departments) with relation to compliance, effectiveness, risks, and improvement opportunities. The examination of an interdepartmental process is achieved by closely examining the interactions (i.e., communications) between members of different departments.

The validation process will take place in three parts:

1) BAM presentation (including tools), and training on the use of select tools [50 – 60 min]

2) Application of tools by participant on a sample process [1 - 2 hr]

3) Interview questions (written and oral) [1 hr]

* If preferred, the validation could be split into two 2-hr sessions, instead of one 4-hr session

NOTE FOR RESEARCHER: Ensure that (1) the research project has been explained to the participant, (2) that an information letter has been given to him/her, and (3) that he/she has signed and returned the consent form.

2. BAM presentation

Now, the BAM will be presented to you by the researcher.

3. Application of tools by participant on a sample process.

After the presentation of the BAM by the researcher, you are asked to refer to the "BAM Validation Booklet" and go through it (i.e., reading and answering the questions therein). The "BAM Validation Booklet" consists of:

(1) Description of a sample process

(2) Questions about BAM components

(3) Appendices

4. Interview session

Once you have completed the "BAM Application Booklet" the researcher will ask you a few questions regarding your impressions of the method.

BAM Validation Booklet

Participant job title: _____ Date (MM/DD/YY): _____

Start time (HH:MM) : _____

Instructions

This BAM Application Booklet consists of 28 pages plus appendices, subdivided as follows:

You are welcome to ask questions to the researcher if any instruction or question is unclear, or if you have any comments regarding the BAM or its application. You can also refer to the copies of the BAM presentation that the researcher used to explain the method and tools.
The available time to complete this booklet is 2 hours. There are blank pages at the end of the booklet in case you need extra space for answering the questions or provide comments.

Remember, this is not a test but rather a formal way to assess if the BAM is "capable of meeting the requirements for its intended use" (ISO 9001:2008, p. 9), namely, to "examine a process performed between two or more departments."

Your participation and feedback are greatly appreciated.

References:

POCSO (2012), *Patient Concerns Resolution Process (Procedure)*

CSO (2010), "POCSO, Patient Concerns Resolution Process", Patient Concerns Division, June 8, 2010.

1. Description of a sample process

The Patient Concerns Resolution Process (PCRP), according to the document (POCSO 2012) consists of the following sub processes:

"1. Receipt of Concerns

2. Initial Management of Concerns

3. Review of Concerns

4. Concern Assessment

5. Response to a concern

6. Documentation"

The PCRP in its simplest form usually involves interactions between (1) patient/family, (2) staff from the Patient Relations Department (CSO), and (3) staff from Operations (i.e., the providers of health care services, such as units, clinics, or programs). Sometimes concerns are (or progressively become) more complex and involve Medical staff, Senior Management (e.g., CEO Office, Minister of Health Office), or external parties (e.g., MLAs, Ombudsman). For the purpose of this study, two sub processes (i.e., 2. Initial management of concerns, and 3. Review of concerns) are presented in detail and will be referred to by some questions of this study.

Sub process 2. Initial management of concerns (excerpt from POCSO, 2012)

[REDACTED]

Sub process 3. Review of concerns (excerpt from POCSO, 2012)

[REDACTED]

With the information above, please answer the following sections.

A. Questions about BAM-related supporting concepts

1. How many and what departments are usually involved in the Patient Concern Resolution Process (PCRP)?

2. In the context of the BAM, the **process owner** is the "department with greater interest in the success of a process." There are 3 incremental tests (i.e., after one test identifies the process owner, no further testing is needed) that can help to identify the process owner of an interdepartmental process, namely: "responsibility for the process", "workload distribution", and "centrality of the department." For more details about process ownership and its determination, you can refer to Appendix A1.

Question 2.1: What department in the PCRP can be considered as the process owner?

Question 2.2: How did you determine the answer to question 2.1 (process owner of the PCRP)? Did you use one of the 3 incremental tests? Why or why not?

Question 2.3: Do you consider the 3 tests (i.e., "responsibility for the process", "workload distribution", and "centrality of the department") appropriate, or would you suggest another way to determine "process ownership"?

BAM Validation Interview Questions are available in Appendix B.2

Appendix F.3 - Analysis

Appendix F.3.1 - Database of responses (Sample excerpt)

Category	Sub category	Source (of questions)	Question full	Participant 1	Participant 2	Participant 3
…	…	…	…	…	…	…
Concept	5. Audit criteria for interactions	Booklet	**Question 7.2: What other criteria could be used to examine interdepartmental interactions in the PCRP?**	Perhaps could assess if the right people at the right level were involved in the interaction. Sometimes it may be better to work with a more senior manager, or it may be appropriate to include some of the front line staff and it needs to be assessed if the right ones were involved.	• Policy requirements • Leading practices	See above answer [answer referred: While some of these are good. I think the use of code of conduct does not fit with concerns work and consideration should be given to principles within the policy suite and administrative fairness guidelines.]
Concept	5. Audit criteria for interactions	Interview	**8. Are the suggested interaction criteria (i.e., organizational communication guidelines, roles and responsibilities, and escalation procedures) appropriate when examining interfaces at interdepartmental processes? Why or why not?**	Audit criteria makes sense how [Researcher] did it, but it would be difficult to start from scratch [Participant 1] would not have used Code of Conduct as interaction criteria. Maybe some more description about where you may find it. And even specifically mention things like "stated organizational values" What is often written and defined vs. the unwritten and undefined, but cultural values of the org. are different than stated values. How to deal with that. The criteria for interactions somehow that needs to be acknowledged that there are stated and unstated values, and many times the unstated ones are the most powerful ones, and may contradict the stated ones. Perhaps the criteria for interactions is about to what extent you …. auditing the extent of your compliance with stated objectives. For example, in [POCSO], we talk about transparency and engagement, but from the top there is no engagement. There's all kinds of major initiatives that affect staff … a lot of talk about a management review, but nobody knows anything about it, or what criteria would be used. Some assessment of staff is mentioned about, but no details are provided (i.e.,. not Decisions made about printers in the organization, but the operational level was not involved, even though they are affected … the org. talks about engagement and consistency, but it is not	I think it's well defined… it clarifies roles and responsibilities… it provides clarity to audit team and stakeholders, and they are good.	The example [of ICS] is not the right example… rather the policy suite and administrative fairness (relational, procedural, and substantive ….) [Participant] will send [researcher] a document on administrative fairness
Concept	5. Audit criteria for interactions	Feedback	**Feedback (impromptu)**		Interaction criteria example could be considered as 'values' and their use as benchmarks would be too subjective… better to use more specific criteria	5.On Interaction criteria Participant 3: There exist communication guidelines in the [CSO], as exemplified by the "Pocket card" guidance [sample was provided by research participant] that should be followed when communicating with patients. The guidance can also be used when communicating with other personnel. Participant 3: Also the PCRP Policy [Policy Suite] and the Medical Staff Guideline could be used as criteria. For example, the Policy or Medical Staff Guideline requests the Operational Reviewer to provide a "thorough review" so that is complies with the principle of administrative fairness.
…	…	…	…	…	…	…
Tool	5. Interview Personnel (Interactions) Checklist (IPIC)	Booklet	**Question 11.2: Is the IPIC effective in guiding the auditor when asking questions about interactions of an interdepartmental process, and why?**	Yes	Yes	No
Tool	5. Interview Personnel (Interactions) Checklist (IPIC)	Booklet	**11.2b Why?**	This is where the relevance of the specific questions becomes important. Having the defined categories to guide the formation of the questions ensures a comprehensive assessment, but the flexibility of creating your own questions or adapting them to your specific context allows for valuable learning I think each process will need to develop specific questions but having the categories and definitions for interactions helps identify what the questions should be	The guide is well organized and will allow the auditor to focus on listening rather than thinking of the next question to ask. It will also allow for consistency in the way interviews are being conducted among many interviewees.	Same concern as above [Answered referred: It does not include any questions related to other departments experience and ability to meet principles of policy and procedure and admin fairness. These questions will not identify areas of concern b/w departments.]
Tool	5. Interview Personnel (Interactions) Checklist (IPIC)	Interview	**10. Please rate the effectiveness of the following BAM tools using the table below, and provide any suggestions for tool improvement using the last column. "To ask questions about interactions"**	4	5	5
…	…	…	…	…	…	…

Appendix F.3.2 - Summary of conclusions and follow up action (or possible alternatives)

Concept or tool	Summarized conclusions	Follow up action (or possible alternatives)
Concept 1: Process ownership	The concept of process ownership was understood by the participants and could be used in an interdepartmental process such as the PCRP.	No need for changes
Concept 2: Test 3 – Centrality	Two out of three participants considered the test Centrality as 'logical' Example used to illustrate Centrality test was not appropriate	Strongly consider dropping the 'Centrality' test, and update the method description. However, if decide to keep it, update the example with a more appropriate one.
Concept 3: Access and collaboration	Participants were able to provide 6 potential drawbacks of 'combined **reporting**' and 6 potential drawbacks of 'combined **responding**'	Mention potential drawbacks of 'combined reporting' and 'combined responding' as well as mitigation strategies in the method description.
Concept 4: Interaction Classification System (ICS)	The opinions of the participants regarding the appropriateness and completeness of the ICS were divided. Even though two participants found the ICS to be appropriate and comprehensive; one participant found it to be not appropriate, nor comprehensive.	Decide on one of the following possible changes: a) Remove ambiguity from ICS by: - Improving the ICS by making clearer distinctions between types - Changing some of the ICS names (to avoid some being 'action words' and other 'nouns') - Improving ICS examples to clarify their use (and remove the possibility of ambiguity) b) Remove ICS from BAM
Concept 5: Audit criteria for interactions	Proposed Interaction Criteria (i.e., excerpt from Code of Conduct) was too subjective (as stated by participants 1 and 2), and perhaps not appropriate. Other IC that may be more applicable to CSO's PCRP (as per responses from Participant 3) may include: "Pocket card" guidance, "Administrative fairness" guidance, and "Policy Suite" guidance.	Review the following CSO documentation: "Pocket card", "Administrative fairness" guidance, and "Policy Suite" guidance. Select Interaction Criteria from above documents. Reconsider process for selecting 'interaction criteria', apply changes to determination of interaction criteria in method description
Concept 6: Concurrent vs. sequential approach	Proposed sequential vs. concurrent approach OK Potential challenges and mitigation strategies identified by research participants.	Update method description with "challenges and mitigation strategies" related to 'concurrent vs sequential approach' Mention or acknowledge contribution from participants in determining challenges and mitigation strategies
Concept 7: Reframed Process Elements (RPEs)	One RPE considered appropriate but insufficient: Customer Certain RPEs found to be inappropriate: e.g., product, product enclosure Certain RPEs found to be ambiguous or redundant: e.g., customer experience, satisfaction & feedback, delivery method	Re-assess whether RPEs would stay in the BAM, of they do: clarify definitions, provide more examples of use
Tool 1: Objective Mapping Template	Two participants said that the OMT was 'very effective' in helping identify relevant objectives, while one participant said it was 'neutral'. It was not clear to one participant how to organize objectives in the template (i.e., he/she thought that 'only conflicting objectives are to be entered'), the instructions were not clear either.	Clarify instructions, make template clearer on how/where to enter 'unique', 'common', and 'conflicting' objectives. Example used to illustrate OMT needs to be updated to reflect most current documentation
Tool 2: Interdepartmental Process Flow Diagram	Participants found the IdPFD to be useful (2 very useful, 1 somewhat useful), although requiring "a commitment to a very thorough and detailed audit [which may require too much] time / labour intensive if it involves multiple departments / PCCs" (Participant 1) Nevertheless, Participant 1 expressed confidence in its usefulness by saying that the audit "would provide a wealth of data for learning and evaluation of [the] process" (Participant 1).	Implement changes that may have been done to the Interaction Classification System (ICS) in the IdPFD template Consider making an electronic version of the template (for easier filling out) Examples may also need to be updated

	Some elements of the template were not clear to the second participant, for example, the purpose of the second column, called performers and logic). The opinion regarding 'usefulness of classifying events as activities or interactions' were divided: two 'neutral', and one 'very useful' Regarding the usefulness of identifying departments involved at each interaction, participants expressed strong agreement (i.e., 3 ratings of "Very useful"). When asked about rating the effectiveness of the IdPFD, …", two participants answered "Somewhat effective", and one "Very effective".	
Tool 3: Observe Process Result Checklist	Participants expressed concern regarding the use of the RPEs in the OPRC to assess the process output. Participant 3 mentioned that the criteria used in the OPRC (i.e., complaint requirements and objectives, for assessing compliance and effectiveness respectively) were not appropriate. Rather, Participant 3 said, the "questions should be based around the policy principles and the principles of administrative fairness". To another question regarding effectiveness of the OPRC, all three participants answered "Very effective".	Implement any changes made to the RPEs (i.e., product, product enclosure, etc.) in the OPRC template Implement any changes to process/departmental objectives (e.g., OPRC criteria) from having examined "administrative fairness" documentation, policy suite, and pocket card Consider the inclusion of questions (perhaps in a new prior section) to address potential conflict between complainant requirements and the scope of the process. Example may need to be updated
Tool 4: Observe Process (Interactions) Checklist	All three participant found the instructions of the OPIC template to be clear. Participant 1 was unclear about the option in the template "tracing route: backward vs. forward From the booklet questions and interview two participants considered that the OPIC template was "effective in allowing the auditor to assess interactions of an interdepartmental process", while the third one did not think the OPIC was effective for such a purpose. Participant 1 mentioned that the OPIC may be effective, but its use could be hindered by the lack of "defined procedures for interactions" (therefore criteria), nevertheless, such finding would be important to help recognize "organizational gaps"	Include in the OPIC any new interaction criteria found in recently suggested documentation, e.g., the "administrative fairness" document, PCRP policy suite, and 'Pocket card'. Examples may also need to be updated
Tool 5: Interview Personnel (Interactions) Checklist	All three participants considered that the instructions were clear. Participant 1 was again unclear about the option in the template "tracing route: backward vs. forward To the question "Is the IPIC effective in guiding the auditor when asking questions about interactions of an interdepartmental process", two participants answered "Yes" and one "No". Regarding effectiveness of the tool, two participants answered that it was "very effective" and one "somewhat effective".	Update interaction criteria with findings from "administrative fairness" document, PCRP policy suite, and "Pocket card" Update example Make more prominent in the instructions that questions can be adapted How can questions be less "academic in nature" and more targeted for "front line staff"?
Tool 6: Audit Finding Summary Template	From the interview question: "Please rate the effectiveness of the [AFST], and provide suggestions for tool improvement…", all three participants answered "Very effective". Participant 1 considered the AFST to be effective to show "where the finding is, what may be really good, and what may fall apart between departments". To the question: "12.2 Does the format of the AFST facilitate the distinction of findings related to the 'boundary' (i.e., to two or more departments) from those pertaining to a single department?" two participants answered "Yes", and one answered "Unsure". To the interview question "9. With regards to the Audit Finding Summary	Assess whether organizing findings by topic may be a better practice than organizing findings using the SWOT framework (or maybe have both options available under the BAM) Assess the possibility of organizing findings as per the "dimensions of quality" from the quality matrix from the [Provincial] Health Quality Council.

	Template, are Strengths, Weaknesses, Opportunities and Threats, appropriate categories to organize audit findings?" Participant 1 said that: "I think so, SWOT analysis is pretty familiar analysis that's done. It's a way to assess what can be changed, and what can be kept and reinforced. Familiar to a person that has worked in leadership." Participant 2 expressed his preference to use 'themes' to organize findings as opposed to the SWOT categories, "because when you group issues by theme, you analyze the root cause of issues, and there is a commonality between issues, and that helps significantly to think what could be the solution." Participant 3 said that: "I wondered if the dimensions of the quality matrix by the [Provincial] Health Quality Council, could be used as categories to organize findings" since CSO has used "the guide to set performance benchmarks and adopted the framework using the health quality matrix."	
Tool 7: Finding Sheet (Opportunities/Strengths)	Two participants considered it to be "acceptable" (one participant was "unsure") to "have one template to document positive-type findings (i.e., Strengths and Opportunities)?" Participant 1 considered it OK to use one template for both types of positive findings. While Participant 2 indicated that "There is a risk that the auditor will spend as much time on positive or negative issues. As the real purpose of the exercise is to improve the process, we need to spend more time discussing and analyzing negatives one. Perhaps there could be a separate template for the positive to acknowledge them as it is important too." All three participants said "yes" when asked whether the Finding Sheet (O/S) "allows to document recommendations effectively (e.g., under section 6 in the template)". All three participants said "yes" when asked whether the Finding Sheet (O/S) template "is effective in allowing the documentation of benefits deriving from the implementation of the recommendation (e.g., under section 7 in the template)". All three participants considered that "organizing benefits as per the Balanced Scorecard categories (i.e., Customer, Internal Business Processes, Finance, and Learning and Growth) was 'more helpful' than not organizing expected benefits". When asked about the effectiveness of the Finding Sheet (O/S) template, two participants rated it as "somewhat effective" and one as "very effective".	Include definitions and examples of the four BSC categories (perhaps not on the template, but on the method description, which is expected to be used/read in conjunction with the checklists and templates) Assess the possibility of using the Dimensions of Quality, from the Quality Matrix, to organize benefits from recommendations pertaining to positive-type findings. Consider whether to include "customer" as a "potential beneficiary", in addition to the 'Process Owner', 'Process Partner 'and 'Both' [why or why not]
Tool 8: Advancement Action Plan	To the question: "14.1: Would you say that the ability to identify "5. Interdepartmental collaboration required" is a[n] _____ component of the response plan template?", all three participants responded "Helpful". To the question: "14.2 Would you say that [using Balanced Scorecard Categories and performance targets as a way to measure Advancement Action implementation effectiveness] is _____ during the response-planning stage than not using the Balanced Scorecard Categories to measure effectiveness?", all three respondents said "more helpful". To the question: "14.3 [... the] explicit mention in the response plans of "interdepartmental collaboration" when planning and implementing a response to an audit finding is a[n] _____ aspect of the response plans offered by the Boundary Audit?" all three participants answered "Helpful". To the 'fill in the blank' question: "14.4: The use of BSC categories to identify ways to measure response effectiveness will _____ the verification of the	Consider the possibility of using the Dimensions of Quality, from the Quality Matrix, to "measure response (i.e., Advancement Action) effectiveness" Include a 'request for explanation if not using a SMART goal'

	implementation of the response" all three respondents answered "Facilitate". From the interview question: "Please rate the effectiveness of the [AAP template], and provide suggestions for tool improvement…", two participants answered "Somewhat effective", and one "Very effective".	
Method overall	Objective of BAM according to participants: Participant 1: "to assess effectiveness", "between two or more areas" "to make improvements" Participant 2's own explanation of objective in line with design objective. Key words: "organized rigorous process", "consistent approach" Participant 3's own explanation of objective in line with design objective. Key words: "evaluate how a process works between departments and another department" "with an impact on the primary responsible departments" What would participants change to the method? Participant 1 mentioned that the rigorousness of the BAM may not be necessary in every instance Participant 2 mentioned "practicality of doing things" related to the BAM; also mentioned that the interaction criteria resembles "values" which is "very high level". Participant 3 pointed to concerns with the ICS (i.e., RPNCL), and proposed to use as interaction criteria the PCRP policy suite, guidance related to administrative fairness, and to consider the Dimensions of Quality to organize audit findings and benefits from recommendations Participants agreed that the BAM would benefit the CSO Participants agreed that the BAM documentation was appropriate Participants repeated concerns with ICS, RPEs and Test 3 Centrality Participants said it was clear how tools support the BAM All three participants answered "Recommend the adoption of the method with changes" (e.g., changes such as starting use of simplified BAM; using the suggested documentation, i.e., administrative fairness, pocket card, etc.; organizing findings using 'themes' or Dimensions of Quality as opposed to SWOT)	Changes as per concept or tool identified in preceding rows

Appendix G - Supporting materials for "ABSI approach"

