When institutions bend but do not break:
The institutional accommodation of Open Access in scientific publishing

by

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

Doctor of Philosophy
in
Strategic Management & Organization

Faculty of Business
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ABSTRACT

Over the past two decades, institutional scholars have been fascinated by the processes and mechanisms through which institutions -- the durable socio-cultural structures that "provide meaning and stability to social life" (Scott, 2008: 48)-- change. The literature on institutional change is vast and insightful; nonetheless, I suggest that theoretical advancements in this area have become increasingly incremental because of the fragmentation of the accumulated research and its crystallization around a set of defined analytical dimensions. This dissertation addresses these limitations by putting the spotlight on a neglected attribute of change processes – the *scope* of change. The overarching goal of the thesis is to demonstrate that novel insights can be yielded by distinguishing change processes whose scope is radical from processes whose scope is convergent. I elaborate my argument in three steps.

First, I develop a typology of institutional change processes that combines the scope of change (radical or convergent) with the pace of change (revolutionary or evolutionary). The typology identifies four pathways (i.e. institutional displacement, institutional alignment, institutional accretion and institutional accommodation), sheds light on undetected sources of variation in change processes, and illuminates the specificities of the mechanisms that underpin each process.

Second, building on the typology, I ask two research questions: (1) How and why does a revolutionary process of change aimed at radical field-level change (institutional displacement) fail? (2) How and why does failure of institutional displacement result in convergent field-level change (institutional accommodation)?

Third, I report the findings of an empirical investigation that directly addresses these questions. The institutional change precipitated by the emergence of a collective mobilization for Open Access in the field of scholarly publishing offers an ideal setting. To conduct my inquiry, I followed a field analytic approach that draws on multiple sources of data: archival materials, interviews, notes from nonparticipant observation and descriptive bibliometric network analysis. The findings are used to develop a process model of institutional accommodation.

Overall, the dissertation nuances and extends previous research in three ways First, by focusing on the scope of change, my research pushes investigations of institutional change processes beyond well-known dimensions of analysis. By doing so, I hope to counterbalance the tendency of researchers to crystallize inquires around established analytical dimensions. Second, by offering an integrative typology that enables the comparison of change processes, my thesis addresses the issue of fragmentation and offers scholars a lens to appreciate how triggers, trajectories, mechanisms and outcomes variously interrelate. Third, by theorizing and empirically exploring a relatively under-examined pathway – institutional accommodation – my work extends knowledge on change processes and elucidates specific mechanisms that lead to convergent change.

Specifically, my thesis addresses important questions about accommodation. It answers H*ow* institutional accommodation occurs by presenting two accommodation mechanisms: institutional arbitration and institutional anchoring; it answers *Who* engages in institutional accommodation by elaborating the role of challengers, incumbents and referee actors and by emphasizing the mediated nature of change processes; it answers *Why* institutional accommodation occurs by theorizing the role

of failure of displacement as an antecedent of accommodation; and, finally, it answers the question *Where/When* institutional accommodation occurs by proposing the notion of "ossified" institutional fields.

PREFACE

This thesis is an original work by Evelyn Micelotta. No part of this thesis has been previously published. The research project, of which this thesis is a part, received research ethics approval from the University of Alberta Research Ethics Board, under the Project "The emergence of new organizational forms in the scientific publishing industry", No. MS4_Pro00030620, approved March 10, 2015. Some of the research conducted for this thesis forms part of a research collaboration with Theresa Velden, Post-Doctoral Fellow at the School of Information Science at the University of Michigan. Dr. Velden provided assistance in the construction of the network matrices. The data analysis and theory are my original work.

ACKNOWLEDGMENTS

I am deeply grateful to my supervisors – Professor Mike Lounsbury and Professor Royston Greenwood – for the unconditional support, continuous encouragement and countless precious learning opportunities they have given me during my journey in the PhD program. A sincere thank you also goes to my committee members, Professors Bob Hinings, Trish Reay, Joel Gehman and Matthew Grimes, for the willingness to engage with my ideas and their generous feedback.

I have been very fortunate to be in an incredibly supportive environment at the Alberta School of Business. I greatly benefited from the conversations I had with faculty members and the constructive criticism I received. My most sincere thanks go to Professor Marvin Washington, co-author and mentor. I received invaluable help from Kathy, Debbie, Jeanette, Leona, Dolores, Melissa and many other members of the administrative staff. Thank you for your smiles and everything you have done for me. Finally, I am deeply appreciative of the support and friendship of Manely, Mia, Giulia, Claudia and many other PhD students at the UofA and all around the world. They are wonderful people that made this long journey a sunny ride.

I dedicate this accomplishment to my parents, Angela and Arturo, and my sisters, Lucia and Elisabetta. Close or far away, my family is my anchor. I do not know what I would be without them.

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Chapter I

INTRODUCTION

Over the past two decades, considerable attention has been devoted to elucidate the processes and mechanisms through which institutions--the durable socio-cultural structures that "provide meaning and stability to social life" (Scott, 2008: 48)--are altered or transformed. As scholarly interest began to shift away from the study of isomorphism in the 1990s, institutional change became a core focus (Dacin, Goodstein, & Scott, 2002; Scott, 2014). A rich literature has since developed that responds to many fundamental questions about how and why the process of institutional reproduction is disturbed and/or interrupted and its underpinning material and symbolic elements are altered and/or replaced. Institutional theorists have been particularly interested in theorizing the precipitating dynamics, the trajectory and mechanisms and the outcome of institutional change processes.

My starting argument is that, despite its many insights, the literature on institutional change suffers from two important limitations: *fragmentation* and *crystallization*. First, research on change from an institutional perspective has accumulated at a remarkable rate, but in an increasingly fragmented way (see also David, Bitektine, Buchanan, & Bryman, 2009; Tolbert & Zucker, 1996). The term institutional change today is an "umbrella" label that encompasses heterogeneous processes (e.g. legitimation, diffusion, institutionalization, deinstitutionalization), often spanning multiple levels of analysis (e.g. fields, populations, organizations, and practices). The fragmented richness of the literature is not per se problematic; if not balanced by comprehensive theoretical syntheses, however, it negatively affects

researchers' ability to "take stock" of existing knowledge and to identify new avenues of research. Thus far, efforts to systematically review the various ways in which triggers, mechanisms and outcomes interrelate have been limited to relatively narrow domains. The spotlight has been put on the actors, e.g. "institutional entrepreneurs" (Battilana, Leca, & Boxenbaum, 2009; Hardy & Maguire, 2008) or their agency, e.g. "institutional work" (Lawrence & Suddaby, 2006; Lawrence, Suddaby, & Leca, 2009, 2011), or the social structure where agency is at play, e.g. "field" (Fligstein & McAdam, 2012; Wooten & Hoffman, 2008), or the overarching systems of meanings that govern behaviors, e.g. institutional logics (Thornton & Ocasio, 2008; Thornton, Ocasio, & Lounsbury, 2012) or specific mechanisms, such as legitimation (Deephouse & Suchman, 2008) or diffusion (Green, 2004; Strang & Meyer, 1993).

A second, related, limitation of the change literature is crystallization. That is, fragmentation creates ontological brackets that, over time, become crystallized. The focus on the abovementioned research areas, for instance, has enabled scholars to more clearly articulate constructs and to unpack variation in processes and mechanisms. As scholars extend previous work with their contributions, however, existing dimensions of analysis are given theoretical primacy, while other potentially interesting dimensions are simply left out. For example, in the institutional change literature, theoretical emphasis has been given to the actors and/or events that initiate change, the content of change, and the stages and/or mechanisms through which change occurs. In contrast, other dimensions that could be fruitfully used to analyze this phenomenon have been relatively ignored (but see Lawrence, Winn, & Jennings, 2001).

A dimension that has not been considered – and on which I wish to put the

spotlight in this dissertation – is the *scope* of change. The scope of change is a well-established concept in the organizational change literature that refers to the extent to which change in an organization is radical or convergent (Greenwood & Hinings, 1996; Plowman et al., 2007; Weick & Quinn, 1999). This differentiation is central to organizational analysis because change processes with radical or convergent scope have distinctive drivers, mechanisms and outcomes. I suggest that the little preoccupation of institutional research with the scope of change is a missed opportunity. Our understanding of whether a "difference in form, quality, or state over time in an institution" occurs (Hargrave & Van de Ven, 2006: 866) would be much more complete if we could appreciate whether change in institutions is radical or convergent. That is, if we could assess whether institutional change represents a "fine-tuning" of existing institutional arrangements (convergent) or instead a profound deviation from the status quo (radical).

The overarching goal of this dissertation is to demonstrate that the "scope of change" is a meaningful theoretical dimension that can significantly advance the institutional perspective on change. Specifically, by granting theoretical emphasis to the scope of change, this thesis contributes to theory in three ways. First, by focusing on a relatively neglected analytical dimension, my research extends our knowledge of institutional change processes beyond well-known theoretical features. Second, by offering an integrative theoretical lens that enables the comparison of change processes, my thesis addresses the issue of fragmentation and offers scholars a way to appreciate how triggers, trajectories, mechanisms and outcomes variously interrelate. Third, by theorizing and empirically exploring a relatively under-examined pathway – institutional accommodation – my work extends knowledge on change

processes and mechanisms that lead to convergent institutional change.

The dissertation document is organized as follows. In Chapter II, I review the literature on institutional change and develop a typology that integrates the dimension *scope* of change – that illuminates whether the outcome of the process of change is convergent or radical – with the dimension *pace* of change – that distinguishes whether alterations of the status quo occur in a revolutionary or evolutionary way. The combination of the two dimensions enables the identification of four meta-processes ("pathways") of institutional change: institutional *displacement*, institutional *alignment*, institutional *accretion*, and institutional *accommodation*. These pathways shed light on undetected sources of variation in change processes and illuminate the specificities of the mechanisms that underpin each process. For instance, institutional displacement describes change processes that are revolutionary in pace and radical in scope. These processes occur relatively quickly and typically create a discontinuity (i.e. a transition from one stable institutional configuration to another). The mechanisms that are most useful to understand this form of change are therefore focused on how deviations emerge and swiftly replace existing institutions. As the typology reveals, institutional alignment is quite different. Alignment describes change processes that are evolutionary in pace and convergent in scope. Unlike displacement, these processes occur gradually and do not create a discontinuity because minor alterations are assimilated into institutional arrangements. The key mechanisms to understand institutional alignment illuminate not how institutions are replaced, but how deviations are propelled, internalized and institutionalized within existing institutions.

In addition to highlighting patterns of theoretical emphasis, the typology offers

an analytical lens to detect overlooked processes and mechanisms and focuses attention on less explored areas that require further development. For instance, when used to review the past fifteen years of institutional change literature, it reveals that scholars have primarily focused on processes of institutional displacement and institutional alignment and relative little research has been conducted on accretion and accommodation. Institutional accretion describes change processes that are evolutionary in pace and convergent in scope. These processes are progressive and seemingly unobtrusive. Yet, they result in discontinuity and alterations of the institutional order. Key mechanisms of accretion are therefore going to be 'escalating' mechanisms. Finally, institutional accommodation describes change processes that are revolutionary in pace and convergent in scope. These processes are potentially revolutionary but regressive. That is, the initial impetus for change results into relatively convergent changes to institutional arrangements. The key mechanisms of this pathway are expected to be 'deescalating' mechanisms.

Importantly, a review of the literature based on the typology suggests that the relationship between pathways of change is an underexamined area of research and indicates the opportunity to ask two research questions: *(1) How and why does a revolutionary process of change aimed at radical field-level change (institutional displacement) fail? (2) How and why does failure of institutional displacement result in convergent field-level change (institutional accommodation)?* These questions are addressed in the dissertation through an empirical examination of the institutional change in the field of scholarly publishing after the emergence of Open Access.

Chapter III describes research methods and context. I provide the rationale for case selection and illustrate the field analytic research design (Hoffman, 1999;

Lounsbury, 2002; Lounsbury & Crumley, 2007; Scott, Ruef, Mendel, & Caronna, 2000; Zietsma & Lawrence, 2010). Specifically, the thesis draws upon multiple data sources – archival materials, interviews, notes from nonparticipant observation and network data – that have been analysed using a mixed method analytical approach (Creswell, 2013; Creswell, Plano Clark, Gutmann, & Hanson, 2003; Greene, 2007). That is, I first conducted an analysis of qualitative data following techniques for longitudinal data from heterogeneous sources (Corley & Gioia, 2004; Gioia, Corley, & Hamilton, 2013; Gioia, Thomas, Clark, & Chittipeddi, 1994) and then conducted an exploratory quantitative analysis of bibliometric networks (Velden, Haque, & Lagoze, 2010; Zhao & Strotmann, 2008). Results of the analysis are reported in Chapter IV and Chapter V.

Chapter IV reports empirical findings that answer the first research question: "How and why does a revolutionary process of change aimed at radical field-level change fail?" The chapter illuminates how Open Access activists elaborated a vision for radical change. They sought to displace the commercial logic that governs the dissemination of scientific knowledge and to replace it with the public logic. Displacement was sought through two deinstitutionalization attempts. The bottom-up deinstitutionalization of the dominant practice (i.e. rejection of the use of subscriptions in exchange for access) and the top-down deinstitutionalization of the dominant organizational form through replacement with a novel template of organizing (i.e. publishing organizations using publicly-subsidized author-fees instead of subscriptions as main source of revenues). This chapter explains why both forms of deinstitutionalization were used, to whom the attempts of deinstitutionalization were targeted and why they eventually failed.

Chapter V reports empirical findings that answer the second research question: "How and why does failure of institutional displacement result in convergent field-level change (institutional accommodation)?" Through the combination of qualitative data analysis and network analysis, this chapter illustrates how two mechanisms of institutional accommodation – institutional arbitration and institutional anchoring – led to convergent field change.

Chapter VI and Chapter VII outline the theoretical contributions of the thesis. In Chapter VI, I build on the empirical findings to elaborate a process model of institutional accommodation. The model illuminates processes and mechanisms that explain the failure of institutional displacement and the unfolding of institutional accommodation. Chapter VII further elaborates the contributions of the thesis by discussing: (i) *How* institutional accommodation occurs; (ii) *Who* engages in institutional accommodation; (iii) *Why* institutional accommodation occurs; and (iv) *Where/When* institutional accommodation occurs. A discussion of the limitations of the thesis and promising directions for future research concludes the dissertation.

Chapter II

OFF THE BEATEN TRACKS: RETHINKING PATHWAYS OF INSTITUTIONAL CHANGE

This chapter unpacks the concept of "institutional change" and develops a typology that integrates the dimension *scope* of change (radical or convergent) with the dimension *pace* of change (revolutionary or evolutionary). Four meta-processes ("pathways") of institutional change are identified at the intersection of these dimensions: institutional *displacement*, institutional *alignment*, institutional *accretion*, and institutional *accommodation*. After describing each pathway, I use the typology to review the literature on institutional change and to illuminate specific mechanisms that underpin each pathway. The typology improves conceptual clarity, sheds light on undetected sources of variation in change processes and identifies research questions that deserve further examination.

The Original Typology: Pace and Scope of Organizational Change

Building on earlier studies (Greenwood & Hinings, 1996; Weick & Quinn, 1999), Plowman and colleagues (2007) elaborated a framework that emphasizes two dimensions of organizational change – its *pace* (i.e. evolutionary or revolutionary) and it *scope* (i.e. radical or convergent change). Change is classified as evolutionary or revolutionary based on the "scale and pace of upheaval and adjustment" (Greenwood & Hinings, 1996: 1024). As Plowman et al. (2007: 517) note:

> "Continuous change is often viewed as consisting of small adaptations that, having emerged from improvisation and learning, may or may not accumulate, and that occur because systems cannot maintain stability. Such small adaptations are often viewed as part of ongoing modifications in organizational processes and practices, but this does not mean that the small changes are necessarily trivial or that they always remain small (Weick & Quinn, 1999). In contrast, revolutionary or episodic change is often viewed as a response to growing inertia and most often takes the form of a planned replacement whereby a new structure, strategy, or program replaces an old one. The planned replacements of episodic change are distinct

interruptions intended to negate and remove a previous condition (Ford & Ford, 1994)."

The difference between radical and convergent change instead refers to the extent to which change leads to a profound departure from the existing "orientation" (i.e. organizational archetype) or, conversely, to a "fine tuning" of the existing orientation (Greenwood & Hinings, 1996: 1024). According to Plowman et al. (2007: 516):

> "Radical organizational change is often referred to as "frame-bending" because the organizations experiencing such change break loose from existing orientations, and it is most often viewed as episodic—that is, as occurring suddenly and dramatically, after a long period of equilibrium (Nadler & Tushman, 1989; Romanelli & Tushman, 1994). At the same time, radical change can be the result of a pattern of small, microlevel changes that occur over time."

By combining the two dimensions, Plowman and colleagues were able to theorize four distinctive conceptualizations of organizational change: (1) change that is evolutionary and convergent (e.g. continual update to organizational processes and practices); (2) change that is revolutionary and convergent (e.g. crises that lead to incremental replacement of processes and practices); (3) change that is revolutionary and radical (e.g. crises that lead to replacement of the organizational template); and (4) change that is evolutionary and radical (e.g. small adaptations that accumulate into a "frame-bending" pattern of organizing). In the next section, I discuss what pace and scope of change respectively mean when used to understand institutional change.

The Pace of Institutional Change: Revolutionary vs. Evolutionary

Starting from the core tenet that "institutions are the most enduring features of social life… giving solidity to social systems across time and space" (Scott, 2008: 49) and institutions would self-reproduce indefinitely unless alterations are induced, scholars have been very interested in what can trigger deviations from the status quo.

The conditions under which change is going to occur at a revolutionary or evolutionary pace, however, have not been explicitly theorized (but see Lawrence et al., 2001). Early on, research on change was relatively straightforward in assuming that exogenous "shocks" precipitate change by "smacking into institutional arrangements" (Clemens & Cook, 1999: 447). A large body of scholarship theoretically reasoned and empirically illustrated revolutionary processes of change triggered by a wide array of events, such as social upheavals (Zietsma & Lawrence, 2010), regulatory (Edelman, 1992; Fligstein, 1990) and technological changes (Garud, Jain, & Kumaraswamy, 2002), shifts in field-level logics (Lounsbury, 2002; Thornton & Ocasio, 1999), and the mobilization of field-level actors ("institutional entrepreneurs") (DiMaggio, 1988; Greenwood & Suddaby, 2006; Maguire, Hardy, & Lawrence, 2004).

More recently, scholars recognized that institutions themselves "bear openings for substantial change" (DiMaggio, 1991: 287) and provide embedded actors with constraints but also opportunities to work-out alternatives. Instead of attributing change to exogenous jolts (Meyer, 1982), that are irrevocably imposed upon organizations, scholars started paying attention to endogenous causes of change. This perspective shed light on how contradictions between competing-yet-coexisting institutional logics (Friedland & Alford, 1991; Thornton et al., 2012), incompatibilities lingering from the incompleteness of the process of institutionalization (Powell, 1991; Seo & Creed, 2002), ambiguities in institutional rules (Streek & Thelen, 2005), and the collision of local organizational practices (Smets, Morris, & Greenwood, 2012) can trigger change processes.

This line of work complemented the focus on exogenous shocks by bringing to

the center of institutional analysis the role of agency. Specifically, intrigued by the 'paradox of embedded agency' (Holm, 1995), scholars began to theorize how actors, individually or collectively, exploit contradictions to change the structures and patterns of social reproduction that constitute their own reality (Barley & Tolbert, 1997; Battilana et al., 2009). In the search for answers to the question "who are the promoters of institutional change within fields?" researchers appreciated the importance of the social position of actors (Battilana, 2011). Specifically, the differentiation between central and peripheral actors offered a key explanation for the ability and willingness of field-level actors to initiate and/or reject change (Greenwood & Suddaby, 2006; Leblebici, Salancik, Copay, & King, 1991; Rao, Monin, & Durand, 2003).