Appendix G.1 - Design
Appendix G.1.1 - FS Model representation and explanation

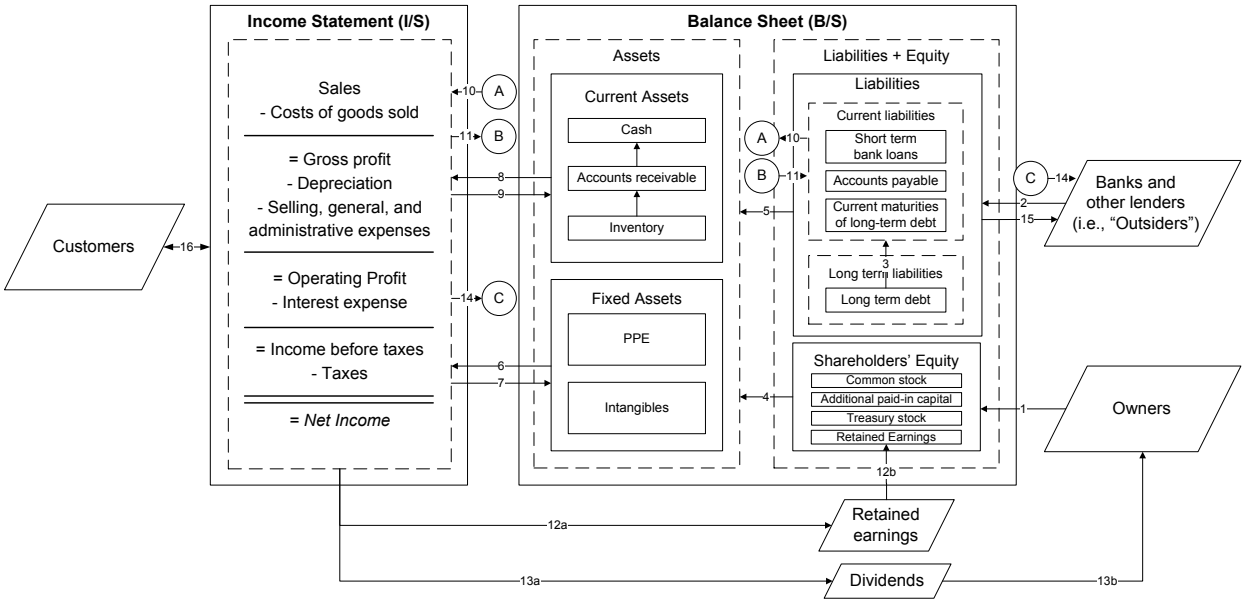


Figure 62 - FS model, from I/S and B/S in exhibits 2.1 and 2.2 of Peterson and Fabozzi (2012)

The chart above depicts the interrelationships between elements of the Income Statement (I/S), the Balance Sheet (B/S), and three relevant stakeholders (i.e., customers, owners, and banks and other lenders). A business would receive funds from (1) owners, recorded under shareholder's equity (i.e., common stock representing nominal amount per share, and additional paid-in capital any surplus in excess of nominal value, Peterson and Fabozzi, 2012), and from (2) outsiders, such as banks and lenders, recorded under liabilities. Liabilities are further subdivided into current liabilities and long-term liabilities. Current liabilities include those that should be paid in a year or less, such as short term bank debt and accounts payable to suppliers; while long-term liabilities (i.e., long-term debt) are those that mature in more than a year, like bonds or long-dated notes. Long-term debt usually has a 'current' portion (3), which matures in less than a year and is entered under current liabilities.

The funds provided by "owners" and "banks and other lenders" are used (4,5) to acquire assets which can be subdivided into fixed or current. Fixed assets include long-lived assets such as property, plant, and equipment (PPE), and intangibles, such as goodwill. Current assets are those that will be converted to cash in a period of a year or less, namely: inventory, accounts receivable, and cash. The three elements are connected in the chart, to represent how inventory will convert into accounts receivables, and accounts receivable in turn will convert to cash.

A company uses its assets to generate economic value. For example, fixed assets (6) such as PPE provide the land (property), building (plant), and machinery (equipment) that enable the

performance of value-adding activities that result in goods or services sold to customers. Current assets also enable the business operation (8,9), for example, sales (aggregated for the period in the I/S) are routinely recorded, as per double-entry accounting, under accounts receivable in the B/S (for sales on credit), or cash (for those on cash). Similarly, costs of goods sold (COGS in the I/S) are tracked under inventory (in the B/S) until revenue is recognized as a result of sale.

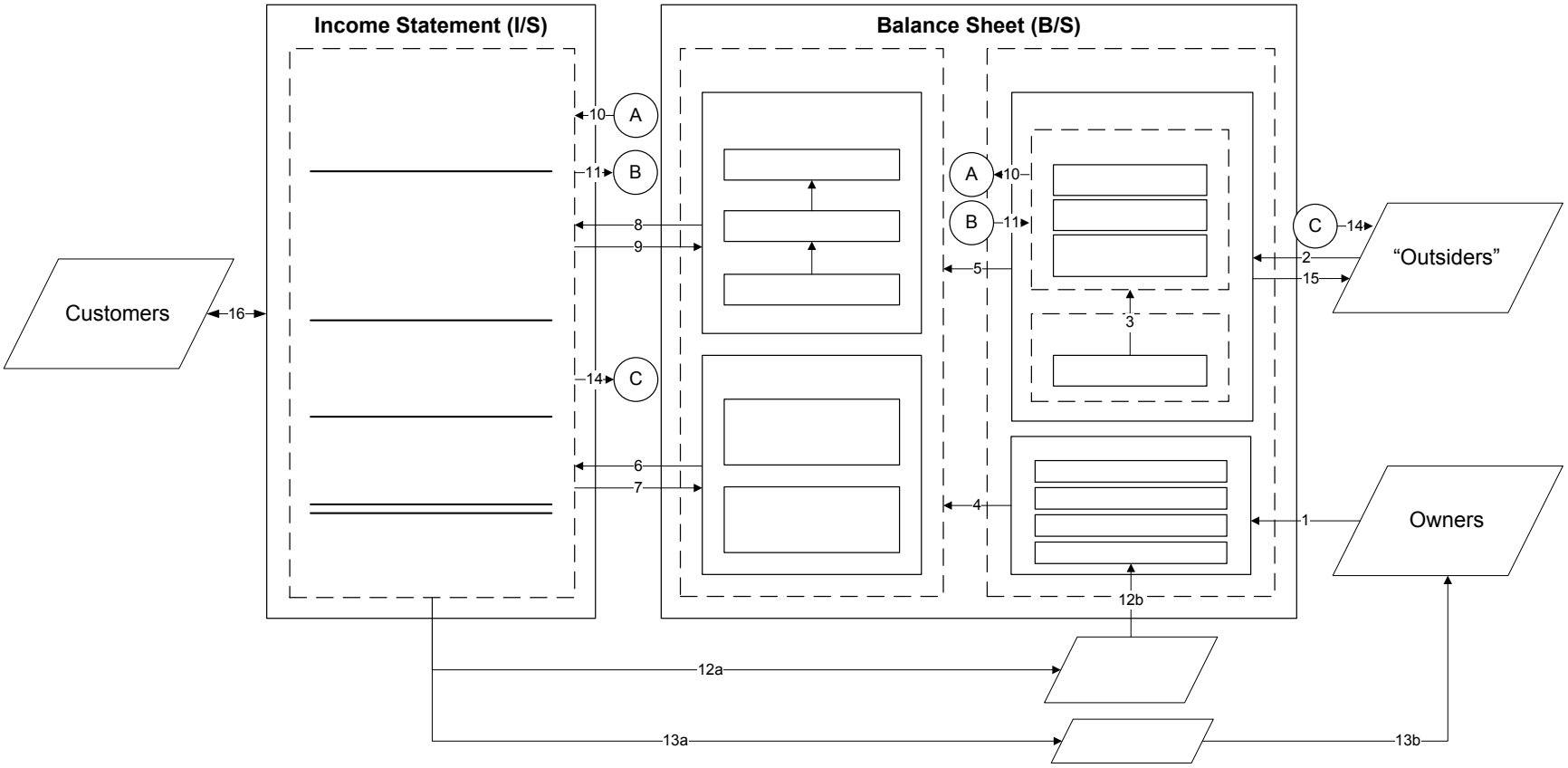
Current liabilities also support the business operation (10,11) as reported in the I/S: for example, sales, general and administrative expenses (SG&A), albeit aggregated for a period and reported in the I/S, are routinely recorded, as per double-entry accounting, under accounts payable in the B/S.

The arrangement of the I/S presents sales at the top, i.e., the money received from "Customers" (16), followed by the subtraction of COGS, in order to calculate gross profit. Then, depreciation (a non-cash expenses that reduces the value of fixed assets, 7) and SG&A are subtracted from gross profit in order to find the operating profit. Next, interest expense, i.e., payments to "Banks and other lenders" (14) is subtracted from operating profit to find the income before taxes, which after subtracting taxes yields net income. Net income represents the economic value generated during the period that the I/S encompasses. Net income can be paid to "owners" via dividends (13a, 13b) or withheld by the organization in the form of retained earnings (12a, 12b), recorded under shareholders' equity in the B/S, thus representing a closed loop of value reinvestment.

The overall organization and relationships depicted in Figure 62 can be used as a template to structure MSS requirements. On the one hand, the I/S and the B/S allow to present, respectively, the results of the business operation (i.e., revenues, expenses, and profit); and the resources (i.e., assets) that enabled such operation alongside the source of the funds used to acquire the aforementioned resources (i.e., liabilities and shareholder's equity). On the other hand, MSS requirements describe the resources that ought to be employed in a certain way (i.e., operations) to achieve the MSS-specific objectives.

Appendix G.1.2 - Representations of the ABSI Model

a) Representation of ABSI Model as a flowchart



b) Representation of ABSI Model as a set of tables (i.e., I/S and B/S)

Income Statement

I/S component		First Juxtaposed MSS		Second juxtaposed MSS		Management System (as mapped)	
Name[a]	Description[a]	Sub clause / Sub sub clause	Justification	Sub clause / Sub sub clause	Justification	Component name	Justification
Sales	"Represent the amount of goods or services sold, in terms of price paid by customers."						
Cost of goods sold	"The amount of goods or services sold, in terms of cost to the firm."						
Gross profit	"The difference between sales and cost of goods sold."	*N/A - Intermediate step to accommodate an arithmetic operation*		*N/A - Intermediate step to accommodate an arithmetic operation*		*N/A - Intermediate step to accommodate an arithmetic operation*	
Depreciation	"Used to allocate the cost of assets"						
Selling, general, and administrative expenses	"Salaries, administrative, marketing expenditures, etc."						
Operating profit	"Income from operations..."	*N/A - Intermediate step representing an arithmetic operation*		*N/A - Intermediate step representing an arithmetic operation*		*N/A - Intermediate step representing an arithmetic operation*	
Interest expense	"Interest paid on debt."						
Income before taxes	"Earnings before taxes."	*N/A - Intermediate step representing an arithmetic operation*		*N/A - Intermediate step representing an arithmetic operation*		*N/A - Intermediate step representing an arithmetic operation*	
Taxes	"Taxes expense for the current period."						
Net income	"Operating profit less financing expenses (e.g., interest) and taxes."						

[a] Components names and definitions from Peterson and Fabozzi (2012), Analysis of Financial Statements, 3rd Edition, Wiley, New Jersey,

Balance Sheet

TYPE	B/S component		First Juxtaposed MSS		Second Juxtaposed MSS		Management System (as mapped)	
	Name[b]	Description[b]	Sub clause / Sub sub clause	Justification	Sub clause / Sub sub clause	Justification	Component name	Justification
ASSETS	**Current Assets**							
	Cash	"Cash, bills, and currency are assets that are equivalent to cash (e.g., bank account)"						
	Accounts Receivable	"Amounts due from customers arising from trade credit."						
	Inventory	"Investments in raw materials, work-in-process, and finished goods for sale."						
	Non-current Assets							
	Property, Plant and Equipment [PPE]	"Original cost of PPE"						
	Less accumulated depreciation	Less accumulated depreciation						
	Net property, plant and equipment	Net cost (original PPE minus accumulated depreciation)						
	Intangible assets	"Assets that are not financial instruments, such as patents, trademarks, copyrights, franchises and formulae"						
LIABILITIES	**Current Liabilities**							
	Short term bank loans	Also called Short term credit line: "a demand loan that can be called by the lender at any time; can be considered to be negative cash" (Flynn, 2009, p. 298)						
	Accounts payable	"Amounts due to suppliers for purchases on credit."						
	Current maturities of long-term debt	"Current portion of long-term indebtedness."						
	Long term Liabilities							
	Long Term Debt [LTD]	"Obligations due beyond a year, for example notes payables and bonds, which are indebtedness (loans) in the form of securities."						
EQUITY	**Stakeholders' Equity**							
	Common stock	"A nominal amount per share of stock (sometimes prescribed by law), or the stated value, which is a nominal amount per share of stock assigned for accounting purposes if the stock has no par value."						
	Treasury Stock	"The accounting value of shares of the firm's own stock bought by the firm"						
	Additional paid-in capital	"Also referred to as capital surplus, the amount paid for shares of stock by investors in excess of par or stated value."						
	Retained Earnings	"The accumulation of prior and current periods' earnings and losses, less any prior or current periods' dividends."						

[b] B/S components and definitions adapted from Peterson and Fabozzi (2012), Analysis of Financial Statements, 3rd Edition, Wiley, New Jersey; ; unless otherwise noted

Appendix G.1.3 - Guidance for juxtaposition of MSS requirements to I/S and B/S components

Income Statement (I/S) component [a]	**Guidance for juxtaposition**	**Relationships to be aware**	**Examples of guidelines and requirements that could be juxtaposed**	
			Augmenting MSSs: ISO 10002(2014) or ISO 10003(2007) or 10002/10003 (i.e., both)	**Assimilating MSSs: ISO 9001(2015c) or ISO 14001(2015a) or 9001/14001 (i.e., both)**
Sales	Match operational requirements that represent interactions with the customer, because Sales in the I/S represent interactions with the customer	Sales in the I/S connects with: • Current assets (sales increase cash or accounts receivable) • Net Income (Sales is part of the arithmetic calculation of Net Income)	10002: 7.7 Response to complaints 10002: 7.8 Communicating the decision 10002: 7.9 Closing complaints 10003: 7.5 Resolution of dispute 10003: 7.6 Implementation of resolution 10003: 7.7 Closing the file	9001: 8.6 Release of products and services 9001: 8.7 Control of nonconforming outputs 14001: 8.2 Emergency preparedness and response
Cost of Goods Sold, COGS (I/S)	Match operational requirements that represent activities that are performed in direct relation to the number of interactions with the customer, because COGS represents variable expenses, i.e., that depend on the level of sales.	COGS in the I/S connects with • Current assets in the B/S, because COGS is tracked as WIP inventory until the sale is booked. • Net Income (COGS is part of the arithmetic calculation of Net Income)	10002: 7.2 Receipt of complaints 10002: 7.3 Tracking of complaints 10002: 7.4 Acknowledgement of complaints 10002: 7.5 Initial assessment of complaints 10002: 7.6 Investigation of complaints 10003: 7.2 Complaint referral 10003: 7.3 Receipt of dispute notice 10003: 7.4 Formulation of the organization's response	9001: 8.4 Control of externally provided products and services 9001: 8.5 Production and service provision
Depreciation	Match operational requirements that represent apparent reductions in the value generated, because Depreciation is a non-cash expense, i.e., no cash is spent, but loss of value (due to assets wearing off) is claimed	Depreciation in the I/S connects with: • Fixed assets in the B/S (depreciation will be tracked cumulative and reduce the net value of fixed assets) • Net Income (Depreciation is part of the arithmetic calculation of Net Income)		9001/14001: 10.2 Nonconformity and corrective action

Selling, general and administrative expenses, SG&A	Match operational requirements that represent activities that are performed independently of the number of interactions with customers, because SG&A represents fixed expenses, i.e., that do not depend on the level of sales.	SG&A in the I/S connects with: • Current liabilities in the B/S, because SG&A expenses could be tracked under accounts payable if purchased on credit, or Current assets if prepaid. • Net Income (SG&A is part of the arithmetic calculation of Net Income)	10002: 7.1 Communication 10003: Annex D (normative) - Guide on accessibility 10003: Annex I (normative) - Guide on transparency 10003: 7.1 General (Operations)	9001: 8.2 Determination of requirements for products and services [RPS] 9001: 8.3 Design and development [D&D] of products and services 9001/14001: 7.4 Communication 9001/14001: 7.5 Documented information
Interest expense	Match auxiliary requirements (i.e., non-operational) that could represent 'the cost of operating the MS' just like interest represents the cost of borrowing money.	Interest in the I/S connects with: • Stakeholder 'Banks and lenders' who receive interest payments on funds loaned to the organization. • Net Income (Interest expense is part of the arithmetic calculation of Net Income)	10002: 8.2 Analysis and evaluation of complaints 10003: 8.2 Analysis and evaluation	9001: 9.1.1 General [Monitoring, measurement, analysis and evaluation]
Taxes	Match auxiliary requirements (i.e., nonoperational) that could represent outflows of value to a third party (in addition to banks and lenders who receive Interest payments), just like the government receives a share of the organization's profits in the form of taxes.	Taxes in the I/S connects with: • Outflows to an unspecified stakeholder such an interested third party • Net Income (Taxes expense is part of the arithmetic calculation of Net Income)	10002: 8.3 Satisfaction with the complaints-handling process	9001: 9.1.2 Customer satisfaction [Monitoring, measurement, analysis and evaluation] 14001: 9.1.2 Evaluation of compliance [Monitoring, measurement, analysis and evaluation]
Net Income	Match to requirements that allow to keep track of the value generated by the MS, just like Net Income represents the economic value generated by the organization.	Net Income in the I/S connects with: • Stakeholder 'Owners' who can receive Dividends from Net Income generated • Shareholder's equity via Retained Earnings in the B/S, representing the value retained by the business (i.e., Net Income not paid out as dividends)	10002: 8.1 Collection of information 10002: 8.4 Monitoring of the complaints-handling process 10003: 8.1 Monitoring	9001: 9.1.3 Analysis and evaluation [Monitoring, measurement, analysis and evaluation] 14001: 9.1.1 General [Monitoring, measurement, analysis and evaluation]
[a] I/S component names from Peterson and Fabozzi (2012)				

Balance Sheet (B/S) component[b]	Guidance for juxtaposition	Relationships to be aware	Examples of guidelines and requirements that could be juxtaposed	
			Augmenting MSSs: ISO 10002(2014) or ISO 10003(2007) or 10002/10003 (i.e., both)	Assimilating MSSs: ISO 9001(2015c) or ISO 14001(2015a) or 9001/14001 (i.e., both)
Assets				
Current assets				
Cash	Match to requirements describing planning of the MS	Cash funds operational activities in the I/S	10002: 6.1 General [Planning and design] 10003: 6.1 General [Planning, design and development]	9001/14001: 8.1 Operational planning and control
Accounts receivable	Match to requirements describing the MS and its scope	Accounts receivable turn to cash		9001/14001: 4.3 Determining the scope of the MS [QMS and EMS, respectively] 9001/14001: 4.4 [QMS and its processes, and EMS, respectively]
Inventory	Match to requirements describing activities related to planning or changing the MS	Inventory turns to accounts receivable and then to cash	10002/10003: 6.3 Activities	9001: 6.3 Planning of changes
Fixed assets (or non-current assets)				
Property, Plant and Equipment	Match to requirements outlining needed resources	PPE enable the operational activities in the I/S	10002/10003: 6.4 Resources	9001/14001: 7.1 Resources
Intangible assets	Match to requirements describing intangible resources such as know-how	Intangibles support the operational activities in the I/S		9001/14001: 7.2 Competence 9001/14001: 7.3 Awareness
Liabilities				
Current liabilities				
Short term bank loans	Match to requirements describing objectives	Short term bank loans provide funds to support the operational activities in the I/S	10002/10003: 6.2 Objectives	9001/14001: 6.2 [Quality and Environmental, respectively] objectives and planning to achieve them
Accounts payable	Match to requirements describing actions to address risks and opportunities	Accounts payable represent debt to suppliers, if not paid, company can face troubles		9001/14001: 6.1 Actions to address risks and opportunities
Current maturities of LTD	Match to requirements describing responsibility and authority	Current maturity represent the portion of the LTD that is due in a year	10002: 5.3 Responsibility and authority 10003: 5.3 Top management responsibilities	9001/14001: 5.3 Organizational roles, responsibilities and authorities
Long term liabilities				
Long term debt, LTD	Match to requirements describing policy	LTD represents the funds owed to others, a long-term commitment to repay them	10002: 5.2 Policy 10003: 5.2 Dispute resolution policy	9001/14001: 5.2 [Quality and Environmental, respectively] policy

Shareholder's equity				
Common stock	Match to requirements describing commitment	Common stock are the seed funds that started the business, the funds allow to buy assets	10002/10003: 5.1 Commitment	9001/14001: 5.1 Leadership and commitment
Additional paid-in capital	Match to requirements describing guiding principles, or understanding of organization, its context and needs/expectations of interested parties	Additional paid in capital represent the 'surplus' money paid on top of the common stock.	10002/10003: 4. Guiding principles	9001/14001: 4.1 Understanding the organization and its context 9001/14001: 4.2 Understanding the needs and expectations of interested parties
Treasury stock	Match to requirements that refer to Internal Audit	Treasury stock represents the corporation's own shares that have been repurchased	10002: 8.5 Auditing of the complaints-handling process	9001/14001: 9.2 Internal audit
Retained earnings	Match to requirements describing Management review and Continual Improvement	Net income from I/S (less dividends) is reinvested in the business	10002/10003: 8.6 Management review 10002/10003: 8.7/8.4 Continual improvement	9001/14001: 9.3 Management review 9001/14001: 10.1 General [Improvement] 9001/14001: 10.3 Continual improvement

[b] B/S component names from Peterson and Fabozzi (2012)

Pre-testing

Appendix G.2 - Pre-testing ABSI model with HLS

G.2.1 Purpose

The purpose of the first phase of the pre-testing looked to assess:

- Whether the ABSI model could be used the 'new structure' of standards, and
- To identify (and implement) any need for changes to the ABSI model

G.2.2 Data

The data selected for pre-testing consisted of the requirements of ISO's "High level structure and identical text for management system standards and common core management system terms and definitions", or HLS for convenience. HLS was initially made public as ISO Draft Guide 83 in 2011, and more recently published in Appendix 2 of the Annex SL of the ISO/IEC Directives, Part 1 (ISO/IEC, 2015).