With scholars moving away from the relative simple notion of exogenous shocks, explanations of field-level change processes have become nuanced and more powerful. However, such a shift has also made more difficult to assess whether the change process is revolutionary or evolutionary in pace. For example, it is plausible to assume that peripheral actors or outsiders will try to push change at a revolutionary pace; that is, by conducting forceful and swift actions in a social movement-like manner to gain attention and momentum; along the same lines, central actors are expected to initiate change at an evolutionary pace. These actors are likely to prefer less contentious tactics and to try to slowly win consensus among field-level constituencies. Yet, it is equally plausible that change processes may follow different paths. Peripheral actors may not attempt to overpower central actors in order to achieve their goals, whereas central actors may be the ones to disrupt the current system in a revolutionary way. Thus, an explicit discussion of the conditions

under which institutional change is likely to unravel at a revolutionary or evolutionary pace seems particularly timely and fruitful.

I conceptualize the pace of change as contingent on its *speed*. That is, change is revolutionary or evolutionary if the *speed* at which change occurs is respectively higher or lower than the speed at which field-level actors can adapt to it. If change occurs at a faster speed than what is bearable by field-level constituencies, the precipitating event will be perceived as a shock and the pace of change is going to be revolutionary; conversely, if the speed of the change is relatively slow compared to the speed of organizational and institutional recovery, then the process of change is going to be evolutionary. Based on this criterion, it is possible to relate the triggers of change and their categorizations in exogenous/endogenous and centre/periphery to the pace of change. The classification is shown in Table 1. I identified three classes of triggers: (1) market, technological and socio-political changes; (2) individual and/or collective action of field actors; and (3) practice change.

Market, technological and socio-political changes. Cultural, political and technological changes are typically conceptualized as events that occur in the institutional environment and are imposed upon organizations. Shifts in political regimes, logics and ideologies, socio-political upheavals, competence-destroying new technological regimes and market regulations (Haveman & Rao, 1997; Rao et al., 2003; Thornton & Ocasio, 1999) constitute major disruptions for the institutional system. From the point of view of field-level constituencies, shifts alter the existing basis of expertise, legitimacy, authority, and identity of organizations (Clark & Soulsby, 1995; Kim, Shin, Oh, & Jeong, 2007). Because shifts occur relatively suddenly compared to the capacity of actors to adapt, the pace is revolutionary.

TABLE 1
Classification of Revolutionary and Evolutionary Pace of Institutional Change

Trigger of change	Level of analysis	Illustration of trigger of change	Nature of change process	Pace of change
Market, technological and socio-political changes (exogenous)	Societal and field level	Shift in political regimes and sociopolitical upheavals, e.g. collapse of socialist regimes in Eastern Europe	**Speed of change > speed of adaptation;** Change represents a major *shock* for the institutional field and its inhabitants.	Revolutionary
		Shift in technological regimes, e.g. competence destroying technologies		
		Shift in market conditions and regulations, e.g. deregulation, privatization, liberalization, consumer preferences		
		Shift in institutional logics, e.g. cultural deeply-held values and beliefs, 'rules of the game' that regulate interactions		
		Shift in political and societal ideologies, e.g. Progressivism		
		Societal evolutions, e.g. demographic changes, egalitarianism	**Speed of change < speed of adaptation**; changes occur at a relatively slow pace	Evolutionary
Individual and/or collective action of field actors (endogenous)	Field level	*Peripheral* actors using social movement-like tactics	**Speed of change > speed of adaptation**; Peripheral actors push for change using contentious tactics and trying to disrupt the system	Revolutionary
		Central actors trying to secure endorsement from field-level actors	Central actors experience resource scarcity and try to precipitate a quick field-level change	
		Peripheral actors engaging in non-contentious tactics	**Speed of change < speed of adaptation**; Peripheral actors push for change using non-disruptive tactics	Evolutionary
		Central actors working-out novel arrangements	Central actors experiment with new practices to cope with non-threatening crises	
Practice change (endogenous)	Organizational and practice level	Endogenous variation in routines and practices	**Speed of change < speed of adaptation**; change is precipitated by learning and problem-solving	Evolutionary

Notably, it may be tempting to establish a link between the unit of analysis at which the trigger occurs and the pace of change. According to this view, societal and field-level events are typically "external" to organizations and therefore are likely to precipitate a revolutionary change process. This situation may be common, but it is not always true. Societal and field-level events may be the source of institutional pressure for organizations, but they are not necessarily shocks. For example, societal evolutions, such as demographic changes in the workforce population (Goodstein, 1995), transitions from class-based hierarchy toward egalitarianism (Wright & Zammuto, 2013) and gradual political reform processes (Child & Yuan, 1996; Swan, Bresnen, Robertson, Newell, & Dopson, 2010) may precipitate field-level change as well. Yet, their relatively slower speed makes field-level adaptation possible; hence, the process they trigger is evolutionary in pace.

Individual and/or collective action of field actors. Since institutional research became interested in endogenous dynamics, the agency of actors emerged as a prominent source of alteration of the institutional status quo (Rao et al., 2003). This line of research has sought to theorize the characteristics and actions of 'institutional entrepreneurs' – those actors who, despite being embedded into a field, become aware of contradictions and exercise agency to bring about change (Battilana et al., 2009; Hardy & Maguire, 2008). As noted earlier, peripheral actors are regarded as the most likely to initiate change because they are disadvantaged by existing institutional arrangements; however, they are also the least able to act upon their desires because they are the least resourceful. Conversely, central actors have the material and symbolic resources necessary to initiate change, but are unwilling to initiate actions that may endanger their social standing. However, when experiencing contradictions

and misalignment with their environment (e.g. unsatisfactory performance), they initiate change (Battilana et al., 2009; Greenwood & Suddaby, 2006).

The change process triggered by institutional entrepreneurs may occur at a revolutionary or evolutionary pace (Table 1). For instance, when peripheral actors are – or act like – social movements, change occurs at a revolutionary pace. Change agents recognize that the possibility for change is contingent upon their cause gaining momentum and their capacity to attract the attention of salient field-level constituencies. Hence, highly contentious tactics may be used to instigate a quick sequence of actions and reactions (Creed, Scully, & Austin, 2002; Zietsma & Lawrence, 2010; Zietsma & Winn, 2008). Similarly, central actors may seek to obtain a quick implementation of the change. While they are less likely to resort on protests and boycotts, they may insistently use rhetorical strategies to ensure the endorsement from key field-level organizations (Suddaby & Greenwood, 2005; Voronov, De Clercq, & Hinings, 2013). Such endorsement establishes the legitimacy of the change and, therefore, it enables its quick diffusion.

Conversely, change initiatives by central and/or peripheral actors occur at an evolutionary pace when there is relatively less pressure exerted on other constituencies. In consequence, the speed at which change is sought is relatively lower and more discretion is granted on the targets of change agents. For instance, if there is little mobilization, or the repertoire of change agents is not contentious, the organizations that populate the field are more likely to engage in collaborations with challengers (Lawrence, Hardy, & Phillips, 2002; Maguire et al., 2004), and even to 'borrow' their innovative practices (Leblebici et al., 1991). Likewise, change actors may introduce change 'locally' (e.g. within their specific organization) without the

expectation of stimulating the diffusion of the innovation to other organizations. If endorsement by field-level referent actors is not needed to introduce the change, diffusion may occur unobtrusively (Plowman et al., 2007; Sherer & Lee, 2002; Smets et al., 2012).

Practice change. Finally, theoretical elaborations of the microfoundations of institutions (Powell & Colyvas, 2008) and the fruitful integration between strategy-as-practice and institutional scholarship (Jarzabkowski, Matthiesen, & Van de Ven, 2009; Lounsbury & Crumley, 2007) have focused attention on changes in practices as potential triggers for evolutionary processes of institutional change (Smets et al., 2012). The routine and strategy-as-practice literatures point to the recurrent and reciprocal variation in practices over time and the selective retention of variations in performances of routines as generative mechanisms of organizational change (Feldman & Orlikowski, 2011). An emerging line of research in the institutional literature is beginning to establish connections between these concepts at the organizational and the institutional level (Gehman, Treviño, & Garud, 2013). This area of research is still in its infancy but has already shown potential, in particular of its ability to uncover linkages between evolutionary alterations in local practices and field-level change (Smets et al., 2012; Thornton et al., 2012).

To sum up, institutional scholars have elaborated theoretical categorizations (i.e. exogenous/endogenous, central/peripheral) to guide them in the challenging task of exploring processes and mechanisms of institutional change. These categories hint, but do not explicitly elaborate, differences in the pace of change. I addressed this overlooked issue by providing a classificatory framework that explicitly discusses implicit assumptions about the central/peripheral and exogenous/endogenous

nature of the triggers and the level of analysis.

Before I move to the second dimension – the scope of change – it is relevant to note that institutional scholarship is driven by a strong assumption about the scope of change. That is, deviations from the "institutional" status quo are regarded, almost by definition, as radical. Scholars recognize that change may follow different trajectories and might occur at a revolutionary or evolutionary pace; yet, the outcome of change is almost invariably presented by authors as radical in scope. In other words, institutional scholars have not, to my knowledge, considered that changes in institutions may vary in scope.

This inattentiveness strikingly contrasts with the organizational literature. At the organizational level, the scope of change is a critical dimension; changes of different scope are indeed associated with distinctive processes and mechanisms in organizations (Amis, Slack, & Hinings, 2004; Plowman et al., 2007). There is no apparent reason why this dimension cannot be fruitfully used to extend our knowledge of institutional processes and to uncover relatively unexplored pathways of change. This avenue of research is important and worth exploring. In the next section, I define the dimension "scope of change" and distinguish convergent from radical change from an institutional perspective.

The Scope of Institutional Change: Radical vs. Convergent

The scope of change is a well-established concept in the organizational literature (Greenwood & Hinings, 1996; Van de Ven & Poole, 1995; Watzlawick, Weakland, & Fisch, 1974), yet it has not been used, thus far, to examine institutional change. That is, even though scholars have identified a wide array of outcomes of change processes (i.e. changes in field-level practices, changes in organizational forms,

changes in institutional logics etc.), there has been little theoretical discussion about whether these changes are radical or convergent. A notable exception is the typology of change in field-level institutional logics elaborated by Thornton et al. (2012). These authors identify two forms of change – transformational and developmental. Transformational change is driven by processes of replacement, blending and segregation of institutional logics; these processes determine "radical changes in symbolic representations and practices" (Thornton et al. 2012: 164). Conversely, developmental change is driven by processes of assimilation, elaboration, expansion and contraction of institutional logics; these processes maintain "the majority of prevailing symbolic representations and practices". Not only does this classification address the definitional gap, but it is also consistent with the distinction between radical and convergent change in the organizational change literature. Greenwood and Hinings (1996) refer to radical change as a shift in the "organizational orientation" and "interpretive scheme" of an organization. Thus, the notion of institutional logics represents a coherent extension to the field level of those organizational constructs. For conceptual clarity, I define the scope of institutional change as *radical* or *convergent*. These labels account for changes in the literature that are not associated with neither developmental nor transformational changes in logics but with changes that occur within the existing set of institutional logics. Additionally, these labels allow me to maintain terminological alignment with the original typology in the organizational literature.

I define institutional change as *radical* when a dramatic change in the field-level institutional logics occurs (Thornton et al., 2012). Institutional logics prescribe and proscribe behaviors, define the value and meaning systems and the distribution of

power and resources among social actors. Dominant institutional logics define which institutional identities and organizational forms are appropriate, which practices are rewarded or sanctioned, which field-level actors are central or peripheral and, consequently, who benefits from the power structure of the field. If the institutional logics of a field are replaced, blended or segregated, change profoundly affects the "cultural bedrock" of the field (Clark & Soulsby, 1995: 219). Manifestations of logics' change are dramatic changes in the ecology of the organizations populating a field, the demise of organizational forms, and the redistribution of power among field-level actors.

Conversely, institutional change is *convergent* when changes in field-level institutional logics occur through developmental processes such as assimilation, elaboration, expansion and contraction (Colomy, 1998; Mahoney & Thelen, 2010; Thornton et al., 2012). Manifestations of logics' developmental change are incremental revision and amendment of institutional arrangements. For example, variations in field-level practices (e.g. diffusion or deinstitutionalization), extension of an organizational form from one field to another, and relatively minor alterations in the social hierarchy of field-level actors. The classification of institutional change based on its radical or convergent scope is shown in Table 2. I identified three types of outcomes: (1) transformational change in logics; (2) developmental change in logics, and (3) change within the existing set of logics.

TABLE 2
Classification of Radical and Convergent Scope of Institutional Change

Type of outcome	Level of analysis	Illustration of outcome	Nature of outcome	Scope of change
Transformational change in institutional logics	Field level	Replacement, blending and segregation of institutional logics	Radical changes in institutional logics	Radical
		Death/birth of populations of organizations	Transformation and renewal in the characteristics of organizations that populate the field	Radical
		Metamorphosis of missions, goals, structures and core strategies	Organizations adapt to environmental changes but in a way that profoundly transforms their missions and intra-organizational dynamics	Radical
		Deinstitutionalization and re-institutionalization of organizational forms		
		Redesign of coalitions and redistribution of material and symbolic resources	The inter-organizational networks between institutional actors change. Resources are redistributed; changes in mutual dependence	Radical
Developmental change in institutional logics	Field level	Assimilation, elaboration, expansion and contraction of institutional logics	The relative salience of institutional logics may vary as manifested in the diffusion and/or abandonment of organizational forms and practice	Convergent
		Emergence/diffusion of organizational forms		
		Introduction, diffusion and/or deinstitutionalization of practices		
Change within existing set of institutional logics	Macro-organizational level	Organizational change as modification of the organizational archetype	Change in organizational design and strategies that realign organizations with dominant logics	Convergent
	Micro-organizational level	Change in organizational micro-processes rules, roles, identities and practices	Changes in rules, roles, identities, and practices are driven by the attempt by organizations to realign organizations with dominant logics	Convergent

Transformational change in institutional logics. In addition to an explicit analysis of the transformation in the institutional logics (i.e. replacement, segregation and blending), four additional categories of outcomes reflect changes that are radical in scope: (i) death/birth of populations of organizations; (ii) metamorphosis of missions, goals, structures and core strategies; (iii) deinstitutionalization and re-institutionalization of organizational forms; and (iv) redesign of coalitions and redistribution of material and symbolic resources.

First, change in the ecology of organizations in the field is an indicator of field-level transformation and organizational renewal (Mazza & Pedersen, 2004; Scott, 2014; Scott et al., 2000). Organizational populations are selected in accordance to the competitive and institutional dynamics that shape organizational fields. Thus, founding and disbandment of populations of organizations offer evidence that – in alignment with ecological and institutional arguments – dominant logics are being overturned and replaced (Hiatt, Sine, & Tolbert, 2009; Ruef & Scott, 1998; Tucker, Singh, & Meinhard, 1990; Wade, Swaminathan, & Saxon, 1998).

A second robust indicator of radical change is the modification of the 'core' organizational features of populations of organizations. The restructuring of industries (Zajac & Kraatz, 1993) and the metamorphosis that organizations undergo indicate that existing strategies and structures are no longer adequate and may lead these organizations to succumb to environmental changes (Ginsberg & Buchholtz, 1990; Romanelli & Tushman, 1994). Third, an "organizational form" is an institutional template that is endorsed as legitimate and appropriate. Hence, the abandonment of an organizational form signifies the deinstitutionalization of the broader systems of meanings, values and beliefs that are manifested in organizational

structures (Davis, Diekmann, & Tinsley, 1994; Haveman & Rao, 1997) and in the positions of field-level actors (Holm, 1995; Kim et al., 2007).

By portraying transformational change as the alteration of organizations and their distinctive forms, the abovementioned categories draw upon the imagery of fields as relative homogeneous and cohesive entities. In Scott's (1994: 71) words, "fields are communities of organizations that participate in the same meaning systems, are defined by similar symbolic processes, and are subject to common regulatory processes". Fields, however, can also be contentious arenas, where competing interests and power relations are debated and negotiated (Fligstein & McAdam, 2012; Hoffman, 1999). This conflict-based perspective suggests that a fourth avenue of transformational change is the reconfiguration of coalitions of actors, and the redistribution of material and symbolic resources, i.e. power, authority, legitimacy, and status (Leblebici et al., 1991; Smets et al., 2012; Thornton & Ocasio, 1999). Such reconstruction occurs when emerging actors are successful in acquiring authority and status at the expense of incumbents (Lounsbury, 2002) or there are the conditions for the power bestowed to incumbents to be renegotiated (Reay & Hinings, 2005). Transformational changes in institutional logics are intuitively associated with institutional change that is radical in scope. Importantly, the logics perspective also offers solid theoretical foundations to conceptualize convergent change.

Developmental change in institutional logics. As per Thornton et al. (2012), developmental changes in institutional logics (e.g. assimilation, elaboration, expansion, and contraction) leave the enduring features of institutions – the deeply-held values, beliefs and commitments that provide foundation for social structures and behaviors – relatively untouched (Thornton et al., 2012). Adjustments and

amendments are not unimportant; on the contrary, they may be extremely impactful for the field and its inhabitants. Yet, institutional arrangements are re-shaped in a way that does not significantly alter the sources of identity, meanings, and the powerful position of actors in the institutional social hierarchy (Fligstein & McAdam, 2012).

Two additional categories exemplify change that is convergent in scope at the field level: (i) emergence/diffusion of organizational forms; and (ii) the introduction, diffusion and/or deinstitutionalization of field-level practices. First, new organizational forms that emerge alongside existing ones introduce novel forms of organizing that may signal developmental change in the underpinning institutional logics of the field. These novel forms may provide positive reinforcement of existing cognitive frameworks (Lee & Pennings, 2002), resonate with widely-held values and beliefs (Suddaby & Greenwood, 2005), and greatly benefit from affiliations with legitimate actors (David, Sine, & Haveman, 2013). These dynamics of emergence are typical, for instance, in emerging fields. As a new field is created, actors tend to converge towards shared set of understandings "by virtue of emerging, dependent interests and worldviews" (Fligstein & McAdam, 2012, p. 87). As emerging fields mature, further convergent changes may take place. The field may undergo adjustments when the relative strength of different constituencies vary and co-existing institutional logics vary in salience (Hoffman, 1999; Rao & Kenney, 2008).

Second, changes in field-level practices also tend to be convergent in scope. In the institutional literature, large attention has been given to the diffusion of novel practices (Child & Yuan, 1996; Mezias, 1990; Yoshikawa, Tsui-Auch, & McGuire, 2007) or, alternatively, the deinstitutionalization and abandonment of taken-for-

granted practices (Ahmadjian & Robinson, 2001; Maguire & Hardy, 2009). The diffusion or abandonment of practices may be an important indicator of change in the relative salience of the institutional logics in a field (Greenwood, Díaz, Li, & Lorente, 2010). Critically, the timely implementation of novel practices or the abolishment of established practices that are no longer functional may provide centrally positioned organizations with the opportunity to assimilate unavoidable changes while maintaining the cultural and cognitive sources of their privileged position (Munir, 2005; Sherer & Lee, 2002).