G.2.3 Method

The method of the first phase of the pre-testing is presented next.

1. Read and understood the HLS document (ISO/IEC, 2015), initially available in draft form as ISO Guide 83, ISO, 2011a)

2. Made a list of the clauses and sub-clauses that were to be organized as per the I/S and B/S components. Clauses 4 to 10 were selected to be organized, whereas clauses 1. Scope, and 2. Normative references were not chosen because they contain no guidance (i.e., they solely represent text place-holders), while clause 3. Terms and definitions presents and explains the meaning of relevant words used in the HLS text, but do not present actual guidance only linguistic help.

3. Selected the I/S and B/S structures to use. Peterson and Fabozzi's (2012) structure and contents for I/S and B/S were chosen due to their succinct presentation and because they also offer descriptions and explanations of the different account names (i.e., line-items).

4. Built two tables in Excel, one with the I/S components, and the other with the B/S components. Then, next to each I/S and B/S component, a second set of columns (the first called 'Sub-clause/sub-sub-clause' and the second 'Justification') allowed to juxtapose sub-clauses from the HLS text (ISO/IEC, 2015) next to the corresponding I/S or B/S component. For example, clause 8. Operation [of the XXX MS], or rather its expected sub-components (such as activities involving the customer, activities performed variably and activities performed fixedly) were juxtaposed to different components of the I/S, assuming the likelihood that certain sub-clauses within clause 8. Operation could be interpreted as any of the following:

- operational sub-processes or activities that may involve interactions with the customer were juxtaposed to 'Sales' in the I/S; the term 'last-mile' is used to refer to MS activities that involve the customer, with the term 'last-mile' having been borrowed from telecommunications and network jargon where it is used to refer to "the final phase […] to deliver or complete connectivity from a communications provider to an end customer" (Dong, 2007, p. 280),
- operational sub-processes or activities that could be considered as 'variable' or that are performed in direct proportion with the number of times the 'operation' is performed or the customer is served, were juxtaposed to 'COGS' in the I/S,
- operational sub-processes or activities that could be considered as 'fixed', or that must be performed independently of the number of times the 'operation' is performed or the customer is served, were juxtaposed to 'SG&A' in the I/S.

The above interpretation of the HLS guidance is not far-fetched, because many different MSSs contain detailed descriptions of sub-processes or activities that could be categorized as 'last-mile', 'variable', or 'fixed', under the 'Operation' clause (e.g., clause 7 of ISO 10002 (2014) and ISO 10003 (2007); and clause 8 of ISO 9001 (2015c) and ISO 14001 (2015a)).

Most of the line-items of the I/S that represent arithmetic operations such as 'Gross profit' (which is the difference between 'Sales' and 'Costs of goods sold'), 'Operating profit' (i.e., 'Gross profit' minus 'Depreciation' and 'SG&A'), and 'Income before taxes' (i.e., 'Operating profit' minus 'Interest expense'), were not matched to any sub-clauses because the interest in the application of the ABSI model is in juxtaposing MSS requirements or guidance to I/S line items that represent concrete elements of the business operation, such as revenues (i.e., sales), expenses (such as COGS, SG&A and even Depreciation), and profit (i.e., Net income), rather than on the interim arithmetic operations.

Two elements in the I/S were not utilized, namely 'Interest expense' and 'Taxes', which are anticipated to be used for the following purposes:

- 'Interest expense' has been identified as potentially useful to match requirements that could represent 'the cost of operating the MS', just like interest represents the cost of borrowing money.
- 'Taxes' has been considered to potentially accommodate requirements that could represents outflows of value (e.g., tangibles goods or intangibles such as information) to a third party, just like the government receives a share of the organization's profits from the business operation in the form of taxes.

Conversely, two B/S accounts or line-items were added to the original B/S format in order to better accommodate the HLS guidance, namely 'Treasury Stock' and 'Short term bank loans'.

- ‘Treasury Stock’ a sub-component of ‘Shareholder’s Equity’ represents “the accounting value of shares of the firm's own stock bought by the firm” (Peterson and Fabozzi, 2012) and was used to juxtapose sub-clause ‘9.2 Internal Audit’ of the HLS guidance (ISO/IEC, 2015) because just like a business could decide to invest their money in buying their own stock, an organization decides to spend time and resources auditing itself with regards to conformance to MSS requirements and MS effectiveness; also, just like stock buy-backs below book value accrue value for stockholders that remain, Internal Audit findings and subsequent corrective and preventive actions can yield a more efficient and effective (i.e., valuable) organization.
- ‘Short term bank loans’, sometimes also called ‘Short term credit line’ is explained by Flynn (2009) as “a demand loan that can be called by the lender at any time [; and] can be considered to be negative cash”. ‘Short term bank loans’ in the B/S was used to juxtapose sub-clause ‘6.2 XXX objectives and plans to achieve them’ of the HLS guidance (ISO/IEC, 2015) because MS-related objectives represent concrete commitments of the organization that will guide the performance of the MS, just like the short term bank loan provides the funds that enable the business operation.

5. In the ‘justification’ column explanations were provided for each juxtaposition.

The juxtaposition of the HLS guidance (ISO/IEC, 2015) as per the I/S and B/S components are presented in the following three pages.

Table 71 - HLS guidance (ISO/IEC, 2015) organized as per I/S components

Income Statement			
I/S component		Juxtaposed guidance: HLS (Appendix 2 of ISO/IEC 2015)	
Name[a]	Description[a]	Sub clause / Sub sub clause	Justification
Sales	"Represent the amount of goods or services sold, in terms of price paid by customers."	8. Operation [Sub processes or activities that involve the customer, or 'last-mile']	'Operation' clause juxtaposed to Sales because just like Sales represents interactions with the Customer; it is likely that a portion of the Operational activities of an MS will involve the Customer.
Cost of goods sold	"The amount of goods or services sold, in terms of cost to the firm."	8. Operation ['variable' processes or activities]	Operation' clause juxtaposed to Cost of Goods Sold because just like COGS aggregates variable expenses; it is likely that a sub set of the Operational activities of an MS will be performed variably, i.e., in proportion with the number of times the 'Operation' is performed
Gross profit	"The difference between sales and cost of goods sold."	*N/A - Intermediate step to accommodate an arithmetic operation*	
Depreciation	"Used to allocate the cost of assets"	10.1 Nonconformity and corrective action	10.1 Nonconformity and corrective action is juxtaposed to 'Depreciation' to represent the loss of value as a result of the 'non-fulfilment of a requirement'. Also, due to the Depreciation being tracked cumulatively in the B/S, the juxtaposition of the Corrective Action herein, aims to allow for the representation in the B/S of the changes to the 'Resources' as juxtaposed to PEE, to signify how the Resources that enable the MS are affected (rather improved) by means of Corrective Actions.
Selling, general, and administrative expenses	"Salaries, administrative, marketing expenditures, etc."	8. Operation ['fixed' processes or activities] 7.4 Communication 7.5 Documented information	'Operation' clause juxtaposed to SG&A because just like SG&A represents fixed expenses; it is likely that a sub set of the Operational activities of an MS could be considered as 'overhead', i.e., performed irrespective of the number of times the 'Operation' is performed 7.4 Communication juxtaposed to SG&A because internal and external communication activities should be performed continuously, regardless of the number of times the 'Operation' is performed 7.5 Documented information juxtaposed to SG&A because just like communication, creating and updating, and controlling information (7.5.2 and 7.5.3 respectively) must be done irrespective of the number of times the 'Operation' is performed
Operating profit	"Income from operations..."	*N/A - Intermediate step representing an arithmetic operation*	
Interest expense	"Interest paid on debt."		
Income before taxes	"Earnings before taxes."	*N/A - Intermediate step representing an arithmetic operation*	
Taxes	"Taxes expense for the current period."		
Net income	"Operating profit less financing expenses (e.g., interest) and taxes."	9.1 Monitoring, measurement, analysis and evaluation	Just like Net Income represents the value generated by the activity of the business or organization; the value generated by the MS can be tracked by means of the 'Monitoring, measurement, analysis, and evaluation' activities of the MS

[a] Components names and definitions from Peterson and Fabozzi (2012), Analysis of Financial Statements, 3rd Edition, Wiley, New Jersey,

Table 72 - HLS guidance (ISO/IEC, 2015) organized as per B/S components (part 1 of 2)

Balance Sheet (part 1 of 2)				
TYPE	B/S component		Juxtaposed guidance: HLS (Appendix 2 of ISO/IEC 2015)	
	Name[b]	Description[b]	Sub clause / Sub sub clause	Justification
ASSETS	**Current Assets**			
	Cash	"Cash, bills, and currency are assets that are equivalent to cash (e.g., bank account)"	8.1 Operational planning and control	Operational planning and control can be juxtaposed to Cash because just like Cash allows for the performance of the operational activities of the business or organization (e.g., by allowing to pay for raw material and labor), Operational planning and control allows for the performance of the operational activities of the MS (e.g., "establishing criteria for processes, implementing controls according to the criteria, and keeping documented information", ISO/IEC 2015)
	Accounts Receivable	"Amounts due from customers arising from trade credit."	4.4 XXX management system	4.4 XXX management system is juxtaposed to Accounts receivable to mimic the flow of value in Current Assets when a sale is triggered, from Inventory to Accounts Receivable to Cash. Thus, the XXX MS whose scope was determined as per 4.3 and juxtaposed to 'Inventory', has to be subsequently established as juxtaposed here to 'Accounts receivable', and subsequently planned and controlled (as juxtaposed above to "Cash"). Thus, the flow of 'determining scope of XX MS --> establishing XXX MS ---> planning and controlling the operation of the MS' is herein represented by the juxtaposition to the components under Current Assets in the B/S)
	Inventory	"Investments in raw materials, work-in-process, and finished goods for sale."	4.3 Determining the scope of the XXX management system	4.3 Determining the scope of the XXX management system is juxtaposed to "Inventory" because just like "Inventory" accounts for investments in raw materials, work in progress and finished goods for sale that effectively represent the value of the goods and services being acquired, transformed and ready to be sold in the business operation, the work done "determining the boundaries and applicability" of the XXX MS, provides the backbone of the MS, i.e., its scope.
	Non-current Assets			
	Property, Plant and Equipment [PPE]	"Original cost of PPE"	7.1 Resources	Resources can be equated to PPE, because just like PPE enables the performance of the business activity, Resources enables the performance of the MS
	Less accumulated depreciation	Less accumulated depreciation	10.1 Nonconformity and corrective action (also juxtaposed to 'Depreciation' in the I/S)	10.1 Nonconformity and corrective action, juxtaposed to 'Depreciation' in the I/S, is also included herein to represent a change to the 'Resources' (above juxtaposed to PEE) to signify how the Resources that enable the MS are changed by means of Corrective Actions (not decreasing in value, rather evolving for the better).
	Net property, plant and equipment	Net cost (original PPE minus accumulated depreciation)		
	Intangible assets	"Assets that are not financial instruments, such as patents, trademarks, copyrights, franchises and formulae"	7.2 Competence 7.3 Awareness	Competence and awareness could be equated to Intangible assets because they represent MS-related know-how, the latter sometimes referred to as 'intangible capital' [source?]

[b] B/S components and definitions adapted from Peterson and Fabozzi (2012), Analysis of Financial Statements, 3rd Edition, Wiley, New Jersey; unless otherwise noted

Table 73 - HLS guidance (ISO/IEC, 2015) organized as per B/S components (part 2 of 2)

Balance Sheet (part 2 of 2)				
TYPE	B/S component		Juxtaposed guidance: HLS (Appendix 2 of ISO/IEC 2015)	
	Name[b]	Description[b]	Sub clause / Sub sub clause	Justification
LIABILITIES	**Current Liabilities**			
	Short term bank loans	Also called Short term credit line: "a demand loan that can be called by the lender at any time; can be considered to be negative cash" (Flynn, 2009, p. 298)	6.2 XXX objectives and plans to achieve them	6.2 XXX objectives and plans to achieve them are juxtaposed to 'Short term bank loans' because MSS-related objectives represent: concrete commitments of the organization that will allow for the performance of the MS (just like funds from the short term bank loan allow for the business operation).
	Accounts payable	"Amounts due to suppliers for purchases on credit."	6.1 Actions to address risks and opportunities	6.1 Actions to address risks and opportunities are juxtaposed to Amounts payable, because just like suppliers that don't get paid could create problems to the company, risks that are unaddressed, could create trouble to an organization; conversely, keeping good relations with suppliers may have positive consequences such as favorable credit terms, just like taking available opportunities for continual improvement would benefit an organization.
	Current maturities of long-term debt	"Current portion of long-term indebtedness."	5.3 Organizational roles, responsibilities and authorities	Organizational roles, responsibilities and authorities could be equated to Current maturities of LTD because just like Policy (see below) represents a long term commitment of the organization with regards to the performance of the MS, organizational roles, responsibilities and authorities represent the more immediate need to have people in charge of making sure the MS conforms to requirements, and who report on the performance of the MS to Management
	Long term Liabilities			
	Long Term Debt [LTD]	"Obligations due beyond a year, for example notes payables and bonds, which are indebtedness (loans) in the form of securities."	5.2 Policy	Policy is equated to Long Term Debt (LTD) because the Policy could be considered as a long term commitment by the organization with regards to the performance of the MS.
EQUITY	**Stakeholders' Equity**			
	Common stock	"A nominal amount per share of stock (sometimes prescribed by law), or the stated value, which is a nominal amount per share of stock assigned for accounting purposes if the stock has no par value."	5.1 Leadership and commitment	Leadership and commitment is juxtaposed to Common stock because just like Common stock represents the seed capital that started the business, Leadership and commitment represents the initial effort to implement the MSS requirements into the MS
	Additional paid-in capital	"Also referred to as capital surplus, the amount paid for shares of stock by investors in excess of par or stated value."	4.1 Understanding the organization and its context 4.2 Understanding the needs and expectations of interested parties	4.1 Understanding the organization and its context, and 4.2 Understanding the needs and expectation of interested parties are juxtaposed to "Additional paid in capital" because just like "Additional paid in capital" represents the "amounts paid in excess of stated value", 4.1 an 4.2 represent an additional commitment on top of the initial effort to implement the MS (i.e., 5.1 Leadership and commitment, juxtaposed above to Common stock) and includes identifying "internal and external issues" relevant to the organization "relevant requirements" of interested parties (ISO/IEC 2015)
	Treasury Stock	"The accounting value of shares of the firm's own stock bought by the firm"	9.2 Internal audit	Internal audit (IA) is juxtaposed to Treasury Stock, because just like a business could decide to invest their money in buying their own stock, an organization decides to spend time and resources auditing itself with regards to conformance to MSS requirements and MS effectiveness. Also, just like purchases of Treasury stock below book value accrue value for stockholders that remain, Internal Audit findings and subsequent corrective and preventive actions can yield a more efficient (i.e., nimbler) and effective organization.
	Retained Earnings	"The accumulation of prior and current periods' earnings and losses, less any prior or current periods' dividends."	9.3 Management review 10.2 Continual improvement	Management review (MR)is juxtaposed to Retained Earnings (RE) because just like RE represents the economic value reinvested in the business (i.e., Net Income minus dividends paid); MR represents the value of using results from 'Monitoring, measurement, analysis, and evaluation' activities of the MSS Continual improvement (CI) is also juxtaposed to RE because increased value of the organization, as evidenced by RE, can be equated to increase value as a result of CI activities of the MS

[b] B/S components and definitions adapted from Peterson and Fabozzi (2012), Analysis of Financial Statements, 3rd Edition, Wiley, New Jersey; unless otherwise noted

Appendix G.3 - Pre-testing ABSI model with ISO 9001 and ISO 14001

G.3.1 Purpose

The purpose of the second phase of the pre-testing looked to assess the following:

- Whether the requirements of two MSSs could be structured as per the ABSI model (i.e., the I/S and B/S components), and
- To identify (and implement) any need for changes to the ABSI model

G.3.2 Data

The data selected for pre-testing consisted of the requirements of ISO 9001, Quality Management Systems – Requirements (ISO, 2015c), and ISO 14001, Environmental Management Systems – Requirements with guidance for use (ISO, 2015a). Such selection obeyed the following reasons:

- The two MSSs (in their prior versions) are widely used, and it is safe to expect that most recent versions (i.e., 2015a,c) will continue to be. ISO 9001 and ISO 14001 are the two standards for which the largest number of certifications has been issued, as per the 2014 'ISO Survey of MSS Certifications' with 1,138,155 and 324,148 issued certificates respectively (ISO, 2015d). Thus, by selecting ISO 9001 (2015c) and ISO 14001 (2015a) for pre-testing, the author sought to explore how could the ABSI model be applied with requirements from MSSs that are widely used, i.e., to ensure that the model has a practical application. Moreover, there is an expectation that the present dissertation could serve as illustrative documentation that could guide practitioners choosing to use the ABSI model with ISO 9001 (2015c) and ISO 14001 (2015a).
- The two MSSs are commonly used together, many times in an integrated fashion (Karapetrovic *et al.*, 2006). Since the ABSI model is used for structuring MSS requirements or guidelines, a step that may precede the integration of multiple MSSs requirements or guidelines (ISO, 2008a), it was important to assess whether the ABSI model can facilitate (or at least not hinder) the integration of MSSs requirements.
- The two MSSs are 'assimilating' (Karapetrovic, 2005) and provide the minimum requirements for their respective functions (e.g., Quality and Environmental), thus allowing to examine if the ABSI model can be applied with standards that provide minimum requirements, as opposed to standards that may provide more specific (or stringent) requirements that would seek to potentiate an organization's SMS (e.g., through 'augmentation' or 'ascension' as per the Karapetrovic's (2005) classification).
- The two MSSs follow the recently proposed "High level structure" (HLS) which is expected to be used to revise existing, and develop new, MSSs. The most recent versions of ISO 9001 (2015c) and ISO 14001 (2015a) follow the HLS, thus allowing to assess if the ABSI model can be utilized with actual MSSs that are organized as per the HLS (as opposed to the HLS-

guidance only, i.e., Appendix 2 of ISO/IEC, 2015; aspect that was covered during the first stage of the pre-testing).

The method of the second phase of the pre-testing is presented next.

G.3.3 Method

The second stage of the pre-testing involved the structuring of the requirements of two MSSs, namely ISO 9001 (2015c) and ISO 14001's (2015a), as per the ABSI model (i.e., I/S and B/S components). The format of the ABSI model that was used was the one that had resulted after the first phase of pre-testing, i.e., the one that included 'Treasury Stock' and 'Short term bank loans' in the B/S.

The steps followed in the structuring are presented below:

1. Read and understood the main text of both ISO 9001 (2015c) and ISO 14001 (2015a). For ISO 14001, also Annex A – Guidance on the use of this International Standard was read to better understand the purpose and relationships between the sub-clauses in the main text.

2. Separately for each standard: made a list of the titles of the clauses and sub-clauses to structure, i.e., for both standards, clauses 4 to 10 and their corresponding first- and second-level sub-clauses. Clauses 1. Scope, 2. Normative references, and 3. Terms and definitions were excluded because they do not provide requirements, only information about the respective MSS.

3. Prepared a table with the I/S and B/S components that had resulted from the first phase of the pre-testing (i.e., the model that included 'Treasury stock' and 'Short term bank loan' in the B/S). Then, two sets of columns (each set comprised of two columns) were added to accommodate the sub-clauses of each MSS. For each set of columns the first column was labeled 'Sub-clause/ sub-sub-clause' and the second column 'Justification'.

4. Then, each sub-clause or sub-sub-clause (as per the list mentioned in step 2 above) of the first MSS, namely ISO 9001 (2015c), was juxtaposed to the corresponding I/S or B/S component along with the respective justification. Select examples of the juxtaposition, and justification, are presented below:

- Sub-clauses 7.4 Communication and 7.5 Documented information (the latter including sub-sub-clauses) (ISO, 2015c), were juxtaposed to 'Sales, general, and administrative expenses' (SG&A) in the I/S, because the sub-processes or activities that sub-clauses 7.4 and 7.5 require have to be performed irrespective of the number of times the product realization process is executed or the customers are served, i.e., they were deemed as 'overhead' or 'fixed'. Therefore, sub-clauses 7.4 and 7.5 were juxtaposed to 'SG&A'.
- Sub-clause 7.1 Resources (including sub-sub-clauses) (ISO, 2015c), was juxtaposed to 'Property, Plant and Equipment' (PPE) (under 'Assets' in the B/S) because the resources needed to operate the QMS (e.g., 7.1.2 People and 7.1.3 Infrastructure) can be compared to

the resources that an organization has to employ to perform its business operation, such as machinery and equipment.

- Sub-clause 5.2 Quality policy (including sub-sub-clauses) (ISO, 2015c) was juxtaposed to 'Long term debt' (LTD) (under 'Liabilities' in the B/S) because the quality policy was considered to represent the commitment by management of the organization to "satisfy applicable requirements", and to "continually improve the QMS" (ISO, 2015c, p. 4), just like LTD represents an outstanding commitment to repay money borrowed to acquire assets or enable the business operation.
- Sub-clause 5.1 Leadership and commitment (including sub-sub-clauses) (ISO, 2015c) was juxtaposed to the component 'Common stock' (under 'Shareholder's equity in the B/S) to represent how top management in the organization "takes accountability for the effectiveness of the QMS", "ensures the integration of the QMS requirements into the organization's business processes", and "ensures that resources […] are available" (ISO, 2015c, p. 3); akin to how 'Common stock' in the B/S represents the seed funds or capital that birthed the organization.

5. Step 4. above was repeated for the sub-clauses or sub-sub-clauses of the second MSS, i.e., ISO 14001 (2015a).

Since the overall structure of ISO 14001 (ISO, 2015a) is the same as for ISO 9001 (ISO, 2015c), the juxtaposition of EMS requirements was very similar to those of the QMS. One major difference was that whereas ISO 9001 (2015c) provides numerous requirements pertaining to the QMS with relation to the product realization process (e.g., sub-clauses 8.2 Determination of requirements for products and services, 8.3 Design and Development of products and services, 8.4 Control of externally provided products and services, 8.5 Production and service provision, 8.6 Release of products and services, and 8.7 Control of nonconforming outputs of ISO 9001, 2015c); ISO 14001 (2015a) requires the identification, with respect to the organization overall, as opposed to solely with regards to the product realization process, of "environmental aspects, risks and opportunities, and compliance obligations" so as to ensure "that the EMS can achieve its intended outcomes; prevent or reduce undesired effects, including the potential for external environmental conditions to affect the organization; and to achieve continual improvement" (sub-sub-clause 6.1.1 of ISO 14001, 2015a). In other words, less sub-clauses from ISO 14001 (2015a) could be matched to the I/S (which more directly resembles the business operation, from sales to expenses, to profit) than for ISO 9001 (2015a).

The results of the juxtaposition of the requirements from ISO 9001 (2015c) and ISO 14001 (2015a) to the I/S and B/S components (i.e., the ABSI model) are presented in Table 74 to Table 78

Table 74 - ISO 9001 and ISO 14001 requirements structured as per I/S components (part 1 of 2)

Income Statement (Part 1 of 2)						
I/S component		First Juxtaposed MSS: ISO 9001 (2015c)		Second Juxtaposed MSS: ISO 14001 (2015a)		
Name[a]	Description[a]	Sub clause / Sub sub clause	Justification	Sub clause / Sub sub clause	Justification
Sales	"Represent the amount of goods or services sold, in terms of price paid by customers."	8.6 Release of products and services 8.7 Control of nonconforming outputs	The activity of releasing products and services could be compared to 'Sales' or 'Revenues' because it involves an interaction with the customer when releasing the product he/she is seeking, just as sales involves interaction with the customer in a commercial exchange. The activity of controlling nonconforming process outputs could be compared to 'warranties, allowances for bad debt (herein tacitly included under 'sales'), since both refer to unsatisfactory things (e.g., uncollectable sales, or nonconforming products)	8.2 Emergency preparedness and response	Just like 'Sales' represents the interactions with the customer, 8.2 letters b), c), d), and e) represent how the organization has to "respond to actual emergency situations", "take action to prevent or mitigate the consequences of emergency situations", "periodically test the planned response actions", "periodically review and revise the processes and planned response actions"
Cost of goods sold [COGS]	"The amount of goods or services sold, in terms of cost to the firm."	8.4 Control of externally provided products and services 8.4.1 General 8.4.2 Type and extent of control 8.4.3 Information for external providers 8.5 Production and service provision [PSP] 8.5.1 Control of PSP 8.5.2 Identification and traceability 8.5.3 Property belonging to customers or external providers 8.5.4 Preservation 8.5.5 Post-delivery activities 8.5.6 Control of changes	Sub clause 8.4 and its sub sub clauses refer to ensuring that products or services supplied by external providers meet requirements. Externally sourced products or services, when they increase in direct proportion with the number of products or services delivered could be considered as a direct cost (i.e., 'COGS'). Similarly, sub clause 8.5 production and service provision and its constituting sub sub clauses can be considered as a variable activity because they directly relate to the number of times a product or service is delivered; thus suggesting that the sub clause could be categorized as a 'COGS'.		
Gross profit	"The difference between sales and cost of goods sold."	*N/A - Intermediate step to accommodate an arithmetic operation*			
Depreciation	"Used to allocate the cost of assets"	10.2 Nonconformity and corrective action	10.2 Nonconformity and corrective action is juxtaposed to 'Depreciation' to represent the loss of value as a result of the 'non-fulfilment of a requirement'. Also, due to the Depreciation being tracked cumulatively in the B/S, the inclusion of 'Corrective Action' herein, aims to allow for the eventual representation in the B/S of the changes to the 'Resources', as juxtaposed to PEE, to signify how the Resources that enable the QMS are affected (or rather improved) through Corrective Actions.	10.2 Nonconformity and corrective action	10.2 Nonconformity and corrective action is juxtaposed to 'Depreciation' to represent the loss of value as a result of the 'non-fulfilment of a requirement'. Also, due to the Depreciation being tracked cumulatively in the B/S, the inclusion of 'Corrective Action' herein, aims to allow for the eventual representation in the B/S of the changes to the 'Resources', as juxtaposed to PEE, to signify how the Resources that enable the EMS are affected (or rather improved) through Corrective Actions.
Selling, general, and administrative expenses [SG&A]	"Salaries, administrative, marketing expenditures, etc."	8.2 Determination of requirements for products and services (RPS) 8.2.1 Customer communication 8.2.2 Determination of RPS 8.2.3 Review of RPS 8.3 Design and development (D&D) of products and services 8.3.1 General 8.3.2 D&D planning 8.3.3 D&D inputs 8.3.4 D&D controls 8.3.5 D&D outputs 8.3.6 D&D changes 7.4 Communication 7.5 Documented information (incl. sub sub clauses)	Sub clauses 8.2 and 8.3 (and their constituting sub sub clauses) refer to activities that could be considered as 'fixed' since they ought to be performed independently of the number of products or services entering the product realization process. Moreover, sub clauses 8.2 and 8.3 portray activities that resemble Research and Development (R&D) efforts, which in the I/S are usually categorized as SG&A (Peterson and Fabozzi, 2012, p. 46) Sub clauses 7.4 Communication and 7.5 Documented information (and constituting sub sub clauses) are juxtaposed to 'fixed' expenses because they represent activities that ought to be performed as overhead, i.e., regardless of the number of times products or services are delivered. for example, communicating the QMS has to be done irrespective of the number of products or services provided, as is the documentation of aspects related to the QMS.	7.4 Communication 7.4.1 General 7.4.2 Internal communication 7.4.3 External communication 7.5 Documented information (incl. sub sub clauses) 7.5.1 General 7.5.2 Creating and updating 7.5.3 Controlling of documented information	Sub clause 7.4 requires that "processes for internal and external communication relevant to the MS' be established, implemented and maintained" (ISO 2015a, p. 11). Requirements refer to both 'internal communication' and 'external communication'. Internally, for example, changes to the EMS should be communicated; while externally, relevant information to the EMS should be communicated as required by compliance obligations. Therefore, 7.4 Communication, is juxtaposed to "SG&A" to represent the 'overhead' of the communication processes (especially with regards to 'compliance obligations') Sub clause 7.5 Documented information, including creation, updating and control, are considered as overhead activities, i.e., fixed, that are juxtaposed to 'SG&A' because they must be in place constantly (especially activities related to storage, preservation and retrieval), regardless of the number of times the business processes are performed.

[a] Components names and definitions from Peterson and Fabozzi (2012), Analysis of Financial Statements, 3rd Edition, Wiley, New Jersey,

Table 75 - ISO 9001 and ISO 14001 requirements structured as per I/S components (part 2 of 2)

Income Statement (Part 2 of 2)						
I/S component		First Juxtaposed MSS: ISO 9001 (2015c)		Second Juxtaposed MSS: ISO 14001 (2015a)	
Name[a]	Description[a]	Sub clause / Sub sub clause	Justification	Sub clause / Sub sub clause	Justification
Operating profit	"Income from operations..."	*N/A - Intermediate step representing an arithmetic operation*			
Interest expense	"Interest paid on debt."	9.1.1 General [Monitoring, measurement, analysis and evaluation]	Just like 'interest expense' refers to the cost of borrowing money, 9.1.1 General monitoring and measurement represents the 'cost' of monitoring the operation of the QMS		
Income before taxes	"Earnings before taxes."	*N/A - Intermediate step representing an arithmetic operation*			
Taxes	"Taxes expense for the current period."	9.1.2 Customer satisfaction [Monitoring, measurement, analysis and evaluation]	Just like 'taxes expense' refers to money paid to the government as a proportion of the income generated (after all prior expenses), Monitoring and reviewing customer satisfaction represents the effort of the organization to monitor "customer perceptions of the degree to which requirements have been met". In other words, just like a business has to relinquish a part of the profits to the government, an organization with a QMS needs to spend (or allocate) resources monitoring customer satisfaction.	9.1.2 Evaluation of compliance [Monitoring, measurement, analysis and evaluation]	Sub clause 9.1.2 Evaluation of compliance is juxtaposed to 'Taxes' because just like taxes accounts for the obligation to share a portion of the value generated by the business operation with the government (i.e., a third party), 'Evaluation of compliance' represents the assessment of the fulfilment of the compliance obligations as applicable.
Net income	"Operating profit less financing expenses (e.g., interest) and taxes."	9.1.3 Analysis and evaluation [Monitoring, measurement, analysis and evaluation]	After expenses pertaining using borrowed funds (i.e., income expense as juxtaposed to 9.1.1), and contributions to external parties (i.e., tax expense as juxtaposed to 9.1.2); net income is matched to 9.1.3 Analysis and evaluation to represent how QMS-performance data has to be gathered and evaluated - allowing to identify the 'value' of the QMS operation, just like 'net income' represents the value generated by the business operation. Also, just like Net Income flows to Retained Earnings, "Analysis and evaluation" is an input to Management Review (juxtaposed in the B/S to Retained Earnings).	9.1.1 General [Monitoring, measurement, analysis and evaluation]	9.1.1 General [Monitoring, measurement, analysis and evaluation] is juxtaposed to "Net Income" to illustrate how the evaluation of the performance of the EMS can be considered as providing evidence of the value that the EMS delivers, just like Net Income represents the value generated by the business operation.

[a] Components names and definitions from Peterson and Fabozzi (2012), Analysis of Financial Statements, 3rd Edition, Wiley, New Jersey,

Table 76 - ISO 9001 and ISO 14001 requirements structured as per B/S components (part 1 of 3)

Balance Sheet (Part 1 of 3)						
TYPE	B/S component		First Juxtaposed MSS: ISO 9001 (2015c)		Second Juxtaposed MSS: ISO 14001 (2015a)	
	Name[b]	Description[b]	Sub clause / Sub sub clause	Justification	Sub clause / Sub sub clause	Justification
ASSETS	**Current Assets**					
	Cash	"Cash, bills, and currency are assets that are equivalent to cash (e.g., bank account)"	8.1 Operational planning and control	Just like 'Cash' represents the most liquid asset, and "enables" the operation of the business , 8.1 Operational planning and control enables the operation of the processes related to the provision of product, i.e., those outlined in sub clauses 8.2 to 8.7 and juxtaposed to the components of the I/S.	8.1 Operational planning and control	Just like 'Cash' represents the most liquid asset, and "enables" the operation of the business , 8.1 Operational planning and control requires to "establish, implement, control, and maintain the processes needed to meet the EMS requirements" and to address risks and opportunities by "establishing operating criteria for processes and implementing control of the processes" (ISO 2015a); thus effectively actualizing the EMS.
	Accounts Receivable	"Amounts due from customers arising from trade credit."	4.3 Determining the scope of the quality management system [QMS] 4.4 Quality management system and its processes	The fact that accounts receivable transform into cash, is used to represent how sub processes related to 4.3 Determination of the scope of the QMS and 4.4 Establishing of the QMS, will facilitate the work under 8.1 Operational planning and control of the QMS	4.3 Determining the scope of the environmental management system [EMS] 4.4 Environmental management system	The fact that accounts receivable transform into cash, is used to represent how sub processes related to 4.3 Determination of the scope of the EMS and 4.4 Establishing of the EMS, will facilitate the work under 8.1 Operational planning and control of the EMS
	Inventory	"Investments in raw materials, work-in-process, and finished goods for sale."	6.3 Planning of changes	Similarly, just like Inventory transforms into accounts receivable after a sale on credit is done, sub clause 6.3 Planning of changes is likely to affect the QMS (4.3 Scope and 4.4 Implementation), when the organization "determines the need for changes"		
	Non-current Assets					
	Property, Plant and Equipment [PPE]	"Original cost of PPE"	7.1 Resources 7.1.1 General 7.1.2 People 7.1.3 Infrastructure 7.1.4 Environment for the operation of processes 7.1.5 Monitoring and measuring resources 7.1.6 Organizational knowledge	Just like PPE enables the business operation, 7.1 Resources and its constituting sub sub clauses enable the performance of the QMS and its sub processes (e.g., sub clauses 8.2 to 8.9 as juxtaposed to the components of the I/S)	7.1 Resources	Annex A, of ISO 14001, sub section A.7.1 lists the following resources that can be used in the EMS: "human resources, natural resources, infrastructure, technology and financial resources. Examples of human resources include specialized skills and knowledge. Examples of infrastructure resources include the organization's buildings, equipment, underground tanks and drainage system." (ISO 2015A, p. 26) The tangible resources are juxtaposed to PEE in the B/S (with intangible ones juxtaposed below to Intangible assets)
	Less accumulated depreciation	Less accumulated depreciation				
	Net property, plant and equipment	Net cost (original PPE minus accumulated depreciation)				
	Intangible assets	"Assets that are not financial instruments, such as patents, trademarks, copyrights, franchises and formulae"	7.2 Competence 7.3 Awareness	Sub clauses 7.2 Competence and 7.3 Awareness are considered as Intangible assets (and juxtaposed to such B/S component) because they represent the know-how of the QMS (reflecting the appreciation of knowledge as an intangible asset)	7.2 Competence 7.3 Awareness	Sub clause 7.2 and 7.3 are juxtaposed to Intangible assets because the sub clauses represent for example "education, training or experience [...] that affects environmental performance", and awareness of Environmental aspects. as well as the Environmental Policy and the EMS; such know how represents assets that cannot be seen or touched, therefore 'intangible'

[b] B/S components and definitions adapted from Peterson and Fabozzi (2012), Analysis of Financial Statements, 3rd Edition, Wiley, New Jersey; unless otherwise noted

Table 77 - ISO 9001 and ISO 14001 requirements structured as per B/S components (part 2 of 3)

Balance Sheet (part 2 of 3)

TYPE	B/S component		First Juxtaposed MSS: ISO 9001 (2015c)		Second Juxtaposed MSS: ISO 14001 (2015a)	
	Name[b]	Description[b]	Sub clause / Sub sub clause	Justification	Sub clause / Sub sub clause	Justification
LIABILITIES	**Current Liabilities**					
	Short term bank loans	Also called Short term credit line: "a demand loan that can be called by the lender at any time; can be considered to be negative cash" (Flynn, 2009, p. 298)	6.2 Quality objectives and planning to achieve them	6.2 Quality objectives and plans to achieve them are juxtaposed to 'Short term bank loans' because quality objectives represent concrete commitments of the organization that will allow for the performance of the activities related to QMS (just like funds from the short term bank loan allow for the business operation).	6.2 Environmental objectives and planning to achieve them 6.2.1 Environmental objectives 6.2.2 Planning actions to achieve env. objs.	Establishing environmental objectives and planning actions to achieve them (6.2.1 and 6.2.2 respectively) not only resemble a concrete commitment of the organization to implement the Environmental policy, but also guide the operation of the EMS (just like short term borrowed funds enable the business operation)
	Accounts payable	"Amounts due to suppliers for purchases on credit."	6.1 Actions to address risks and opportunities	6.1 Actions to address risks and opportunities is juxtaposed to 'Accounts payable' because just like suppliers that don't get paid can bring trouble to the business; unaddressed risks can negatively impact an organization. Similarly, positive relations with suppliers can yield positive credit policies that will favor the business, just like pursuing QMS-related opportunities could yield improvements to the organization.	6.1 Actions to address risks and opportunities 6.1.1 General 6.1.2 Environmental aspects 6.1.3 Compliance obligations 6.1.4 Planning action	Sub clause 6.1 aims "to ensure that the organization is able to achieve the intended outcomes of its EMS, to prevent or reduce undesired effects, and to achieve continual improvement [...by] determining risks and opportunities [and planning actions to address them] related to environmental aspects, compliance obligations and other issues or other needs and expectations of interested parties" (ISO 2015a, p. 22). Such a commitment resembles the commitment to pay suppliers (i.e., a type of interested party, in order to be able to perform the business operation, akin to being able to run the EMS as intended.
	Current maturities of long-term debt	"Current portion of long-term indebtedness."	5.3 Organizational roles, responsibilities and authorities	Just like 'Current maturities of LTD' represents the amount of LTD due within a year, 5.3 Organizational roles, responsibilities and authorities represents the immediate commitment by the organization (i.e., concreteness of the policy) as evidenced by the assignment of responsibilities for the performance and effectiveness of the QMS	5.3 Organizational roles, responsibilities and authorities	Just like 'Current maturities of LTD' represents the amount of LTD due within a year, 5.3 Organizational roles, responsibilities and authorities represents the immediate commitment by the organization (i.e., concreteness of the policy) as evidenced by the assignment of responsibilities for the conformance to requirements, and performance of the EMS
	Long term Liabilities					
	Long Term Debt [LTD]	"Obligations due beyond a year, for example notes payables and bonds, which are indebtedness (loans) in the form of securities."	5.2 Quality policy 5.2.1 Establishing the quality policy 5.2.2 Communicating the quality policy	5.2 Quality policy is juxtaposed to LTD since the quality policy represents a commitment by management "to interested parties", just like long term debt represents a commitment by the organization to repay the loans granted by banks and other lenders (akin to 'interested parties').	5.2 Environmental policy	5.2 Environmental policy is juxtaposed to LTD since the environmental policy represents a commitment by management "to interested parties", just like long term debt represents a commitment by the organization to repay the loans granted by banks and other lenders (akin to 'interested parties').