The institutional logics perspective – and particularly the notion of transformational and developmental change – offer powerful theoretical anchors to conceptualize the radical and convergent scope of institutional change at the level of the institutional field. The "institutional change" literature, however, has also looked at changes that organizations implement in order to respond to institutional pressures and demands. I classify these changes as convergent in scope because they consist in changes at the organizational level that may or may not have implications at the field level. Thus, change seemingly occurs within the existing set of institutional logics.

Change within the existing set of institutional logics. Two categories are considered: (i) macro-organizational changes that consist in modifications of the organizational archetype; and (ii) micro-organizational changes that affect micro-processes around rules, roles, identities and practices. First, organizational change may consist in the modification of the organizational archetype. Organizational responsiveness typically takes the form of "first-order change" – a fine-tuning of strategic and structural features – that enables the alignment of the organizational

archetype to the dominant logic(s). For instance, organizations may expand their domain of activities to include corporate social responsibility (CSR) practices (Glynn & Raffaelli, 2013). Likewise, organizations may adopt structural innovations to demonstrate compliance with previously subordinate logics that have increased in salience (Arndt & Bigelow, 2000; Cooper, Hinings, Greenwood, & Brown, 1996). Importantly, some organizations may experience more difficulties in responding to demands that are exerted by competing logics, i.e. institutional complexity (Greenwood, Raynard, Kodeih, Micelotta, & Lounsbury, 2011). Generally speaking, however, organizations have discretion on whether and how to respond to institutional pressures (Oliver, 1991; Pache & Santos, 2010; Raaijmakers, Vermeulen, Meeus, & Zietsma, 2015). As the literature on "hybrids" and "hybridization" is starting to show, organizations may vary in the extent to which multiple logics are "compartmentalized" (Tushman & O'Reilly III, 2006) or "blended" (Battilana & Lee, 2014; Jay, 2012).

The second category of convergent change is changes in organizational microprocesses. This category represents changes in rules, roles, identities, and organizational practices that are typically implemented to maintain alignment between the organization and the field-level logics (Barley & Tolbert, 1997). For example, the legitimation of new professional roles in organizations enables emerging inconsistencies at the field-level to be addressed and resolved (Goodrick & Reay, 2010; Reay, Golden-Biddle, & Germann, 2006). Similarly, professional role identities may be reconstructed as a result of the regained coherence between institutional, organizational and individual dynamics (Chreim, Williams, & Hinings, 2007). Along the same lines, change in organizational practices is often initiated in

response to perceived inconsistencies between field-level institutional logics and organizational features. Change is aimed at restoring alignment between organizations and their environments (Wright & Zammuto, 2013; Zilber, 2002).

To sum up, my argument is that institutional scholars have so far investigated different outcomes of institutional change processes without systematically theorizing whether they are radical or convergent in scope. As the organizational change literature shows, changes of different scope have important distinctive implications for organizations. Similarly, the impact of institutional change on fields and its inhabitants is very different when change is radical or convergent in scope. To address this oversight, I identified categories of changes that are manifestations of transformational changes in institutional logics (i.e. radical scope) from categories of changes that are manifestations of developmental or no changes in institutional logics (i.e. convergent scope). In the rest of the chapter, I combine the two dimensions in a 2x2 matrix and illustrate a typology of institutional change pathways. I describe each pathway and focus on unpacking the mechanisms that underlie different kinds of institutional change processes by using illustrations from an extensive review of the institutional change literature.

FOUR INSTITUTIONAL CHANGE PATHWAYS

When the two dimensions are combined, four pathways of change – institutional *displacement*, institutional *alignment*, institutional *accretion*, and institutional *accommodation* – emerge. Figure 1 shows the four pathways, summarizes their key features, and provides examples from the literature.

FIGURE 1
A Typology of Pathways of Institutional Change

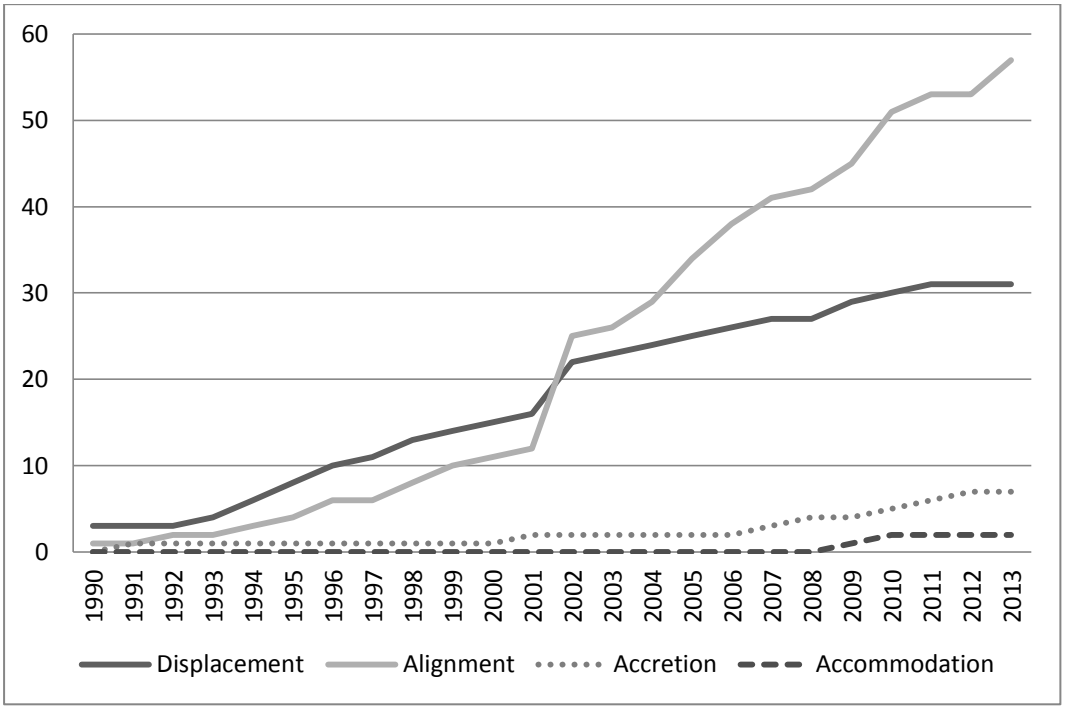
SCOPE OF CHANGE

PACE OF CHANGE	Convergent	Radical
Evolutionary	**Q2. Institutional Alignment** ***Form of change***: A relatively low-paced process during which deviations are internalized into existing institutions ***Type of mechanisms***: Propelling, internalizing, and institutionalizing mechanisms ***Examples***: Sherer & Lee, 2002; Wright & Zammuto, 2013; David et al. 2013	**Q3. Institutional Accretion** ***Form of change***: A relatively low-paced process during which deviations accumulate to replace institutions ***Type of mechanisms***: escalating mechanisms ***Examples***: Hargadon & Douglas, 2001; Ansari & Phillips, 2011; Smets et al., 2012
Revolutionary	**Q4. Institutional Accommodation** ***Form of change***: A relatively high-paced process during which deviations are accommodated into existing institutions ***Type of mechanisms***: de-escalating mechanisms ***Examples***: Maguire & Hardy, 2009; Murray, 2010; Zietsma & Lawrence, 2010; van Wijk et al., 2012	**Q1. Institutional Displacement** ***Form of change***: A relatively high-paced process during which deviations swiftly replace institutions ***Type of mechanisms***: displacing mechanisms ***Examples***: Thornton & Ocasio, 1999; Kraatz & Moore, 2002; Hiatt et al., 2009

As noted earlier, the typology offers a framework to take stock of previously identified mechanisms in a new light. Based on my literature review, I identified 33 papers where institutional change follows a displacement pathway, 53 that follows an alignment pathway, but only 7 articles featuring the pathway of institutional accretion, and 4 on institutional assimilation. Figure 2 shows that institutional displacement and alignment are the dominant pathways in the literature.

Interestingly, the graph shows that scholars have re-oriented their theoretical emphasis from displacement to alignment. The complete list of publications and illustration of the coding procedure is provided in Appendix A. The big payoff of my typological theorizing is to probe how we can further advance our understanding of institutional change by focusing more systematically on processes of accretion and accommodation.

FIGURE 2
Pathways in the Institutional Change Literature, 1990-2013



Institutional Displacement

Institutional displacement is a pathway of institutional change with a revolutionary pace that results in radical change of institutional arrangements. This pathway is based on the idea that changes in the "environment" are reflected in the abandonment and replacement of forms of organizing (Scott, 2008). This imagery of change is at the core of ecological theories of transformation and renewal through selection (Freeman, Carroll, & Hannan, 1983), paradigms of "quantum change" and punctuated equilibrium in the technological innovation literature (Gersick, 1991; Romanelli & Tushman, 1994), economic theories of creative destruction (Schumpeter, 1939), and institutional models of deinstitutionalization (Greenwood, Hinings, & Suddaby, 2002).

Importantly, the literature shows that the mechanisms through which displacement occurs are diverse. For example, top-down regulatory and legislative reforms transform the field by forcing the disbanding of organizations (Tucker et al., 1990; Wade et al., 1998); alternatively, dramatic political, market, and technological changes transform the field by pressuring organizations to change their structures and strategies in order to conform with the new environment (Kang & Yanadori, 2011; Romanelli & Tushman, 1994); finally, socio-cultural changes in the form of change in institutional logics transform the field by orienting actors' attention and commitment towards alternative forms of organizing (Haveman & Rao, 1997; Thornton & Ocasio, 1999). More generally, three classes of mechanisms have been identified in the literature as underpinning institutional displacement: selection, conversion and socio-cultural reconfiguration.

Selection. The first mechanism – selection – typifies the vantage point of scholars who consider organizations unable to change successfully to fit novel environmental conditions. Either because an environmental change is too extreme to bear or because change is pervasive and outside the control of organizations, institutional change takes the form of a displacement of unfitting organizational templates and their replacement with new forms. The selection process may be driven by actions that threaten and/or directly attack those organizations that lack adherence to changing environmental conditions. For example, Davis et al. (1994) and Thornton (2001) describe the increased risk of acquisitions and take-overs faced by diversified firms whose structures and practices no longer embodied dominant systems of beliefs and values. Similarly, Hiatt et al. (2009) and Wade et al. (1998) show the negative impact of collective action against alcoholic beverages and unfavorable regulations on the survival rates of breweries.