[b] B/S components and definitions adapted from Peterson and Fabozzi (2012), Analysis of Financial Statements, 3rd Edition, Wiley, New Jersey; unless otherwise noted

Table 78 - ISO 9001 and ISO 14001 requirements structured as per B/S components (part 3 of 3)

Balance Sheet (part 3 of 3)

TYPE	B/S component		First Juxtaposed MSS: ISO 9001 (2015c)		Second Juxtaposed MSS: ISO 14001 (2015a)	
	Name[b]	Description[b]	Sub clause / Sub sub clause	Justification	Sub clause / Sub sub clause	Justification
EQUITY	**Stakeholders' Equity**					
	Common stock	"A nominal amount per share of stock (sometimes prescribed by law), or the stated value, which is a nominal amount per share of stock assigned for accounting purposes if the stock has no par value."	5.1 Leadership and commitment (incl. sub sub clauses)	Just like 'Common stock' represents the original seed funds used to initiate a business, 5.1 Leadership and commitment represents the primordial commitment by management to establish, operate, and improve the QMS and to have customer focus as a priority.	5.1 Leadership and commitment	Just like 'Common stock' represents the original seed funds used to initiate a business, 5.1 Leadership and commitment represents the primordial commitment by management to establish, operate, and improve the EMS; and be accountable for its effectiveness.
	Additional paid-in capital	"Also referred to as capital surplus, the amount paid for shares of stock by investors in excess of par or stated value."	4.1 Understanding the organization and its context 4.2 Understanding the needs and expectations of interested parties	Since 'Additional paid-in capital' represents the surplus with relation to common stock above, paid when initiating the business; activities related to 4.1 and 4.2 represent the work (in excess of the initial 5.1 Commitment) by management to understand the organization and its context, and the needs and expectations of additional parties, when planning for the QMS.	4.1 Understanding the organization and its context 4.2 Understanding the needs and expectations of interested parties	Since 'Additional paid-in capital' represents the surplus with relation to 'Common stock' above, paid when initiating the business; activities related to 4.1 and 4.2 represent the work (in excess of the initial 5.1 Commitment) by management to understand the organization and its context, and the needs and expectations of additional parties (including compliance obligations), when planning for the EMS.
	Treasury Stock	"The accounting value of shares of the firm's own stock bought by the firm"	9.2 Internal audit (incl. sub sub clauses)	Internal audit (IA) is juxtaposed to 'Treasury Stock' because just like a business could decide to invest their funds in buying back their own stock, an organization decides to spend its time and resources auditing itself with regards to conformance to QMS requirements and QMS effectiveness. Also, just like repurchases of stock below book value accrue value for stockholders that remain, Internal Audit findings and subsequent corrective and preventive actions can yield a more efficient and effective organization (i.e., more valuable).	9.2 Internal audit 9.2.1 General 9.2.2 Internal audit programme	Internal audit (IA) is juxtaposed to 'Treasury Stock' because just like a business could decide to invest their funds in buying back their own stock, an organization decides to spend its time and resources auditing itself with regards to conformance to EMS requirements and EMS effectiveness. Also, just like some companies establish "Normal-course Issuer Bid" that communicate the intent of a company to repurchase its own shares (Baikie, 2003) over a period of time, the "Internal Audit programme" establishes "frequency", "methods", and so on that the organization intends to follow with regards to the performance of internal audits.
	Retained Earnings	"The accumulation of prior and current periods' earnings and losses, less any prior or current periods' dividends."	9.3 Management review (incl. sub sub clauses) 10.1 General [Improvement] 10.3 Continual improvement	9.3 Management review, 10.1 General [Improvement], and 10.3 Continual improvement are equated to 'Retained earnings' since they aim to not only ensure, but also improve, the suitability, adequacy, and effectiveness of the QMS; akin to how retained earnings represents the accumulated value created by the organization. In addition, 'Net Income' from the I/S (less Dividends) flows into the B/S via 'Retained earnings', mimicking how 9.1.3 Analysis and evaluation is an input to both 9.3 Management review and 10.3 Continual Improvement.	9.3 Management review (incl. sub sub clauses) 10.1 General [Improvement] 10.3 Continual improvement	9.3 Management review, 10.1 General [Improvement], and 10.3 Continual improvement are equated to 'Retained earnings' since they aim to not only ensure, but also improve, the suitability, adequacy, and effectiveness of the EMS; akin to how retained earnings represents the accumulated value created by the organization. In addition, 'Net Income' from the I/S (less Dividends) flows into the B/S via 'Retained earnings', mimicking how 9.1.3 Analysis and evaluation is an input to both 9.3 Management review and 10.3 Continual Improvement.

[b] B/S components and definitions adapted from Peterson and Fabozzi (2012), Analysis of Financial Statements, 3rd Edition, Wiley, New Jersey; unless otherwise noted

Appendix G.4 - Verification of ABSI model

G.4.1 Purpose

From research objective no. 4 available at the end of Chapter 2, the following design requirement was derived: "To have an ABSI model that could be used for structuring MSS requirements and facilitate MSS requirement integration", where the term 'requirement' is used loosely and can also refer to guidelines, for MSSs that provide guidance instead of requirements.

As such, the purpose of verification of the ABSI model sought to assess if the model allowed "to structure MSS requirements and to facilitate MSS requirement integration".

G.4.2 Data

The data selected for the verification of the ABSI model consisted of the guidance of ISO 10002, Guidelines for complaints-handling in organizations (ISO, 2014), and ISO 10003, Guidelines for dispute resolution external to organizations (ISO, 2007). Such a selection obeyed the following reasons:

- The two MSSs can be considered as 'augmenting' standards (Karapetrovic, 2005) because they provide guidance for specific processes, usually within an overarching MS, thus 'augmenting' the capabilities of the organization.
- The two MSSs provide guidelines, as opposed to requirements
- The two MSSs can be used together or by themselves,
- There was data available from the CSO, i.e., the PCRP, which could be used as MS-data to perform the verification of the ABA technique.

The method of the verification is presented next.

G.4.3 Method

G.4.3.1 Structuring of MSS guidance

1. Read and understood the main text of both ISO 10002 (2014) and ISO 10003 (2007).

2. Separately for each standard: made a list of the titles of the clauses and sub-clauses to structure, i.e., for both standards, clauses 4 to 8 and their corresponding first- and second-level sub-clauses. Sections 1. Scope, 2. Normative references, and 3. Terms and definitions were excluded because they do not provide requirements, only information about the respective MSS. Conversely, section 4. Principles was found possible of juxtaposition to an element of the B/S, namely 'Additional paid-in capital'.

3. Prepared a table with the I/S and B/S components that had resulted from the pre-testing (i.e., the model that included 'Treasury stock' and 'Short term bank loan' in the B/S). Then, two sets

of columns (each set comprised of two columns) were added to accommodate the sub-clauses of each MSS. For each set of columns the first column was labeled 'Sub-clause/ sub-sub-clause' and the second column 'Justification'.

4. Then, each sub-clause or sub-sub-clause (as per the list mentioned in step 2 above) of the first MSS, namely ISO 10002 (2014), was juxtaposed to the corresponding I/S or B/S component along with the respective justification. Select examples of the juxtaposition, and justification, are presented below:

- The Operational sub-clauses were juxtaposed to the I/S components as follows:

- Operational activities or sub-processes performed at the end of the process and which involve interaction with customer, also referred herein as 'last-mile' (i.e., 7.7 Response to complaints, 7.8 Communicating the decision, and 7.9 Closing complaints) were juxtaposed to 'Sales'

- 'Variable' operational activities or sub-processes that are performed as many times as complaints enter the CH process (i.e., 7.2 Receipt of complaints, 7.3 Tracking of complaints, 7.4 Acknowledgement of complaints, 7.5 Initial assessment of complaints, and 7.6 Investigation of complaints) we juxtaposed to 'COGS'.

- 'Fixed' operational activities or sub-processes that are performed irrespective of the number of complaints received (i.e., 7.1 Communication) were juxtaposed to 'SG&A'.

Most of the remaining sub-clauses were juxtaposed in a very similar way than was done for HLS, and ISO 9001 and ISO 14001, e.g., 6.1 General [Planning and design] was juxtaposed to 'Cash'; 6.4 Resources was juxtaposed to 'PPE'; 5.2 Policy to 'Long Term Debt'; 5.1 Commitment to 'Common stock'; and 8.2 Auditing to 'Treasury Stock'.

5. Step 4. above was repeated for the sub-clauses and sub-sub-clauses of the second MSS, i.e., ISO 10003 (2007).

Since the overall structure of ISO 10003 (2007) is very similar (albeit not identical) to that of ISO 10002 (2014), the juxtaposition of the guidance from ISO 10003 to the I/S and B/S components significantly resembled the juxtaposition of the guidance from ISO 10002. A few important differences between the juxtaposition of the guidance from ISO 10003 with respect to that of ISO 10002 included:

- The guidance from ISO 10003 (2007) does not mention an 'Auditing' guideline, therefore the B/S component 'Treasury stock' was left unmatched.

- The guidance from ISO 10003 (2007) does not refer to the determination of the level of customer satisfaction as a separate sub-clause, as does ISO 10002 (2014) in sub-clause 8.3 Satisfaction with the CH process. Instead, ISO 10003 (2007) mentions analysis of dispute-

resolution information with regards to customer satisfaction under sub-clause 8.2 Analysis and evaluation.

The results of the juxtaposition of the requirements from ISO 10002 (2014) and ISO 10003 (2007) to the I/S and B/S components (i.e., the ABSI model) are presented in Table 79 to Table 81.

Interim conclusions after juxtaposing ISO 10002 (2014)

Some I/S and B/S components were left unused. Such occurrence could obey to different possibilities

- the number of sub-clauses and sub-sub-clauses form ISO 10002 are significantly less than in ISO 9001 or ISO 14001 (which were used during pre-testing and served to 'refine' the model, e.g., by adding a couple of line items, namely Treasury stock and Short term bank loans)

Examples of additional sub-clauses present in ISO 9001 and ISO 14001 but missing in ISO 10002 (and ISO 10003) include:

> "4.1 Understanding the organization and its context
> 4.2 Understanding the needs and expectations of interested parties
> 4.3 Determining the scope of the environmental management system
> 4.4 Environmental management system" (ISO, 2015a,c)

- Some line items were left empty because the degree of breakdown in ISO 10002 is not as high as in ISO 9001, for example 'nonconformity and corrective action' is mentioned in ISO 9001 in its own sub-clause, namely 10.2, whereas in ISO 10002, the only reference to 'nonconformity' is in the text of the first sub-sub-clause of 8.6 Management review. Similarly, ISO 10002 does not explicitly refer to 'competence' as a distinct resource, but rather includes it under the text of 'Resources', namely when describing 'the selection, support and training of personnel involved in the CH process' as important factors. Therefore, 'intangible assets' which for ISO 9001 allowed to juxtapose 'Competence' and 'Awareness', remained empty for ISO 10002.

Such difference in the standards helps to see the benefit of using a common structure (e.g., HLS, ISO/IEC, 2015, ISO, 2015ab), so that structuring of different MSSs could be more consistent.

- A new section was juxtaposed when structuring the guidance of ISO 10002 (2014), namely Section 4. Principles (and its sub-components). The justification for the juxtaposition was as follows: Section 4. Principles (and its sub-components) could be deemed as an additional demand on the CH process (albeit expressed as a 'recommendation'), i.e., that the CH process adhere to the guiding principles for 'effective handling of complaints'; just like 'additional paid-in capital' represents the "amount paid for shares of stock by investors in excess of par or stated value" (Peterson and Fabozzi, 2012). Also, section 4. Principles serves as a linkage between the Commitment and the Planning (i.e., 'Common stock' and 'Cash' respectively), illustrating how

the Principles ‘channel’ the commitment via the principles into effective planning actions that will subsequently enable the 7. Operation and 8. Maintenance and Improvement.

‘additional paid-in capital’ when juxtaposing the HLS guidance, and ISO 9001, and ISO 14001 requirements accommodated sub-clauses

4.1 Understanding the organization and its context
4.2 Understanding the needs and expectations of interested parties

Under the interpretation that 'Additional paid-in capital' represents the surplus with relation to common stock, paid when initiating the business; just like activities related to 4.1 and 4.2 represent the work (in excess of the initial 5.1 Commitment) by management to understand the organization and its context, and the needs and expectations of additional parties, when planning for the QMS.

Thus, the ‘additional work’, whether be it understanding the organization, its context, and needs and expectations of stakeholder (i.e., 4.1 and 4.2, respectively, of HLS, ISO 9001 and ISO 14001) or aiming for adherence of the CH and CR processes to their respective Principles (i.e., 4.1 to 4.10 of ISO 10002 and 4.1 to 4.12 of ISO 10003), could be juxtaposed to ‘Additional paid-in capital’ under Shareholder’s equity in the B/S.

Conclusions after juxtaposing ISO 10003 (2007)

Since the overall structure of ISO 10003 (2007) is very similar (albeit not identical) to that of ISO 10002 (2014), the juxtaposition of the guidance from ISO 10003 to the I/S and B/S components significantly resembled the juxtaposition of the guidance from ISO 10002. A few important differences between the juxtaposition of the guidance from ISO 10003 with respect to that of ISO 10002 included:

- The guidance from ISO 10003 (2007) does not mention an ‘Auditing’ guideline, therefore the B/S component ‘Treasury stock’ was left unmatched.

- The guidance from ISO 10003 (2007) does not refer to the determination of the level of customer satisfaction as a separate sub-clause, as does ISO 10002 (2014) in sub-clause 8.3 Satisfaction with the CH process. Instead, ISO 10003 (2007) mentions analysis of dispute-resolution information with regards to customer satisfaction under sub-clause 8.2 Analysis and evaluation.

Table 79 - ISO 10002 and 10003 guidelines structured as per I/S components

Income Statement					
I/S component		**First Juxtaposed MSS: ISO 10002 (2014)**		**Second Juxtaposed MSS: ISO 10003 (2007)**	
Name[a]	**Description**[a]	**Sub clause / Sub sub clause**	**Justification**	**Sub clause / Sub sub clause**	**Justification**
Sales	"Represent the amount of goods or services sold, in terms of price paid by customers."	7.7 Response to complaints 7.8 Communicating the decision 7.9 Closing complaints	Sub clauses 7.7, 7.8, and 7.9 were juxtaposed to 'Sales' because the three sub clauses represent the last activities or sub-processes of the Operational section, i.e., 'last-mile' activities, that involve interaction with the customer (akin to 'sales')	7.5 Resolution of dispute (incl. sub sub clauses) 7.6 Implementation of resolution 7.7 Closing the file	Sub clauses 7.5, 7.6, and 7.7 were juxtaposed to 'Sales' because the three sub clauses represent the last activities or sub-processes of the Operational section, i.e., 'last-mile' activities, that involve interaction with the customer (akin to 'sales')
Cost of goods sold [COGS]	"The amount of goods or services sold, in terms of cost to the firm."	7.2 Receipt of complaints 7.3 Tracking of complaints 7.4 Acknowledgement of complaints 7.5 Initial assessment of complaints 7.6 Investigation of complaints	Sub clauses 7.2 - 7.6 can be compared to 'COGS' (or 'direct costs') because they are performed as many times as complaints enter the CH process (i.e., they are dependent on the number of 'units' entering the process). In other words, just as direct costs increase or decrease with the units produced and sold; the processes represented by the juxtaposed sub clauses are performed with a frequency that is dependent on the number complaints entering the CH process.	7.2 Complaint referral 7.3 Receipt of dispute notice 7.4 Formulation of the organization's response (incl. sub sub clauses)	Sub clauses 7.2 Complaint referral, 7.3 Receipt of dispute notice, and 7.4 Formulation of the organization's response (incl. sub sub clauses) were juxtaposed to 'COGS' because the sub clauses describe activities that are performed 'variably', i.e., with relation to the number of complaints received.
Gross profit	"The difference between sales and cost of goods sold."	*N/A - Intermediate step to accommodate an arithmetic operation*			
Depreciation	"Used to allocate the cost of assets"				
Selling, general, and administrative expenses [SG&A]	"Salaries, administrative, marketing expenditures, etc."	7.1 Communication	Sub clause 7.1 Communication is juxtaposed to 'SG&A' because regardless of the number of complaints received, 'Communication' of the CH-process has to take place via 'brochures, pamphlets or electronic-based communication'. Therefore, the sub clause is juxtaposed to 'SG&A', also called 'fixed' or 'overhead' expenses.	Annex D (normative) - Guide on accessibility Annex I (normative) - Guide on transparency 7.1 General (Operations) 7.1 General (Operations)	Sub clause 7.1 General (Operations) is juxtaposed to 'SG&A' because the sub clause provides the underlying advise that the organization "apply its procedures for dispute resolution in a fair, efficient and effective manner" and that "where necessary, the provider and organization should adjust their operational procedures to ensure coordination..." (ISO 2007, p. 8). Such guideline could be considered as 'overhead' or 'fixed' because it provides advice on 'fixed' characteristics of the DR process: i.e., fairness, efficiency, effectiveness, and flexibility. Annexes D and I are juxtaposed to SG&A because the specify accessibility and transparency guidelines that ought to be in place regardless of the number of disputes entering the DR process
Operating profit	"Income from operations..."	*N/A - Intermediate step representing an arithmetic operation*			
Interest expense	"Interest paid on debt."	8.2 Analysis and evaluation of complaints	'Interest expense' represents the cost of borrowing money, and sub clause 8.2 Analysis and evaluation of complaints could be equated to a 'financial cost' because just like borrowing money allows the operation of the business, analyzing and evaluating information of the CH-process could be considered a non-operating cost to the organization.	8.2 Analysis and evaluation	'Interest expense' represents the cost of borrowing money, and sub clause 8.2 Analysis and evaluation could be equated to a 'financial cost' because just like borrowing money allows the operation of the business, analyzing information of the DR-process could be considered an essential, yet non-operating, cost to the organization.
Income before taxes	"Earnings before taxes."	*N/A - Intermediate step representing an arithmetic operation*			
Taxes	"Taxes expense for the current period."	8.3 Satisfaction with the complaints-handling process	Just like 'taxes expense' refers to money paid to the government as a proportion of the income generated (after all prior expenses), 'Satisfaction with CH process' represents the effort of the organization to "determine the level of satisfaction of complainants with the complaints-handling process." In other words, just like a business has to relinquish a part of the profits to the government, an organization with a CH process needs to spend (or allocate) resources monitoring complainant satisfaction with the CH process.		
Net income	"Operating profit less financing expenses (e.g., interest) and taxes."	8.1 Collection of information 8.4 Monitoring of the complaints-handling process	Just as 'Net income' represents the value generated by the business operation; sub clauses 8.1 Collection of information and 8.4 Monitoring of the CH process, will enable collection and monitoring of information aobut CH and its performance (e.g., Annex G). Such information (just like 'Net income') will be an input into Management Review (juxtaposed to 'Retained Earnings' in the B/S)	8.1 Monitoring	Just as 'Net income' represents the value generated by the business operation, sub clause 8.1 Monitoring, advises to "collect and record information on the nature, progress, and results of all disputes" (ISO 2007, p. 11). Such information (just like 'Net income') will be an input into Management Review (juxtaposed to 'Retained Earnings' in the B/S)