Selection may also occur because of the less menacing, yet equally impactful, resource drought that organizations experience as a result of environmental disruptions (Ruef & Scott, 1998; Wade et al., 1998). For example, Tucker et al. (1990) document that when economic issues took precedence over social ones at the government level, social organizations lost precious resources and their legitimacy was questioned. Importantly, the resource most critical for organizations to lose is often legitimacy, because social acceptance is a prerequisite for the accrual of material support. In this regard, Holm's (1995) study of the rise and fall of the MSO organizational form in Norway is illustrative of how selection may be driven by the loss of integrity of the intricate web of both material *and* symbolic resources that undergird organizational forms.

Conversion. In contrast to selection, conversion reflects an adaptationist view of change. Rather than through the disbandment and founding of new organizational forms, displacement occurs as a result of substantial changes that organizations perform in the direction dictated by their environments. For example, Ginsberg and Buchholtz (1990) observed the strategic conversion of health maintenance organizations to a for-profit model when the dramatic change in federal policies removed key advantages of nonprofit status. Typically, when a precipitating event makes action urgent and inevitable, change occurs in the form of strategic renovation guided by strong leadership. For example, Zajac and Kraatz (1993), Kraatz and Moore (2002) and Romanelli and Tushman (1994) emphasize the role of executives' leadership in enabling organizations to reconfigure after environmental changes.

In addition to strategic responses and leadership, other conditions may affect the capability of organizations to adapt to change. Specifically, comparisons of successful and unsuccessful cases of conversion shed light on this issue. White and Linden's (2002) comparison of the Polish and Chinese television manufacturing industries reveals that maintaining an adequate pace of adaptation, establishing managerial incentives to embrace change, and ensuring organizational capacity are critical responses that enable incumbent firms to survive in newly liberalized markets. Likewise, maintaining strengths and operational autonomy enabled orchestras in East Germany to successfully weather the sociopolitical transition following the collapse of socialism (Allmendinger & Hackman, 1996). Conversely, imprinting effect of firms' prior institutional and market environment (Kriauciunas & Kale, 2006) and the entrenchment of values, motives and actions of key managers (Clark & Soulsby, 1995) are shown to negatively affect organizations' ability to adapt.

Socio-cultural reconfiguration. The third mechanism – socio-cultural reconfiguration – reflects the conceptualization of change as a complex process that is not reducible to organizational selection or adaptation to environmental changes. Unlike the first two mechanisms, that explicate how changes in the institutional environment stimulate changes in organizations, socio-cultural reconfiguration is based on the premise that organizations are embedded in fields (DiMaggio & Powell, 1983) governed by institutional logics (Friedland & Alford, 1991; Thornton et al., 2012). As such, the process of displacement entails several mechanisms (Greenwood et al., 2002). First, beliefs, norms, values, rules and meanings that guide behaviors, construct identities, and define legitimate practices have to be deinstitutionalized; then, new arrangements proposed by "institutional entrepreneurs" need to be theorized and accepted before they can diffuse (Battilana et al., 2009).

In this regard, Rao et al. (2003: 814) nicely showed how identity movements are important motors of institutional change; in their account, nouvelle cuisine activists contributed to changing the logics dominating the gastronomic field by "delivering identity discrepant messages when they highlight institutional gaps, articulating problems with the existing logic and identity, and demanding redress". Several other studies highlight how the construction and reconstruction of meanings and values drove displacement in health care (Galvin, 2002; Reay & Hinings, 2005), mutual funds (Lounsbury, 2002) and publishing (Thornton & Ocasio, 1999).

To sum up, institutional displacement is a well-understood pathway of change that provides insights into revolutionary processes that precipitate radical change. These studies were prominent in the early years of institutional analysis, when scholars sought to understand the effects of profound change in environments on

organizations. I now turn the discussion to institutional alignment. This pathway has become more prominent since the interest of scholars has moved towards a better understanding of the internal dynamics of fields and their fragmented and heterogeneous nature (Seo & Creed, 2002).

Institutional Alignment

Institutional alignment is a pathway that describes evolutionary processes leading to convergent change. Alignment provides a complementary perspective to institutional displacement. That is, while displacement exemplifies the transformative power of environmental forces, alignment shows that institutions are relatively adaptable and may gradually co-evolve with the environment. For example, the introduction of novel organizational practices and rules that sustain central players' dominance (Greenwood & Suddaby, 2006; Sherer & Lee, 2002; Wright & Zammuto, 2013), the emergence of new technologies, sectors, industries and fields that do not substantially endanger existing arrangements (Lawrence & Phillips, 2004; Munir & Phillips, 2005), or the acknowledgement by central actors of the practices and identities of marginalized groups (Creed et al., 2002; Maguire et al., 2004) are all examples of institutional alignment.

The conceptualization of change as an alignment process is based upon the premise that important mechanisms that shape institutional arrangements are often endogenous. In particular, the studies that exemplify this pathway focus attention on embedded human activity. The actions of change agents who seek to exploit institutional inconsistencies and contradictions are the source of change. Accordingly, the theoretical foundations of this pathway of change are analytical models that connect macro and micro-institutional levels, such as institutionalization

as structuration (Barley & Tolbert, 1997), dialectical perspectives that emphasize the role of collective human agency (or praxis) in creating change (Battilana et al., 2009; Hardy & Maguire, 2008), and theoretical lenses that envision change as emanating from the degree of openness in the interpretation and implementation of institutional pressures and rules (Mahoney & Thelen, 2010).

Importantly, not only does this pathway elucidate how institutional change is precipitated through action, but also how and why the departure from institutionalized arrangements takes the form of convergent change. Specifically, this process of institutional change is nicely illustrated by the multilevel study of Wright and Zammuto (2013) on English Cricket. The process encompasses different mechanisms: contradictions and inconsistencies are leveraged to propel a revision of institutional arrangements (revision/replacement), proposed modifications are revised and negotiated (encoding/translating), and accepted amendments and corrections are internalized into the existing institutional order (institutionalization). More generally, we can think of these specific mechanisms as belonging to broader classes, namely propelling mechanisms, internalizing mechanisms, and institutionalization mechanisms.

Propelling mechanisms. In the absence of disruptive triggers that command attention and urge actions, propelling mechanisms are necessary to catalyze change. Individuals and organizations seeking to exploit latent contradictions and bring about change need, firstly, to attract the attention of other field-level actors and, secondly, persuade them to embrace the change. At this stage, great emphasis is given to mechanisms such as theorization and framing (Benford & Snow, 2000; Strang & Meyer, 1993), which explain how novel forms, practices, and structural innovations

are persuasively presented and justified to other field members so that they are not rejected or resisted (Arndt & Bigelow, 2000; Greenwood et al., 2002).

While deviations from the status quo presented in a familiar way more easily attract attention and garner support, propelling mechanisms are not sufficient to explain the form that institutional change will take. As Hardy and Maguire (2008) note, the narrow focus on institutional entrepreneurs' strategies and skills calls for more attention to the role of "other actors". In effect, despite the relative familiarity of the proposed revisions and the persuasiveness of entrepreneurs, consensus around changes might not be absolute, as the cooperation of other actors is typically contingent upon individual interests. Further, propelling change only represents the first step toward institutional change. I suggest that a second class of mechanisms – internalizing mechanisms – will intervene to orient actors and shape the direction of change. These mechanisms enable institutions to internalize changes without losing internal consistency and their taken-for-granted status.

Internalizing mechanisms. Internalizing mechanisms enable the realignment of institutional arrangements around new relations, forms and practices. For example, isomorphism and decoupling are two well-known mechanisms through which changes in the institutional environment are internalized into organizational actions and structures (Bromley & Powell, 2012). Many studies in the institutional tradition point to (effective or ceremonial) institutional compliance as primary ways in which organizations regain alignment with their environments. For example, Glynn and Abzug (2002) demonstrate how institutional conformity led organizations to align their names – and identities – with institutionalized naming patterns. Along the same lines, studies of organizational forms of fashion companies (Djelic & Ainamo, 1999),

forms and practices in professional services firms (Cooper et al., 1996; Greenwood et al., 2002; Lee & Pennings, 2002), and strategies of organizations seeking and/or granting academic accreditations (Durand & McGuire, 2005; Washington & Ventresca, 2004) show that change arises from the need of organizations to preserve legitimacy and/or signal compliance.

Intermediation between institutional actors may also be an effective internalizing mechanism. For instance, Wright and Zammuto (2013) elaborate the important mediating role of the group of actors between center and periphery in the micro-processes that led top-down and bottom-up changes to be encoded, translated, and revised in the logics, scripts and rules of First-Class Country Cricket. Similarly, other authors emphasize the role of collaboration (Lawrence et al., 2002; Reay & Hinings, 2009; Swan et al., 2010) and translation (Zilber, 2002) in enabling changes to be internalized while preserving deeply-held institutional beliefs and structures.

Institutionalizing mechanisms. The last stage of institutional alignment is typically referred to as 'structuration' or 'restabilization'. This phase of alignment is driven by mechanisms that enable changed patterns of relations and actions to "acquire the moral and ontological status of taken-for-granted facts which, in turn, shape future interactions and negotiations" (Barley & Tolbert, 1997: 94). For example, accepted deviations from institutionalized expectations can be formalized and reinforced through the codification of new institutional rules (Mahoney & Thelen, 2010; Wright & Zammuto, 2013) and the development of standards (Garud et al., 2002); novel organizational archetypes can be layered on previous ones in a process of sedimentation (Cooper et al., 1996); finally, the reinforcement of boundaries (Swan et al., 2010; Zietsma & Lawrence, 2010) and the localized encroachment of institutional

logics enable newly-established practices and forms to be legitimized and diffuse (Dunn & Jones, 2010; Purdy & Gray, 2009).