[a] Components names and definitions from Peterson and Fabozzi (2012), Analysis of Financial Statements, 3rd Edition, Wiley, New Jersey,

Table 80 - ISO 10002 and 10003 guidelines structured as per B/S components (1 of 2)

Balance Sheet (Part 1 of 2)						
TYPE	B/S component		First Juxtaposed MSS: ISO 10002 (2014)		Second Juxtaposed MSS: ISO 10003 (2007)	
	Name[b]	Description[b]	Sub clause / Sub sub clause	Justification	Sub clause / Sub sub clause	Justification
ASSETS	**Current Assets**					
	Cash	"Cash, bills, and currency are assets that are equivalent to cash (e.g., bank account)"	6.1 General [Planning and design]	Sub clause 6.1 advises the organization to "plan and design an effective and efficient CH process...", which can be equated to cash in terms of foundational importance for the performance of the CH process, just like 'Cash' allows (i.e., enables) the business operation.	6.1 General [Planning, design and development]	Sub clause 6.1 advises the organization to "plan, design and develop an effective and efficient DR process [...] including the creation of necessary procedures...", which can be equated to cash in terms of foundational importance for the performance of the DR process, just like 'Cash' allows (i.e., enables) the business operation.
	Accounts Receivable	"Amounts due from customers arising from trade credit."				
	Inventory	"Investments in raw materials, work-in-process, and finished goods for sale."	6.3 Activities	6.3 Activities, is matched to 'Inventory' because the 6.3 Activities can be considered as representing how the 6.4 Resources (matched to 'PPE' below) are used for the performance of the CH process. Akin to how the PPE is used to build inventory to sell in the business operation	6.3 Activities 6.3.1 Diagnosis 6.3.2 Design 6.3.3 Testing	6.3 Activities, is matched to 'Inventory' because 6.3.1 Diagnosis, 6.3.2 Design and 6.3.3 Testing will yield a DR process, which will in turn be operated to resolve disputes, just like 'Inventory' represents the goods to sell in the business operation.
	Non-current Assets					
	Property, Plant and Equipment [PPE]	"Original cost of PPE"	6.4 Resources	Resources represent the 'things' used to operate the CH process, e.g., "personnel, training, procedures, documentation, specialist support, materials and equipment, computer hardware and software, and finances" (ISO 2014, p. 9); just like PPE represents long-lived assets that enable the business operation.	6.4 Resources	Resources represent the 'things' used to operate and evaluate the DR process, e.g., "personnel, information, materials, funding and infrastructure" (ISO 2007, p. 8); just like PPE represents long-lived assets that enable the business operation (e.g., 7.1 to 7.7 juxtaposed above to the I/S)
	Less accumulated depreciation	Less accumulated depreciation				
	Net property, plant and equipment	Net cost (original PPE minus accumulated depreciation)				
	Intangible assets	"Assets that are not financial instruments, such as patents, trademarks, copyrights, franchises and formulae"				
LIABILITIES	**Current Liabilities**					
	Short term bank loans	Also called Short term credit line: "a demand loan that can be called by the lender at any time; can be considered to be negative cash" (Flynn, 2009, p. 298)	6.2 Objectives	6.2 Objectives is juxtaposed to 'Short term bank loans' because objectives represent concrete commitments of the organization that will allow for the performance of the activities related to CH process (just like funds from the short term bank loan allow for the business operation)	6.2 Objectives	6.2 Objectives is juxtaposed to 'Short term bank loans' because objectives represent concrete commitments of the organization that will guide the operation of the DR process (just like funds from the short term bank loan enable the business operation)
	Accounts payable	"Amounts due to suppliers for purchases on credit."				
	Current maturities of long-term debt	"Current portion of long-term indebtedness."	5.3 Responsibility and authority	Just like 'Current maturities of LTD' represents the amount of LTD due within a year, 5.3 Responsibility and authority represents the immediate commitment by the organization (i.e., concreteness of the policy) as evidenced by the assignment of responsibilities for the establishment, performance, maintenance and improvement of the CH process.	5.3 Top management responsibilities	Just like 'Current maturities of LTD' represents the amount of LTD due within a year, 5.3 Top management responsibilities represents the immediate commitment by the organization (i.e., concreteness of the policy) as evidenced by the assignment of responsibilities for the establishment, performance, maintenance and improvement of the DR process.
	Long term Liabilities					
	Long Term Debt [LTD]	"Obligations due beyond a year, for example notes payables and bonds, which are indebtedness (loans) in the form of securities."	5.2 Policy	Sub clause 5.2 Policy is juxtaposed to 'LTD' since the policy represents "the overall intention and direction of the organization related to complaints handling" (ISO 2014, p. 4) just like 'LTD' represents obligations by the organization to repay the loans granted by banks and other lenders.	5.2 Dispute-resolution policy 5.2.1 Policy establishment 5.2.2 Policy review 5.2.3 Policy consistency	Sub clause 5.2 Dispute-resolution policy is juxtaposed to 'LTD' since the policy describes "under which circumstances the organization will inform customers about the dispute-resolution process and offer dispute resolution to complainants [...either] as an advanced commitment, or on a case-by-case basis" (ISO 2007, p. 5) just like 'LTD' represents commitments or obligations by the organization to repay the loans granted by banks and other lenders.

[b] B/S components and definitions adapted from Peterson and Fabozzi (2012), Analysis of Financial Statements, 3rd Edition, Wiley, New Jersey; unless otherwise noted

Table 81 - ISO 10002 and 10003 guidelines structured as per B/S components (2 of 2)

Balance Sheet (Part 2 of 2)

TYPE	B/S component		First Juxtaposed MSS: ISO 10002 (2014)		Second Juxtaposed MSS: ISO 10003 (2007)	
	Name[b]	Description[b]	Sub clause / Sub sub clause	Justification	Sub clause / Sub sub clause	Justification
EQUITY	**Stakeholders' Equity**					
	Common stock	"A nominal amount per share of stock (sometimes prescribed by law), or the stated value, which is a nominal amount per share of stock assigned for accounting purposes if the stock has no par value."	5.1 Commitment	Just like common stock represents the original seed funds used to initiate the business; sub clause 5.1 Commitment, represents the primordial commitment by management to establish, operate, and improve the CH process.	5.1 Commitment	Just like common stock represents the original seed funds used to initiate the business; sub clause 5.1 Commitment, represents the primordial commitment "to an effective and efficient DR process [and procedures] that conforms to the organization's DR policy".
	Additional paid-in capital	"Also referred to as capital surplus, the amount paid for shares of stock by investors in excess of par or stated value."	4. Guiding principles 4.1 General 4.2 Visibility 4.3 Accessibility 4.4 Responsiveness 4.5 Objectivity 4.6 Charges 4.7 Confidentiality 4.8 Customer-focused approach 4.9 Accountability 4.10 Continual improvement	Section 4. Guiding principles (and its sub components) could be deemed as an additional demand on the CH process (albeit expressed as a 'recommendation'), i.e., that the CH process adhere to the 9 guiding principles in 4.2 to 4.10 for 'effective handling of complaints'; just like 'additional paid-in capital' represents the "amount paid for shares of stock by investors in excess of par or stated value" (Peterson and Fabozzi, 2012). Also, section 4. Principles serves as a linkage between the Commitment and the Planning (i.e., 'Common stock' and 'Cash' respectively), illustrating how the Principles 'channel' the Commitment into Planning actions that will subsequently enable the 7. Operation and 8. Maintenance and Improvement.	4 Guiding principles 4.1 General 4.2 Consent to participate (incl. Annex C) 4.3 Accessibility 4.4 Suitability (incl. Annex E) 4.5 Fairness (incl. Annex F) 4.6 Competence (incl. Annex G) 4.7 Timeliness (incl. Annex H) 4.8 Confidentiality 4.9 Transparency 4.10 Legality 4.11 Capacity 4.12 Continual improvement	Section 4. Guiding principles (and its sub components) could be deemed as an additional demand on the DR process, e.g., "the foundation of effective and efficient DR is based on adherence to the guiding principles set out in 4.2 to 4.12" (ISO 2007, p. 3); just like 'additional paid-in capital' represents the "amount paid for shares of stock by investors in excess of par or stated value" (Peterson and Fabozzi, 2012). Also, section 4. Principles serves as a linkage between the Commitment and the Planning (i.e., 'Common stock' and 'Cash' respectively), illustrating how the Principles contribute to 'actualize' the Commitment into Planning actions that will subsequently enable the 7. Operations and 8. Maintenance and Improvement of the DR process.
	Treasury Stock	"The accounting value of shares of the firm's own stock bought by the firm"	8.5 Auditing of the complaints-handling process	8.5 Auditing of the CH process is juxtaposed to 'Treasury Stock' because just like a business may decide to invest their funds in buying back their own stock, an organization decides to spend its time and resources auditing itself with regards to "process conformity to CH procedures, and process suitability to achieve CH objectives" (ISO 2014, p. 8). Also, just like repurchases of stock below book value accrue value for stockholders that remain, audit findings and subsequent corrective and preventive actions can yield a more efficient and effective organization (i.e., more valuable).		
	Retained Earnings	"The accumulation of prior and current periods' earnings and losses, less any prior or current periods' dividends."	8.6 Management review of the complaints-handling process 8.7 Continual improvement	Just as retained earnings represent the accumulated value reinvested in the organization, 8.6 Management review of the CH process, together with 8.7 Continual improvement, represent how management of the organization uses information to enable improvement (i.e., increase the value) of the CH process.	8.3 Management review 8.4 Continual improvement	Just as retained earnings represent the accumulated value reinvested in the organization, 8.6 Management review together with 8.7 Continual improvement, represent how management of the organization uses different sources of information (e.g., internal and external factors, overall performance, results of assessment, status of preventive and corrective actions, and so on as per ISO 2007, p. 12) to enable improvement (i.e., increase the value) of the DR process.

[b] B/S components and definitions adapted from Peterson and Fabozzi (2012), Analysis of Financial Statements, 3rd Edition, Wiley, New Jersey; unless otherwise noted

G.4.3.2 Integration of MSS guidance

With the guidance from ISO 10002 (2014) and ISO 10003 (2007) structured as per the ABSI model, the guidelines at a sub-clause level could be integrated where commonalities exist. The IUMSS handbook (ISO, 2008a) provides guidance and examples on how to integrate requirements from different MSSs. The IUMSS methodology suggests to:

- "Identify the commonalities of the requirements in the multiple standards to be incorporated" (ISO, 2008a, p. 98)

- "Adopt a method of harmonizing requirements that are common in intent but not identical in content. Where there are differences, the organization needs to make a decision to incorporate either the most comprehensive or the minimum shared level of detail as the basis to integrate the requirements" (ISO, 2008a, p. 98)

Harmonization of common requirements using the maximal approach

The detailed guidance in 7.6 Implementation of resolution, of ISO 10003, could be used to enhance the guidance in 7.7 Response to complaints of ISO 10002. The former sub-clause provides a series of six detailed steps that break down the activities that should be undertaken when implementing a resolution, namely:

> "- determining the action needed by the organization and/or the complainant,
>
> - assigning responsibilities and informing the appropriate personnel of any deadlines,
>
> - coordinating the implementation of the resolution,
>
> - confirming that the necessary actions were implemented,
>
> - notifying the provider when implementation of the resolution has been completed or any reason for delays
>
> - determining the complainant's satisfaction with implementation of the resolution, and
>
> - closing the dispute if the complainant is satisfied or further actions if unsatisfied" as summarized from ISO 10003 (2007, p. 11)

The above guidance can certainly be adapted in a complaints-handling process, and is likely to contribute to the effectiveness of the implementation of complaint responses.

Similarly, sub-clause 8.1 Collection of information of ISO 10002 provides detailed guidance on record keeping within the complaints-handling process. Such guidance could be adapted (i.e., harmonized during integration) for the dispute resolution process, so that the records in the dispute resolution process (briefly mentioned in sub-clause 8.1 Monitoring) are as thoroughly "gathered, classified, maintained, stored and disposed" (2014, p. 7) as within the CH process. Other guidance pertaining to collection of information that is specified in ISO 10002 and could

beneficially be used in the DR process would include "keeping records of the type of training and instruction that individuals involved in the [dispute resolution process have received], specifying the organization's criteria for responding to requests for record presentation and record submissions made by a complainant or his or her agent […,] and specifying how and when statistical non-personally identifiable complaints data are disclosed to the public" (ISO 10002, 2014, p. 8).

Similarly, sub-clause 6.3 Activities (under 6. Planning) of ISO 10003 (2007) provides significantly more detail regarding the effort to identify needs (i.e., diagnose), design and test the dispute resolution process; than does the same sub-clause of ISO 10002 (2014) with regards to the CH process. Such detailed guidance (i.e., 10003:6.3) could be applied when developing the complaints handling process in an organization that chooses to incorporate the integrated guidance of ISO 10002/3 (2014/2007) concurrently. As such, the CH process planning could be diagnosed, designed based on diagnostics findings and tested before full deployment (as adapted from ISO 10003, 2007, p. 8).

Guiding principles were considered as common because they are principles, and even though some from ISO 10003 (2007) elaborate on the guidance by means of references to principle-specific annexes, they continue to be principles and provide generic guidance on how to ensure the principle gets embedded or operationalized in the DR process, but they do not themselves provide specific guidance on the DR process (i.e., such as sub-clauses 7.2 to 7.7 do, for instance).

The guidance under 8.5 Auditing of CH process could be adapted to audit the DR process. Especially because even though a reference is made in ISO 10003 to 'results of assessments of the provider's methods" (ISO 10003, 2007, pp. 12), the DR process should also be audited. In other words, not only the work done by the provider ought to be examined, but also the work done within the organization with regards to dispute resolution, e.g., activities or sub-processes suggested by sub-clauses 7.2, 7.3, 7.4, 7.5, 7.6, and 7.7, to ensure not only conformance to organizational procedures, but also 'suitability, adequacy, effectiveness, and efficiency' as required in the guidance pertaining to the 8.3. Management review (ISO 10003, 2007, p. 12).

Potential benefits of using the ABSI model to structure and integrate MSSs requirements

The juxtaposition of MSS guidance to the ABSI model could benefit the analyst by providing an added layer of interpretation of the individual sub-clauses and their interrelationships, as explained below:

Management of the organization could strengthen the activities or sub-processes that during juxtaposition were matched to 'sales' so that the personnel responsible are well trained in handling the customer (e.g., in the context of the CH process, personnel involved in responding to complaints and communicating the decision would benefit from training in communication techniques and descalation techniques).

Similarly, activities or sub-processes juxtaposed to 'COGS' could be reinforced through redundancies so that the possibility of failure is reduced. For example, again in the context of the CH process, having different ways to receive complaints (in person, drop-box, letter, electronic form, or by phone), an activity or sub-process that was considered as 'variable' because it is performed in direct proportion to the number of complaints received, an organization can ensure that complain intake will not be affected even if certain sub-systems have breakdowns, such as a post office strike or an internet blackout.

The juxtaposition to the ABSI model would also make evident to management that certain requirements of the process or system will represent an overhead. In other words, that regardless of the number of complaints received (which hypothetically, even if unlikely could drop to zero and therefore require no work responding to complaints), 'fixed' sub-processes or activities should still be carried out, like communicating the process for resolving the complaints (e.g., 7.1 Communication of ISO 10002, 2014).

Also, the juxtaposition of certain sub-clauses to the items in the B/S can help management understand the following:

Management review and Continual improvement (as juxtaposed to Retained Earnings) represent the result of the continued effort of management with regards to the MS, just like compound interest allows to increases the value of the shareholders of the company through the reinvestment of earnings. If Management Review and Continual Improvement are not carried out, the value generated by the MS will not be retained (e.g., opportunities for preventive and corrective actions or to improve the CH process and products offered, ISO 10002, 2014, p. 9).

Similarly, the arrangement of the sub-clauses as per the B/S (e.g., 'Commitment' as juxtaposed to 'Common stock', 'Principles' juxtaposed to 'Additional paid-in capital', and 'Policy' to 'LTD') help to represent the supporting structure that enables the MS and that can accommodate the incorporation of additional MSSs, i.e., because the foundation is already in place. Such interpretation is also evident because the support components are located at the bottom of the B/S, visually conveying the sense of a 'foundation' of a building or a house.

Lastly, an additional benefit of the use of the ABSI model to organize MSS guidelines as per the I/S and B/S components and subsequently MS components after mapping, is the ability to assess MS component interrelationships, through the adaptation of financial ratio analysis (i.e., the ABA technique).

G.4.3.3 Mapping and gap analysis

The step that follows after structuring and integrating MSS guidance or requirements is to map the MSS against the MS, and to analyze any gaps (ISO, 2008a)

Since the ABSI model provides a table where the MSS guidance has been structured (through the juxtaposition to the I/S and B/S components), the MS components could be also be juxtaposed, thus mapping the MS to the MSS. Gaps found can then be closed. Table 82 to Table 84show the mapping of the MS (i.e., the CSO's Patient Concerns Resolution Process, PCRP), to the MSS guidance (i.e., ISO 10002, 2014). Such mapping was already presented in Chapter 4 in the table called "Gap analysis results (clauses)"; however, in this section, the mapping results have been re-arranged as per the ABSI model, for two reasons:

- to examine if the ABSI model would facilitate (or at least not hinder) the mapping step of the IUMSS (ISO, 2008a) methodology, and
- to exemplify the mapping of the MS to the MSS my means of the ABSI model so as to allow for the verification, and illustration, of the Accounting-based Assessment (ABA) technique in a subsequent research step.

The mapping is also shown in Table 82 to Table 84.

The ABSI model (i.e., the table containing I/S and B/S components that allowed the juxtaposition of the MSS's guidelines and their integration and harmonization) was found to facilitate the mapping of the MS onto the MSS.