To sum up, institutional alignment is another well-understood process of institutional change through which scholars explain how flare-ups of contradictions and dialectical tensions enable convergent change. Importantly, this pathway of change theorizes in a more precise and fruitful way the idea that institutions simultaneously enable and constrain human action. When the pace is evolutionary, change is gradual. Amendments to institutions can gradually internalize novel demands of actors and novel environmental conditions in a co-evolutionary process. It is important to note that many empirical examinations of institutional alignment focus on a single cycle, or even a single phase, of change. A fuller appreciation of the resilience of institutions may require extending the analysis to multiple cycles over a relatively long period of time.

Institutional Accretion

Institutional accretion is a pathway that describes evolutionary processes that lead to radical change. As discussed earlier, accretion is a relatively less explored trajectory that requires further specification and theorizing. Thus far, only a handful of studies have examined instances of institutional change in which seemingly localized and non-disruptive events cumulate to spawn institutional transformations. For example, Lounsbury and Crumley (2007) theorized how initially ignored and dismissed "experimentations" with active investing strategies in the US finance industry resulted over time in profound change. More precisely, peripheral active money management practices led to the creation of new product categories that reconfigured the power structure of the industry. A similar dynamic is illustrated by

Hargadon and Douglas (2001) in the historical case of Edison and electronic lighting. The study shows that the ultimate displacement of the gas technology – and the industry built on it – was enabled by Edison's "robust design" strategy. The introduction of the innovation signaled continuity but the accumulation of change over time provided the flexibility to create discontinuous change at the end. More broadly, robust design is a form of "robust action" (see Ferraro, Etzion, & Gehman, 2014 for a review).

Similar to institutional alignment, accretion is a pathway of change that originates from relatively non-disruptive events. Evolutionary triggers, such as shifting coordination problems within and between organizations, competitive pressures, entrance of new players in a field, or the availability of a new technology, are often the by-product of the ongoing activity of organizing. In the case of alignment, these events offer stimuli and opportunities for some institutional actors to propel change, which is internalized into existing institutional arrangements and then institutionalized. As a result, the resulting change is convergent in scope. Accretion differs from alignment in that these seemingly ordinary and incremental variations are internalized into extant institutional arrangements, but are only partially institutionalized. Instead of acquiring a taken-for-granted quality – and therefore losing their catalytic potential – changes retain the generative capability to stimulate further changes. In other words, small departures from the status quo may temporarily settle but, under appropriate conditions, they 'activate' to prompt a sequence of magnifying cycles.

I define the mechanisms through which initial small deviations from the status quo are amplified to generate radical change *escalating* mechanisms. To theorize

escalating mechanisms means to understand how relatively minor deviations from institutional prescriptions can be accepted and internalized into the existing institutional order and, simultaneously, maintain the capability to catalyze cumulative changes. Existing institutional and cognate literatures suggest two kinds of escalating mechanisms, namely *technology-driven* and *practice-driven*. Both kinds of mechanisms require further study, and much more attention needs to be paid to identifying other mechanisms and the conditions under which they are catalytic.

Technology-driven escalating mechanisms. Despite the conventional imagery of technology as competence-destroying, institutional research on innovation highlights that technology-driven institutional change may unfold in an incremental way, driven by the co-evolution between institutions and technology (Orlikowski & Barley, 2001; Powell, White, Koput, & Owen-Smith, 2005). Technology is a vital source of institutional variation and offers opportunities to peripheral players to introduce change. Notable examples include fringe radio broadcasters (Leblebici et al., 1991), inventors (Hargadon & Douglas, 2001), and consumers (Ansari & Phillips, 2011).

Importantly, these studies show that the effect of technology is often cumulative and innovations typically gain initial acceptance from audiences when they are located "within the set of understandings and patterns of action that constitute the institutional environment". As discusses earlier, the "cloaking of innovations in the mantle of established institutions" (Hargadon & Douglas, 2001: 478-479) and its institutionalization would be conducive to institutional alignment, if not for the essential condition that the evolutionary potential in a new technology is extremely hard to suppress. It is this intrinsic characteristic of technological development that drives the process of institutional accretion. For example, Leblebici and colleagues

(1991) document how broadcasting evolved into a private and commercially supported system through changes in 'conventions' about the radio technology. The evolution of recurrent patterns of interaction enabled some actors to consolidate their positions, only to see them eroded when further technological development favored other field actors. Over time, changes accumulated and eventually completely transformed the broadcasting field.

Echoing the notion of robust design, Ansari and Phillips' (2011) investigation of mobile telephony in UK confirms that compatibility between innovations and the interests of supporting constituencies is essential for technological variations to be accepted. Technology, however, evolves over time beyond the initial limited understanding and use. As Hargadon and Douglas (2001, p. 499) elegantly put it: "the early successes should arrive draped in familiar understandings and patterns of use. Over time, those systems that retain the flexibility to change with us will persist. Ultimately, these will be the innovations we look back on as radical and discontinuous." Importantly, the case of mobile texting reveals that novel technological practices may be more likely to catalyze field level change when they are "sticky", i.e. easy to adopt but hard to give up. Such addictive property might be particularly important in circumstances where change revolves around practices that are seemingly trivial and uncoordinated (e.g., texting) as time is needed for a radically novel supporting institutional infrastructure to develop.

Practice-driven escalating mechanisms. Practice theory offers another useful theoretical lens to explore escalating mechanisms. According to this perspective, practices are not self-standing categories, 'natural', or to be taken as given, but are the result of endless performances (Callon, 1998). It follows that "individual

performances of a practice play a key role in altering a given practice through variation in its enactment" (Lounsbury & Crumley, 2007: 996). For example, Lounsbury and Crumley (2007) and Sauder (2008) report findings from two cases where new practices (i.e. active money management via growth funds) and a new actor (i.e. the US News & World Report ranking of law schools) were initially ignored but eventually precipitated radical field-level change. In both cases, the seemingly insignificant innovation contributed to altering the interrelations and mutual dependencies among field-level actors, as indicated by changes in field-level practices. Critically, escalation occurs when small innovations are theorized and they become part of the symbolic repertoire of the field.

Smets et al. (2012) and Nigam and Ocasio (2010) offer a complementary view of practice-driven escalating mechanisms. These studies focus on escalation based on the material embodiment of small variations in more visible manifestations. In the study by Nigam and Ocasio (2010), for instance, sensemaking enabled the logic of managed care to acquire salience over time over the life course of Clinton's health care reform. The authors highlight how the growth in HMOs/managed care and physical integration among hospitals supported and amplified changes in meanings.

Along the same lines, Smets et al. (2012) document that the shift in the institutional logics in the German legal sector originated within a high-status organization to solve internal tensions and local problems after a merger. Deviating practices emerged within the organization, but it was only when they were consolidated into a hybrid organization that they were able to 'unobtrusively diffuse' at the field level. In particular, centrally positioned organizations may be able to deviate from institutionalized norms without impacting the field. Once the change is

explicitly visible to other members of the elite circle, however, change is likely to escalate, thus forcing those field-level constituencies that previously opposed the change to subdue and endorse it.

Institutional Accommodation

The final pathway – institutional accommodation – describes processes with revolutionary pace that lead to convergent change. Although the literature on institutional change is vast, this process is seemingly the most elusive. Revolutionary pace is typically associated with institutional displacement; hence, little is known about the circumstances that prevent radical change and enable convergent change. Along the same lines, accounts of convergent change typically rely on the evolutionary pace as an explanation for the relatively limited scope of change. This explanation does not hold when the process of change is revolutionary.

I contend that the pathway of institutional accommodation is driven by *de-escalating* mechanisms. Deescalating mechanisms allow institutions to recompose around slightly altered arrangements, despite the revolutionary pace of change. There is very little research on deescalating mechanisms and only four papers in the literature document a process of change that is akin to institutional accommodation: Zietsma and Lawrence (2010), Maguire and Hardy (2009), Murray (2010) and van Wijk, Stam, Elfring, Zietsma, & den Hond (2013). I build on the insights of these investigations to provide illustrations of accommodation mechanisms.

The paper by Zietsma and Lawrence (2010) captures accommodation by looking at the boundary work and practice work performed by insider and outsider actors as theoretical anchors (see also Winn & Zietsma, 2004; Zietsma, Winn, Branzei, & Vertinsky, 2002; Zietsma & Winn, 2008 for additional insights). Accommodation

occurs through four institutional lifecycles: stability, conflict, innovation and restabilization. Institutional stability is abruptly interrupted by outsider actors who express grievances and manifest discontent. Breaching of boundaries and disrupted practices lead to institutional conflict. In this cycle, the contestation reaches its climax, forcing incumbents to engage in interactions with challengers. In the following cycle of innovation, contestation defuses as boundaries are created to identify spaces of innovations where potential solutions can be elaborated. In the final cycle (institutional restabilization), these solutions are diffused.

The paper by van Wijk et al. (2012) illuminates similar interactional dynamics between "challengers" and "incumbents" but proposes mutual cooptation as the primary de-escalating mechanism. The authors show that the more a movement is permeable, the more likely activists will engage in collaborative partnership with field-level incumbents. Importantly, cultural and relational structuration contributes to generating innovation – as shown in the vitality of Dutch sustainable tourism – but dilutes the originally radical goals of the movement.