Table 82 - Commonalities between ISO 10002/3, and mapping of CSO's PCRP to ISO 10002 (I/S)

Income Statement					
I/S component		ISO 10002 (2014)	ISO 10003 (2007)		CSO's PCRP (CSO, 2009a)
Name[a]	Description[a]	Sub clause / Sub sub clause	Sub clause / Sub sub clause	Common / unique / harmonization approach	Mapping of ISO 10002 (2014) guidance to PCRP component (originally in table 'Gap analysis result' in Chapter 4, but re-arranged herein to illustrate mapping via ABSI model)
Sales	"Represent the amount of goods or services sold, in terms of price paid by customers."	7.7 Response to complaints 7.8 Communicating the decision 7.9 Closing complaints	7.5 Resolution of dispute (incl. sub sub clauses) 7.6 Implementation of resolution 7.7 Closing the file	10002: 7.7 & 10003: 7.6 - harmonized, maximal 10002: 7.8,7.9 & 10003: 7.7 - common	- 7.7 Response to complaints: addressed under 'Action' and 'Resolution of a concern' of the section 'Fundamental Activities of the PCRP' (p. 9); and in 'Documentation' of the role description of PCC (p. 13) - 7.8 Communicating the decision: addressed under 'Communication' of the section 'Fundamental Activities of the PCRP' (p. 9) - 7.9 Closing the complaint: addressed under 'Documentation' in the section 'Fundamental Activities of the PCRP' in p. 9; and in the roles of the PCO; and the possibility of involvement of the [Provincial] Ombudsman
Cost of goods sold [COGS]	"The amount of goods or services sold, in terms of cost to the firm."	7.2 Receipt of complaints 7.3 Tracking of complaints 7.4 Acknowledgement of complaints 7.5 Initial assessment of complaints 7.6 Investigation of complaints	7.2 Complaint referral 7.3 Receipt of dispute notice 7.4 Formulation of the organization's response (incl. sub sub clauses)	10002: 7.2, 7.3 & 10003: 7.2 - common 10002: 7.4 & 10003: 7.3 - common 10002: 7.5 - unique 10002: 7.6 & 10003: 7.4 - common	- 7.2 Receipt of complaint: addressed by sub section 'Communication' in the role descriptions of the PFIC/PCC (p. 12); and in sub section 'Concerns Intake & Data Team File Processes' (p.1) related to the electronic database. - 7.3 Tracking of complaint: addressed by "Patient Feedback Form", the use of the electronic database; and sub section 'Documentation' in the role description of the PCC (p. 13) - 7.4 Acknowledgement of complaint: addressed by sub section 'Communication' in the role descriptions of the PFIC and PCC (p. 12); and objective in place to to acknowledge complaint within "3 business days" - 7.5 Initial assessment of complaint: addressed by sub section 'Initiation of follow-up' in the role descriptions of the PFIC who "initiates follow up to concern by notifying PCC or PCDir of any associated urgency/risk" (p. 12) - 7.6 Investigation of complaints: addressed by sub section 'Coordination' in the role description of the PCC
Gross profit	"The difference between sales and cost of goods sold."	*N/A - Intermediate step to accommodate an arithmetic operation*			
Depreciation	"Used to allocate the cost of assets"				
Selling, general, and administrative expenses [SG&A]	"Salaries, administrative, marketing expenditures, etc."	7.1 Communication	Annex D (normative) - Guide on accessibility Annex I (normative) - Guide on transparency 7.1 General (Operations)	10002: 7.1 & 10003: Annex D - common 10003: Annex I - unique 10003: 7.1 - unique	- 7.1 Communication: satisfied by online websites; as well as the online PDFs; also during one-one-one communication between the PFIC/PCC and the complainant (pp. 12-13)
Operating profit	"Income from operations..."	*N/A - Intermediate step representing an arithmetic operation*			
Interest expense	"Interest paid on debt."	8.2 Analysis and evaluation of complaints	8.2 Analysis and evaluation	10002: 8.1 - unique 10002: 8.2 & 10003: 8.2 - common	- 8.2 Analysis and evaluation of complaints: evidenced by the use of Categories table (Measurement & Reporting of Feedback) in p. 31; and 'Reporting and Trending' sub section in the role description of the PCDirs in p. 14; and under 'Determination and Action' of the 'Fundamental Activities of the PCRP' section in p. 9
Income before taxes	"Earnings before taxes."	*N/A - Intermediate step representing an arithmetic operation*			
Taxes	"Taxes expense for the current period."	8.3 Satisfaction with the complaints-handling process		10002: 8.3 - unique	- 8.3 Satisfaction with the CH process: evidenced by second screen shot in p. 3 of the Concerns Intake & Data Team File Processes document; and under 'Resolution of a concern' of the 'Fundamental Activities of the PCRP' section in
Net income	"Operating profit less financing expenses (e.g., interest) and taxes."	8.1 Collection of information 8.4 Monitoring of the complaints-handling process	8.1 Monitoring	10002: 8..1, 8.4 & 10003: 8.1 - harmonized, maximal	- 8.1 Collection of information: addressed by Electronic Database (CSO 2007); role description of the PCC in p. 12; and by results on the objectives of the PCRP identified in the 2008-2009 POCSO Annual Report - 8.4 Monitoring of the CH process: evidenced by weekly or biweekly meetings between PCDirs and the PCED; performance indicators and targets pertaining the PCRP in the POCSO Annual Report p. 32; and by reports generated every quarter for Top Management (according to interviews with directors)

[a] Components names and definitions from Peterson and Fabozzi (2012), Analysis of Financial Statements, 3rd Edition, Wiley, New Jersey,

Table 83 - Commonalities between ISO 10002/3, and mapping of CSO's PCRP to ISO 10002 (B/S)(1 of 2)

Balance Sheet (Part 1 of 2)						
TYPE	B/S component		ISO 10002 (2014)	ISO 10003 (2007)		CSO's PCRP (CSO, 2009a)
	Name[b]	Description[b]	Sub clause / Sub sub clause	Sub clause / Sub sub clause	Common / unique / harmonization approach	Mapping of ISO 10002 (2014) guidance to PCRP component (originally in table 'Gap analysis result' in Chapter 4, but re-arranged herein to illustrate mapping via ABSI model)
ASSETS	**Current Assets**					
	Cash	"Cash, bills, and currency are assets that are equivalent to cash (e.g., bank account)"	6.1 General [Planning and design]	6.1 General [Planning, design and development]	10002: 6.1 & 10003: 6.1 - common	- 6.1 General: evidenced by the PCRP document (QPI 2009a) including the PCRP algorithm (p. 17) and the supporting flowcharts (pp. 18-21)
	Accounts Receivable	"Amounts due from customers arising from trade credit."				
	Inventory	"Investments in raw materials, work-in-process, and finished goods for sale."	6.3 Activities	6.3 Activities 6.3.1 Diagnosis 6.3.2 Design 6.3.3 Testing	10002: 6.1 & 10003: 6.1 - harmonized, maximal	- 6.3 Activities: evidenced by the effort made by the CSO's three sub-units to understand each other's processes and to harmonize them (from interviews)
	Non-current					
	Property, Plant and Equipment [PPE]	"Original cost of PPE"	6.4 Resources	6.4 Resources	10002: 6.4 & 10003: 6.4 - common	- 6.4 Resources: addressed by the fact that the CSO exists with facilities, people, equipment to operate the PCRP; in addition to the training and education that staff receive.
	Less accumulated depreciation	Less accumulated depreciation				
	Net property, plant and equipment	Net cost (original PPE minus accumulated depreciation)				
	Intangible assets	"Assets that are not financial instruments, such as patents, trademarks, copyrights, franchises and formulae"				
LIABILITIES	**Current Liabilities**					
	Short term bank loans	Also called Short term credit line: "a demand loan that can be called by the lender at any time; can be considered to be negative cash" (Flynn, 2009, p. 298)	6.2 Objectives	6.2 Objectives	10002: 6.2 & 10003: 6.2 - common	- 6.2 Objectives: results on select few objectives of the PCRP were identified in the 2008-2009 POCSO Annual Report
	Accounts payable	"Amounts due to suppliers for purchases on credit."				
	Current maturities of long-term debt	"Current portion of long-term indebtedness."	5.3 Responsibility and authority	5.3 Top management responsibilities	10002: 5.3 & 10003: 5.3 - common	5.3 Responsibility and authority: satisfied with role and process descriptions in CSO 2009a
	Long term					
	Long Term Debt [LTD]	"Obligations due beyond a year, for example notes payables and bonds, which are indebtedness (loans) in the form of securities."	5.2 Policy	5.2 Dispute-resolution policy 5.2.1 Policy establishment 5.2.2 Policy review 5.2.3 Policy consistency	10002: 5.2 & 10003: 5.2 - common	5.2 Policy: addressed by elements in documentation ("Overview" and "Foundational tenets" in CSO 2009a)

Table 84 - Commonalities between ISO 10002/3, and mapping of CSO's PCRP to ISO 10002 (B/S)(2 of 2)

Balance Sheet (Part 2 of 2)						
TYPE	B/S component		ISO 10002 (2014)	ISO 10003 (2007)		CSO's PCRP (CSO, 2009a)
	Name[b]	Description[b]	Sub clause / Sub sub clause	Sub clause / Sub sub clause	Common / unique / harmonization approach	Mapping of ISO 10002 (2014) guidance to PCRP component (originally in table 'Gap analysis result' in Chapter 4, but re-arranged herein to illustrate mapping via ABSI model)
EQUITY	Stakeholders'					
	Common stock	"A nominal amount per share of stock (sometimes prescribed by law), or the stated value, which is a nominal amount per share of stock assigned for accounting purposes if the stock has no par value."	5.1 Commitment	5.1 Commitment	10002: 5.1 & 10003: 5.1 - common	- 5.1 Commitment: realized by having PCRP in place (incl. documentation)
	Additional paid-in capital	"Also referred to as capital surplus, the amount paid for shares of stock by investors in excess of par or stated value."	4. Guiding principles 4.1 General 4.2 Visibility 4.3 Accessibility 4.4 Responsiveness 4.5 Objectivity 4.6 Charges 4.7 Confidentiality 4.8 Customer-focused approach 4.9 Accountability 4.10 Continual improvement	4 Guiding principles 4.1 General 4.2 Consent to participate (incl. Annex C) 4.3 Accessibility 4.4 Suitability (incl. Annex E) 4.5 Fairness (incl. Annex F) 4.6 Competence (incl. Annex G) 4.7 Timeliness (incl. Annex H) 4.8 Confidentiality 4.9 Transparency 4.10 Legality 4.11 Capacity 4.12 Continual improvement	10002: 4 & 10003: 4 - common	Matching principles available in document CSO 2009a (p. 5)
	Treasury Stock	"The accounting value of shares of the firm's own stock bought by the firm"	8.5 Auditing of the complaints-handling process		10002: 8.5 - unique but could be applied to DR process	- 8.5 Auditing of the CH process: Audit of the PCRP (i.e., Boundary Audit) [Post gap closure]
	Retained Earnings	"The accumulation of prior and current periods' earnings and losses, less any prior or current periods' dividends."	8.6 Management review of the complaints-handling process 8.7 Continual improvement	8.3 Management review 8.4 Continual improvement	10002: 8.6 & 10003: 8.3 - common 10002: 8.7 & 10003: 8.4 - common	- 8.6 Management review of the CH process: partially evidenced by performance indicators and targets pertaining to the PCRP as reported in the POCSO Annual Report (p. 32); and by reports generated every quarter for Top Management (according to interviews with directors) - 8.7 Continual improvement: partially addressed in section 'Overview: The Provincial Patient Concerns Resolution Process' in p. 8; and under 'Determination; of the 'Fundamental Activities of the PCRP' section in p. 9; and under 'Purpose' of the Patient Concerns Resolution Framework in p. 4

[b] B/S components and definitions adapted from Peterson and Fabozzi (2012), Analysis of Financial Statements, 3rd Edition, Wiley, New Jersey; unless otherwise noted

Differences between the juxtaposition of assimilating MSSs (e.g., ISO 9001 and ISO 14001) and augmenting MSSs (e.g., ISO 10002 and ISO 10003)

An important difference between the juxtaposition of the guidance from augmenting MSSs (i.e., ISO 10002 (2014) and ISO 10003 (2007)) and that from the assimilating MSSs (i.e., 9001 (2015c), ISO 14001 (2015a), and the HLS guidance (ISO/IEC, 2015)) pertained to the section on Guiding Principles of the augmenting MSSs.

Section 4. Guiding principles of both ISO 10002 (2014) and ISO 10003 (2007), which in the HLS guidance is non-existent and in ISO 9001 (2015c) is briefly referenced in the prefatory subsection 0.2 Quality Principles, were juxtaposed to 'Additional paid-in capital' because each such guiding principles (4.2 – 4.10 of ISO 10002 and 4.2 to 4.12 of ISO 10003) could be deemed as additional demands on the CH and DR process respectively (albeit expressed as 'recommendations'), i.e., that "adherence to the principles is recommended for effective handling of complaints" (ISO, 2014, p. 2); and that "the foundation of effective and efficient dispute resolution is based on adherence to the guiding principles…" (ISO, 2007, p. 3). Such recommended 'adherence' resembles how 'additional paid-in capital' represents the "amount paid for shares of stock by investors in excess of par or stated value" (Peterson and Fabozzi, 2012). In other words, just like the 'Additional paid-in capital' represents funds on top of the original 'Common stock', the 'Principles' represent an additional pledge on top of the initial 'Commitment'. Also, section 4. Guiding principles of both ISO 10002 (2014) and ISO 10003 (2007) can be considered as connecting the Commitment on one hand and the Planning on the other (i.e., 'Common stock' and 'Cash' respectively), illustrating how the Principles contribute to 'actualize' the Commitment into Planning actions that will subsequently enable the 7. Operations, and 8. Maintenance and Improvement of the CH and DR processes respectively.

Conversely, section 4. Context of the organization in the assimilating MSSs (i.e., 9001 (2015c), ISO 14001 (2015a), HLS guidance (ISO/IEC, 2015)), is unavailable in the augmenting MSSs (i.e., ISO 10002 (2014) and ISO 10003 (2007)). As such, sub-clauses 4.1 - 4.4 of the assimilating standards were juxtaposed as follows, as illustrated with sub-clauses from ISO 9001:

Table 85 - Details about juxtaposition of ISO 9001's section 4 sub-clauses

B/S component	ISO 9001 (2015c) sub-clauses	Justification
ASSETS CURRENT ASSETS **Accounts receivable**	4.3 Determining the scope of the quality management system [QMS] 4.4 Quality management system and its processes	The fact that accounts receivable transform into cash, is used to represent how sub-processes related to 4.3 Determination of the scope of the QMS and 4.4 Establishing of the QMS, will devolve into the work under 8.1 Operational planning and control of the QMS
SHAREHOLDER'S EQUITY **Additional paid-in capital**	4.1 Understanding the organization and its context 4.2 Understanding the needs and expectations of interested parties	Since 'Additional paid-in capital' represents the surplus with relation to common stock above, paid when initiating the business; activities related to 4.1 and 4.2 represent the work (in excess of the initial 5.1 Commitment) by management to understand the organization and its context, and the needs and expectations of additional parties, when planning for the QMS.

Section 4. Context of the organization is not available in ISO 10002 (2014) and ISO 10003 (2007). Thus, even when the B/S component ‘Additional paid-in capital’ allowed to accommodate the Guiding Principles (ISO 10002, 2014; and ISO 10003, 2007), the B/S component ‘Accounts receivable’ was left unmatched when juxtaposing the guidance from ISO 10002 and ISO 10003.

Other items left unmatched when juxtaposing the augmenting MSSs included ‘Depreciation’ in the I/S, and ‘Intangible assets’ in the B/S, as explained below.

‘Depreciation’ in the I/S, which is “used to allocate the cost of assets" (Peterson and Fabozzi, 2012), was used when structuring the requirements of ISO 9001 (2015c) and ISO 14001 (2015a) to juxtapose sub-clause 10.2 Nonconformity and corrective action as per the following justification with relation to ISO 9001:

> “10.2 Nonconformity and corrective action is juxtaposed to 'Depreciation' to represent the loss of value as a result of the 'non-fulfilment of a requirement'. Also, due to the Depreciation being tracked cumulatively in the B/S, the inclusion of 'Corrective Action' herein, aims to allow for the eventual representation in the B/S of the changes to the 'Resources', as juxtaposed to PEE, to signify how the Resources that enable the QMS are affected (or rather improved) through Corrective Actions.”

However, neither ISO 10002 (2014) or ISO 10003 (2007) contain sub-clauses that reference ‘nonconformity and corrective action’ directly. Moreover, only ISO 10002 (2014) mentions ‘nonconformity’ as an item that should be identified and addressed during management review of the CH process, while ISO 10003 makes no mention at all of the term. Thus, the I/S component ‘Depreciation’ was left unmatched when juxtaposing the guidance from ISO 10002 (20014) and ISO 10003 (2007).

‘Intangible assets’ in the B/S, defined as “Assets that are not financial instruments, such as patents, trademarks, copyrights, franchises and formulae” (Peterson and Fabozzi, 2012) was used when structuring the requirements of ISO 9001 (2015c) and ISO 14001 (2015a) to juxtapose sub-clauses 7.2 Competence and 7.3 Awareness as per the following justification with relation to ISO 9001:

> “Sub-clauses 7.2 Competence and 7.3 Awareness are considered as ‘Intangible assets’ (and juxtaposed to such B/S component) because they represent the know-how of the QMS (reflecting the appreciation of knowledge as an intangible asset)”

Nevertheless, ISO 10002 (2014) does not contain a sub-clause that explicitly refers to intangible resources such as knowledge. Mentions are made about ‘information’ and ‘training’ as resources (in ISO 10003, p. 8; and ISO 10002, p. 6, respectively), but no distinct sub-clauses exist that refer to intangible assets as clearly and explicitly as ISO 9001 and ISO 14001 do with sub-clauses 7.2 Competence and 7.3 Awareness. ISO 10003 (2007) does contain the principle 4.6

Competence, but since it is a principle rather than a main text sub-clause, it was included alongside the other guiding principles and juxtaposed to ‘Additional paid-in capital’.

The apparent gaps after the juxtaposition of ISO 10002 and ISO 10003 to the I/S and B/S components (e.g., ‘Depreciation’, ‘Accounts receivable’ and ‘Intangible assets’) could suggest opportunities to improve the MSSs as follows:

The lack of juxtaposition to the I/S component ‘Depreciation’ suggests and opportunity to incorporate a procedure for addressing ‘nonconformity and corrective action’ (e.g., sub-clause 10.2 of ISO 9001, 2015c and ISO 14001, 2015a). Therefore, by incorporating a procedure related to ‘nonconformity and corrective action’ to either, or both, the CH and DR processes, said processes could be enhanced.

For example, sub-clause 10.2 from ISO 9001 (2015c) could be incorporated into a CH or DR process (or both), therefore having detailed guidance pertaining to how to respond to a nonconformity and how to document it, e.g., as per letters a) to f) of sub-sub-clause 10.2.1 and letters a) to b) of sub-sub-clause 10.2.2 of ISO 9001 (2015c, p. 19). A nonconformity in the context of the CH process could be either an improper response to a complaint (e.g., a response that failed to address the ‘real issue’ of the complaint), or a complaint that was escalated for dispute resolution (because it could be argued that the CH process failed to yield a satisfactory response to the complaint). Conversely, a nonconformity in the context of the DR process could be decisions rejected by the complainant (likely after the ‘determinative method’ ISO 10003, 2007, p. 33).

The lack of matches to ‘Intangible assets’ when juxtaposing the guidance from ISO 10002 and ISO 10003, coupled with the realization that for ISO 9001 and ISO 14001 such B/S component was juxtaposed to 7.2 Competence and 7.3 Awareness could suggest that ISO 10002 and ISO 10003 could benefit from incorporating sub-clauses that distinctly and explicitly refer to know-how that personnel have to possess with regards to the CH or DR process respectively. For example, a crude adaptation of sub-clauses 7.7 Competence and 7.8 Awareness of ISO 9001 (2015c) for the purpose of the CH process (ISO 10002, 2014) could be drafted by substituting ‘complaints handling process’ for ‘quality management system’ in the text of ISO 9001 (2015c), as shown in Figure 63.

7.2 Competence

The organization shall:

a) determine the necessary competence of person(s) doing work under its control that affects the performance and effectiveness of the ~~quality management system~~ **complaints-handling process**;

b) ensure that these persons are competent on the basis of appropriate education, training, or experience;

c) where applicable, take actions to acquire the necessary competence, and evaluate the effectiveness of the actions taken;

d) retain appropriate documented information as evidence of competence.

NOTE Applicable actions can include, for example, the provision of training to, the mentoring of, or the reassignment of currently employed persons; or the hiring or contracting of competent persons.

7.3 Awareness

The organization shall ensure that persons doing work under the organization's control are aware of:

a) the ~~quality~~ **complaints-handling** policy;

b) relevant ~~quality~~ **complaints-handling** objectives;

c) their contribution to the effectiveness of the ~~quality management system~~ **complaints-handling process**, including the benefits of improved performance;

d) the implications of not conforming with the ~~quality management system requirements~~ **complaints-handling process guidelines**.

Figure 63 - Adaptation of requirements 7.2 and 7.3 (ISO 9001) for the context and purpose of the CH process

The result of adapting the absent sub-clauses (e.g., 7.2 Competence and 7.3 Awareness of ISO 9001 and ISO 14001) to the context and purpose of the CH and DR respectively, could increase the effectiveness of the CH and DR processes by explicitly referring to the 'know-how' that the personnel ought to possess to discharge their responsibilities with regards to the respective processes.

Similar enhancements to the CH and DR processes could follow the adaptation of the guidance pertaining to the four subclasses under section 4. Context of the organization, available in ISO 9001 (2015a) and ISO 14001 (2015a), but missing in ISO 10002 and ISO 10003 was evidenced by the lack of juxtaposition to the 'Accounts receivable' component in the B/S.

Appendix G.5 - Verification of Accounting-based Assessment (ABA) technique

G.5.1 Purpose

The initial research objective, generic due to its exploratory nature, sought "to explore how Ratio Analysis could be used to assess MS components". Subsequent to the exploration of the use of Ratio Analysis, an assessment technique was empirically developed. As such, the design objective of the ABA technique became: "To have an assessment technique that allows to examine MS component interrelationships."

G.5.2 Data

The data selected for the verification of the ABA technique was comprised of the CSO's PCRP as mapped to the ISO 10002 guidance which had been structured as per the ABSI model during the verification of the latter. Such a selection was made out of convenience, since data from a MS was required to verify the ABA technique, and data from the CSO's PCRP was available. The documentation used was the PCRP document (CSO, 2009a).

G.5.3 Method

The method of the verification is presented next.

Since the ABA technique is meant to be used to assess MS components interrelationships by adapting financial ratio analysis, the MS components should be juxtaposed to the I/S and B/S components. Such juxtaposition would be available as a byproduct of having mapped the MS to one or more MSSs that had been previously juxtaposed themselves to the I/S and B/S components (i.e., after using the ABSI model to structure and integrate MSS guidelines or requirements).

1. With the MS (i.e., the CSO's PCRP) structured as per the I/S and B/S components, i.e., as a result of having mapped the PCRP to the ISO 10002 (2014) guidance, different sources were reviewed to identify financial ratios and their definitions (e.g., Flynn, 2009; Fraser and Ormiston, 2004; and Peterson and Fabozzi, 2012). The ratios from Fraser and Ormiston (2004) were selected due to the completeness of the presentation of the ratios and the clarity of the explanations.

2. The financial ratios were adapted with the MS components, i.e., by substituting the corresponding I/S and B/S component in both numerator and denominator of a sample of ratios with the juxtaposed PCRP's components.

to present a sample of adapted financial ratios, grouped by type, i.e., Liquidity, Activity, Leverage and Profitability (Fraser and Ormiston, 2004). Each table contains two sample traditional financial ratios. The first column contains the type of ratio, the second column contains the numerical formula to compute the ratio, and the third column contains a brief excerpt describing the ratio's traditional use. The fourth column contains two variations of the adapted financial ratio; the first adaptation was done with the corresponding (i.e., as juxtaposed) components from the MSS, namely ISO 10002 (2014), while the second adaptation was done using the corresponding (i.e., as mapped) MS component, where the MS is the CSO's PCRP. Lastly, the fifth column contains a description of the possible interpretation of the PCRP-adapted financial ratio.

The rationale for including adapted financial ratios using ISO 10002 (2014) components was to provide an interim reference that allows to connect PCRP components to the I/S and B/S, using

the MSS as an intermediate link (i.e., because the MSS was juxtaposed to the latter, and mapped to the former). Nevertheless, the ultimate purpose of adapting the financial ratios is to be able to assess MS component interrelationships, as opposed to MSS component interrelationships, because the interest of the analyst in an organization is to better understand the organization, i.e., the MS component interrelationships, as opposed to those from the MSS. Then, the adapted financial ratios were interpreted, so as to prepare probing questions, as presented below.

3. Prepared probing questions

Adapted financial ratios that contain MS components in the numerator and denominator could be used to prepare probing questions that may be classified as one of the following::

- Inter-term assessment: To assess how the MS component or components in one *term* of the ratio (e.g., the numerator or denominator) (Sonnenschein and Nesbitt, 1870, p. 69) affect or enable the MS component or components in the remaining *term* of the ratio.
- Intra-term assessment: To assess how a given MS component or set of components within one *term* of the ratio (e.g., either in the numerator or the denominator) affect another MS component or set of components within the same *term*, for ratios that contain multiple MS components in the corresponding *term*.

Examples of the two types of questions (i.e., inter-term and intra-term) were prepared using the adapted ratio "Long term debt to total capitalization" in Figure 64.

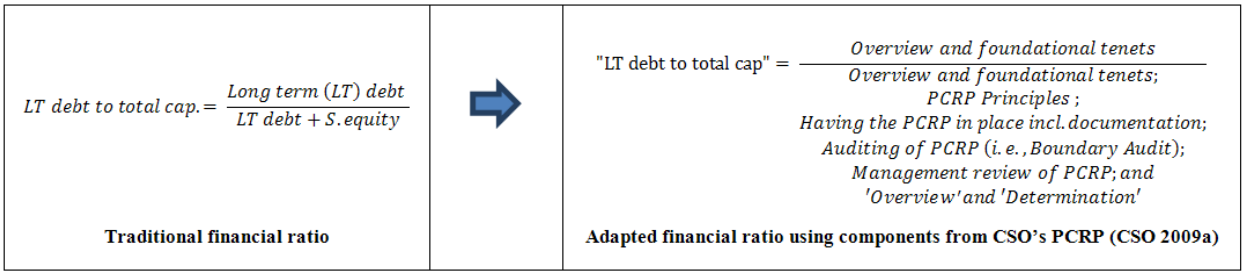


Figure 64 - Adapted financial ratio example (to illustrate types of assessment)

An example of inter-term assessment question could be

1. "How do the Overview and Foundational tenets enable Maintenance and Improvement sub-processes (using the classification given in ISO 10002, 2014) such as audit of the PCRP (i.e., the Boundary Audit), management review of PCRP and continual improvement (the latter as explained in 'Overview' and 'Determination' sections of the PCRP document, CSO, 2009a)?"

Conversely, an example of intra-term assessment using the same adapted financial ratio from Figure 64 could be:

2. "How do the PCRP principles enable the PCRP Audit?"

To the questions above, the analyst could seek answers by examining documentation, interviewing personnel, or observing the process or system, as explained below.

4. Finding answers to probing questions and making recommendations

The person performing the assessment, i.e., the assessor, could seek answers to question 1. above, by examining the available documentation (e.g., CSO, 2009a) and identifying that the PCRP policy, as discernible from the Overview and Foundational Tenets describes "continuous performance improvement by establishing linkages between concern resolution, patient safety and quality improvement" (CSO, 2009a, p. 8). It could be argued that the continual improvement commitment may be too broad and could benefit from some specificity. Thus, a recommendation could be made to enhance the policy by including references to specific commitments by the organization, i.e., the CSO, to engage in regular management reviews and perform audits, such as the Boundary Audit, as concrete tools to sustain continual improvement of the PCRP.

Then, the assessor could try to find the answer to question 2. above by again examining the CSO documentation (2009a) and identifying that the principle "Standardized Process/Flexible Implementation" states "The patient concerns resolution process adopts consistent principles and processes while allowing for flexible implementation that takes into account varied resources and geographical context" (CSO, 2009a, p. 5). Thus, the explicit acknowledgment that the PCRP "adopts consistent principles and processes" could prompt the use of audits (e.g., the Boundary Audit) as verification tools to assess the compliance of the PCRP to the principles and processes mentioned. Therefore, a recommendation would be to ensure that audits are used at the PCRP.

Conclusions after verification of ABA technique

The importance of the ABA technique is in fostering change as a result of the assessment. In other words, the analyst should not stop after asking probing questions suggested by the adapted financial ratios, or even after answering them, but rather in recommending actions to the organization with the aim of clarifying and strengthening linkages between MS components, for example through the explicit referencing amongst components, such as the direct mention of policy tools like management review and auditing as specific means to enable continual improvement. Results and recommendations arising from assessments such as the ABA technique could be an input to the Management Review.

Table 86 - Sample of adapted financial ratios for assessing PCRP components (part 1 of 4)

Type	Traditional financial ratio	Traditional use	Adapted financial ratio using components from ISO 10002 (2014) and from CSO's PCRP (CSO 2009a)	Possible use for adapted financial ratio
Liquidity	$Current\ ratio = \frac{Current\ assets}{Current\ liabilitites}$	"to identify the ability of a firm to meet its debt requirements as they come due"(p. 167) *	Adapted using ISO 10002 guidance: $"Current\ ratio" = \frac{6.1\ General\ planning, and\ 6.3\ Activities}{6.2\ Objectives, and\ 5.3\ Responsibility\ and\ authority}$ Adapted using CSO's PCRP components: $"Current\ ratio" = \frac{PCRP\ document, algorithm\ and\ flowcharts\ Effort\ to\ harmonize\ 3\ geog. processes\ into\ one}{PCRP\ objectives\ PCRP\ Roles\ and\ process\ descriptions}$	To assess how the PCRP objectives and PCRP roles and process descriptions have enabled the creation of the PCRP document, algorithm and flowcharts; and the effort to harmonize 3 geographic processes into one.
Activity	$Fixed\ asset\ turnover = \frac{Net\ sales}{Net\ property, plant\ and\ equipment}$	"to assess management's effectiveness in generating sales from […] the firm's investments in property plant, and equipment" (p. 171)	Adapted using ISO 10002 guidance: $"Fixed\ asset\ turnover" = \frac{7.7\ Response\ to\ complaints, 7.8\ Communicating\ the\ decision, and\ 7.9\ Closing\ the\ complaint}{6.4\ Resources}$ Adapted using CSO's PCRP components: $"Fixed\ asset\ turnover" = \frac{'Action'\ and\ 'Resolution of\ a\ concern'\ 'Communication'\ 'Documentation'}{PCRP\ facilities, people, equipment, training}$	To assess how the Resources of the PCRP (i.e., facilities, people, equipment and training) enable the following 'last-mile' PCRP sub-processes: 'Action' and 'Resolution of a concern', 'Communication', and 'Documentation'
	* Cited pages refer to Fraser and Ormiston (2004)			

Table 87 - Sample of adapted financial ratios for assessing PCRP components (part 2 of 4)

Type	Traditional financial ratio	Traditional use	Adapted financial ratio using components from ISO 10002 (2014) and from CSO's PCRP (CSO 2009a)	Possible use for adapted financial ratio
Leverage	$Debt\ ratio = \frac{Total\ liabilities}{Total\ assets}$	"… considers the proportion of all assets that are financed with debt" (p. 173)*	Adapted using ISO 10002 guidance: "Debt ratio" $= \frac{6.2\ Objectives, 5.3\ Responsibility\ and\ commitment, and\ 5.2\ Policy}{6.1\ General, 6.3\ Activities, and\ 6.4\ Resources}$ Adapted using CSO's PCRP components: "Debt ratio" $= \frac{PCRP\ objectives, Role\ and\ process\ descriptions, Overview\ and\ Foundational\ tenets}{General\ evidence\ that\ PCRP\ is\ in\ place\ Effort\ to\ harmonize\ 3\ geog. processes\ into\ one\ PCRP\ facilities, people, equipment, training,}$	To assess how the commitment made by the organization, as represented by the objectives, roles and process descriptions, and foundational tenets (i.e., items in the numerator) have crystallized in activities, resources and the PCRP overall (i.e., items in the denominator).
Leverage	$LT\ debt\ to\ total\ cap. = \frac{Long\ term\ (LT)\ debt}{LT\ debt + S.equity}$	"…. reveals the extent to which long-term [LT] debt is used for the firm's permanent financing (both LT debt and equity)" (p. 173)	Adapted using ISO 10002 guidance: "LT debt to total cap" $= \frac{5.2\ Policy}{5.2\ Policy, 5.1\ Commitment, 4.\ Principles\ 8.5\ Auditing\ of\ the\ CH\ process, 8.6\ Management\ review,\ and\ 8.7\ Continual\ improvement}$ Adapted using CSO's PCRP components: "LT debt to total cap" $= \frac{Overview\ and\ foundational\ tenets}{Overview\ and\ foundational\ tenets; PCRP\ Principles\ ; Having\ the\ PCRP\ in\ place\ incl. documentation; Auditing\ of\ PCRP\ (i.e., Boundary\ Audit); Management\ review\ of\ PCRP; and\ 'Overview'\ and\ 'Determination'}$	To assess how the Overview and Foundational tenets have enabled Maintenance and Improvement sub-processes such audit of the PCRP, management review of PCRP and continual improvement (i.e. as explained in 'Overview' and 'Determination'). Or how the Maintenance and Improvement sub-processes (items in the denominator) contribute to the fulfillment of the policy (i.e., 'Overview and foundational tenets' in the numerator).
	* Cited pages refer to Fraser and Ormiston (2004)			

Table 88 - Sample of adapted financial ratios for assessing PCRP components (part 3 of 4)

Type	Traditional financial ratio	Traditional use	Adapted financial ratio using components from ISO 10002 (2014) and from CSO's PCRP (CSO 2009a)	Possible use for adapted financial ratio
Leverage	$Debt\ to\ equity\ ratio = \frac{Total\ liabilities}{Stockholders'equity}$	"…. measures the riskiness of the firm's capital structure in terms of the relationship between the funds supplied by creditors (debt) and investors (equity)" (p. 173). *	Adapted using ISO 10002 guidance: "Debt to equity ratio" = 6.2 *Objectives*, 5.3 *Responsibility and authority, and* 5.2 *Policy* / 5.1 *Commitment*, 4. *Principles*, 8.5 *Auditing of the CH process*, 8.6 *Management review, and* 8.7 *Continual improvement* Adapted using CSO's PCRP components: "Debt to equity ratio" = *PCRP objectives, Role and process descriptions, Overview and Foundational tenets* / *Having the PCRP in place incl. documentation; PCRP principles; Auditing of PCRP (i.e., Boundary Audit); Management review of PCRP 'Overview' and 'Determination'*	To assess how the PCRP objectives ;roles and process descriptions; and 'Overview and Foundational tenets' have enabled Commitment, PCRP principles and Improvement sub-processes such audit of the PCRP, management review of PCRP and continual improvement (i.e. as explained in 'Overview' and 'Determination'). Or how the Commitment, PCRP Principles and Improvement sub-processes (items in the denominator) contribute to the fulfillment of the PCRP objectives, roles and process descriptions, and 'Overview and Foundational tenets' policy (i.e., 'Overview and foundational tenets' in the numerator).
Profitability	$Net\ profit\ margin = \frac{Net\ earnings}{Net\ sales}$	"… measures profitability after consideration of all revenue and expense, including interest, taxes, and nonoperating items" (p. 175).	Adapted using ISO 10002 guidance: "Net profit margin" = 8.1 *Collection of information, and* 8.4 *Monitoring of CH process* / 7.7 *Response to complaints*, 7.8 *Communicating the decision, and* 7.9 *Closing the complaint* Adapted using CSO's PCRP components: "Net profit margin" = *Electronic Database, role of PCC Weekly/biweekly meetings PCDirs and PCED* / *'Action' and 'Resolution of a concern' 'Communication' and 'Documentation'*	To assess how the Electronic database, role of PCC, and weekly/biweekly meetings between PCDirs and PCED collect information about the last steps of the PCRP process (i.e., 'Action' and 'Resolution', 'Communication', and 'Documentation')
	* Cited pages refer to Fraser and Ormiston (2004)			

Table 89 - Sample of adapted financial ratios for assessing PCRP components (part 4 of 4)

Type	Traditional financial ratio	Traditional use	Adapted financial ratio using components from ISO 10002 (2014) and from CSO's PCRP (CSO 2009a)	Possible use for adapted financial ratio
Profitability	$Return\ on\ Assets = \frac{Net\ earnings}{Total\ assets}$	"… indicates the amount of profit earned relative to the level of investment in total assets" (p. 176). *	Adapted using ISO 10002 guidance: "Return on Assets" = 8.1 *Collection of information, and* 8.4 *Monitoring of CH process* / 6.1 *General*, 6.3 *Activities, and* 6.4 *Resources* Adapted using CSO's PCRP components: "Return on Assets" = *Electronic Database, role of PCC Weekly/biweekly meetings PCDirs and PCED* / *General evidence that PCRP is in place Effort to harmonize 3 geog. processes into one PCRP facilities, people, equipment, training,*	To assess how the PCRP overall, including facilities, people, equipment, and training, contribute to the collection of information and monitoring of the PCRP by means of the Electronic database, role of PCC, and weekly/biweekly meetings between PCDirs and PCED.
Profitability	$Return\ on\ Equity = \frac{Net\ earnings}{Stockholders'equity}$	"… measures the return to common shareholders" (p. 176).	Adapted using ISO 10002 guidance: "Return on Equity" = 8.1 *Collection of information, and* 8.4 *Monitoring of CH process* / 5.1 *Commitment*, 4. *Principles*, 8.5 *Auditing of the CH process*, 8.6 *Management review, and* 8.7 *Continual improvement* Adapted using CSO's PCRP components: "Return on Equity" = *Electronic Database, role of PCC Weekly/biweekly meetings PCDirs and PCED* / *Having the PCRP in place incl. documentation; PCRP principles; Auditing of PCRP (i.e., Boundary Audit); Management review of PCRP 'Overview' and 'Determination'*	To assess how having a PCRP in place, the PCRP principles, the audit of the PCRP, Management review of the PCRP, and 'Overview' and 'Determination' contribute to the collection of information and monitoring of the PCRP by means of the Electronic database, role of PCC, and weekly/biweekly meetings between PCDirs and PCED.
	* Cited pages refer to Fraser and Ormiston (2004)			

Appendix G.6 - Possible augmentation of the ABA technique

This appendix summarily explores some possibilities for the application or evolution of the ABA technique. The ABA technique could be taken to the next level by using criteria to assess MS component interrelationships, by adapting traditional audit objectives for the purpose of assessing MS component interrelationships, and by using the ABA technique to examine MSS requirement interrelationships, as explained below.

1. Using criteria to assess MS component relationships

- Process documentation could, if detailed enough, serve as criteria to assess MS component interrelationships.
- If no criteria available, it could be developed. An organization could work towards developing requirements for MS component interrelationships, i.e., similar to how certain minimum ratio levels are observed by organizations (such as having a working capital ratio greater than one).
- Objectives could also be developed by the organization pertaining to MS component interrelationships. The objectives would be different than the requirements because the latter represent a minimum characteristic to possess, while the objective represents a target level of performance (likely to be more ambitious than the minimum requirement, but not necessarily).

2. Audit objectives could be adapted for the purpose of assessing MS component interrelationships, for example:

- Compliance: assessing MS components relationships with regards to pre-determined criteria
- Effectiveness: assessing if the MS component interrelationships are meeting their intended objectives
- Risks: what risks can negatively affect the MS components interrelationships?
- Improvement Opportunities: how can the MS component interrelationships be improved?

3. The ABA technique could be used to assess MSS requirement interrelationships.

The ABA technique could prompt the clarification of relationships between MSS requirements; perhaps even the creation of specific information that could subsequently be used as criteria to assess compliance of an MS to MSS requirement interrelationships.