Other three papers document processes of accommodation. In Maguire and Hardy's (2009) examination of how a highly institutionalized practice – the use of DDT – was eventually abandoned, the authors emphasize the revolutionary pace of the change (i.e. outsider-driven change). In particular, they note that the publication of Rachel Carson's (Carson, 1962) *Silent Spring* was "a direct assault on the validity of a long-standing tradition or established activity" (Oliver, 1992: 567). While *Silent Spring* provided the initial opportunity, the growth in the intensity of the contestation led incumbents (i.e. agribusiness and the chemical industry), to counteract with 'defensive institutional work'. Finally, the conflict between forces pushing for change

and forces pushing for stability was settled by the recognition that the use of DDT was unnecessary and the pesticide could be substituted with other chemicals. Critically, the authors describe a process of accommodation and show that a discursive mechanism – "*translation of problematizations*" in texts – enabled the conflict to be subdued and incumbents to experience relatively minor setbacks, despite the public outcry from the scientific community. Specifically, cumulative acts of translation reshaped the problematization of DDT in a way that selected out the most problematic issues (e.g. the necessity of chemicals).

An equally insightful example is provided by Murray (2010) in her investigation of how academic geneticists skilfully transformed patenting from being seen as a threat to the logic of academic science, to a resource to protect and reinforce it. Once again, we can track a process of accommodation in Murray's account. At the outset, the possibility to patent their discoveries came as a "shock" to mouse geneticists (2010: 351) in the midst of a "revolution" and "explosion of knowledge" in molecular biology (2010: 354). Confronted with the restrictions to exchange patented materials imposed by commercial entities, scientists strongly rejected the practice of patenting because its underpinning commercial logic was perceived as contradictory to the logic of science and its norms of open sharing.

As the encroachment of the commercial logic within academia became more pressing, scientists acquiesced to commercial demands and eventually embraced patenting themselves. Nevertheless, Murray shows that the process of change was not a simple story of scientists' relinquishment to the commercial logic. Scientists' adoption of patenting practices was driven by the crafting of sophisticated hybrid exchange strategies that transformed their meanings. Instead of encouraging industry

encroachment, academics used patents to preserve the core institutional logic of science. In sum, the case shows that novel and potentially threatening practices were assimilated by *decoupling* the material act of the practice from its original meanings and then *infusing* them with meanings of the dominant logic (i.e. science).

These studies have begun to reveal interesting mechanisms and offer promising directions for future explorations. More research is evidently needed to theorize institutional change through accommodation.

DISCUSSION

The theoretical framework proposed in this chapter addresses three limitations of current institutional theorizing. First, despite considerable theoretical and empirical advancement, the term "institutional change" has progressively lost conceptual clarity and is now being used as an all-encompassing label. Informed by the organizational change literature, I developed analytical categories that clarify whether the pace of institutional change is "revolutionary" or "evolutionary" and whether the scope of change is "radical" or "convergent". I believe that the scope of change is a particularly relevant, and mostly neglected, dimension that is worth being rediscovered. Indeed, the extensive body of work on institutional change offers little theoretical guiding on the conditions under which the scope of institutional change will be radical or convergent. The proposed typology gives theoretical priority to this dimension and, by combining the two dimensions, is able to illuminate previously unrecognized heterogeneity between institutional change processes.

A second limitation of the literature I speak to is the lack of systematic efforts to contrast and compare process models and mechanisms of institutional change (Barley & Tolbert, 1997; Battilana et al., 2009; Greenwood et al., 2002; Hargrave &

Van de Ven, 2006; Seo & Creed, 2002). Although scholars have elaborated the triggers, trajectories and outcomes of change processes, there has been little work done to systematically classify them in order to theorize their similarities and differences. By doing so, theoretically valuable insights about the heterogeneity of change processes have remained hidden. The proposed typology shows that unpacking the institutional change construct is worthwhile. Specifically, the four pathways that emerge from the framework – displacement, alignment, accretion and accommodation – reveal that not all episodes of institutional change are equally consequential for institutional fields. The pathways represent a first step to deepen our understanding of change by making explicit "how much institutions change" and with what consequences.

Finally, the prolonged scholarly interest in the topic of change, coupled with the relatively few efforts to comprehensively review the literature, have resulted in fragmentation of knowledge. Today, it is relatively hard for researchers to grasp what important blind spots in the literature that require more systematic attention might be. The proposed typology offers a valuable framework to systematically review the literature and reveal promising research areas that are currently underexplored. Specifically, the review shows that thus far significant attention has been given to displacement and alignment pathways of change, whereas accretion and accommodation have received little empirical probing. Interestingly, scholars have chosen rather predictable pathways for their investigations. The recognition that pathways of institutional accretion and accommodation have gone largely undetected might help scholars to refocus their theoretical efforts and get equipped for the fruitful and rewarding exploration of alternative pathways.

I have also suggested that appreciating the difference between change processes is useful to guide future theorizing of the mechanisms that underpin each pathway. Specifically, understanding accretion and accommodation requires the elaboration of potentially novel mechanisms that explain their respective cumulative and regressive paths. In this regard, the distinction between escalating mechanisms and de-escalating mechanisms in intended to make a first step in this direction.

Theoretical Gap: The Relationship between Quadrants

My empirical analysis focuses on the two quadrants at the bottom of the matrix – institutional displacement and institutional accommodation – that are characterized by a revolutionary pace of change and an outcome that is, respectively, radical and convergent in scope. While displacement and accommodation have been studied as distinct processes (although with very different emphasis), I seek to show that additional insights can be gained if they are conceptualized as two *related* pathways. To put it less succinctly, my argument builds on the observation that many revolutionary processes of change are initiated with the intent of precipitating a radical field-level change (institutional displacement). Change agents may attempt to displace dominant field-level logics and deinstitutionalize dominant organizational forms and their associated practices. While some of these attempts are successful in the goal of achieving such transformative outcome, many others are not. These are cases of "failure"; that is, cases where institutional change did not actually occur and/or change agents did not achieve what they strived for.

Surprisingly, not much is known about those cases, primarily because they have not been in the radar of institutional theorists. Institutional scholars have well documented the occurrence of institutional change in its variety of forms, yet failure

of radical field-level change is not a construct that has been theoretically elaborated or empirically explored. Given the paucity of research on the topic of failure, I believe a clarification is necessary. In the realm of institutional theory, the notion of failure entails two different potential outcomes: (1) no change occurs or (2) change occurs but not in the desired form. The first type of failure is being explored by the literature on institutional maintenance, which focuses on the 'support, repair, and re-creation of institutions' (Lawrence & Suddaby, 2006). A recent line of research has begun to explore the possibility that maintaining institutions may entail repair mechanisms, which are activated after the status quo has been severely disrupted (Currie, Lockett, Finn, Martin, & Waring, 2012; Heaphy, 2013; Micelotta & Washington, 2013). In this scenario, despite the actions of field-level change agents, there is no occurrence of change. The actors pushing for a deviation from the status quo are defeated and no significant alteration in institutional arrangements occurs. In other words, the status quo is maintained.

The second type of failure is closer in meaning to the common definition of failure; that is, "the condition or fact of not achieving the desired end or ends" (Oxford Dictionary). This is actually the type of failure that I seek to explore in my empirical study. In this scenario, field change *does* occur but it is not of the scope intended by the change agents; in other words, instead of radical field-level change, the resulting outcome is relatively more conservative (i.e. a convergent change). Change agents, in other words, are neither "winners" nor "losers", as field-level change has partially occurred, even though they have not achieved their intended goal.

As discussed in Chapter II, convergent field-level change is manifested in institutional logic's contraction, assimilation, or expansion; in the diffusion of alternative organizational forms; in the creation of new roles and practices that manifest important, yet not radical, alterations of the institutional order. Using the typology as a theoretical stepping stone, we can think about this second type of failure as a transition from Q1 (institutional displacement) to Q4 (institutional accommodation). This transition is the focus on my analysis. Specifically, I address the following research questions:

(1) How and why does a revolutionary process of change aimed at radical field-level change (institutional displacement) fail?

(2) How and why does failure of institutional displacement result in convergent field-level change (institutional accommodation)?

Chapter III

RESEARCH CONTEXT AND METHODS

Chapter III describes the research context of the study and the research methods. I provide the rationale for the selection of the case of Open Access in scholarly publishing and illustrate the field analytic research design. I first explain why the field of scholarly publishing offers an ideal setting to study the failure of institutional displacement and convergent field-level change. Second, I discuss the multiple data sources of the study – archival materials, interviews, notes from nonparticipant observation and network data – and the emergent mixed method analytical approach used in the data analysis. The description of the qualitative data analysis is followed by the illustration of the exploratory analysis of bibliometric networks.

Rationale for Site Selection

In order to address my research questions about the relationship between change pathways, I used a field analytic approach (Hoffman, 1999; Lounsbury, 2002; Lounsbury & Crumley, 2007; Scott et al., 2000; Zietsma & Lawrence, 2010) that draws on a wide range of multi-level data. To conduct my analysis, I needed to find an empirical site with the following characteristics: (i) a field where there had been a revolutionary attempt to precipitate radical change (institutional displacement); (ii) such attempt failed, meaning that institutional displacement did not occur; yet (iii) there is supporting evidence that convergent institutional change occurred nonetheless.

Examples of attempts to radically change field-level arrangements are abundant in organizational and institutional life. While it may be straightforward to think of

rare events such as political revolutions (e.g. French revolution) or ideology-driven social movements (e.g. Occupy Movement), relatively less dramatic technological and social innovations may also be culturally ground-breaking. Indeed, when they are first introduced, innovations are often highly contested. They may challenge the profits or competitive position of established market players but, critically, they may also be leveraged by some actors to alter the rules by which the game is played (i.e. dominant field-level logics) and challenge the positions of those field-level constituencies who make and protect those rules (i.e. the representatives of dominant field-level logics).

I selected one of those cases of innovation-driven institutional change. The institutional change triggered by the Open Access movement in the field of scholarly publishing has the abovementioned characteristics. Specifically, it is a case where a technological innovation (i.e. the Internet) provided the opportunity for some members of the scientific community to advocate for a radical change in the way scientific knowledge is disseminated (from a "closed" to an "open" system). Such change was intended to be a "paradigmatic shift" (Guedon, 2001). It was therefore welcomed with suspicion, discomfort and/or open resistance by field-level incumbents, the more so because it touched deeply shared beliefs and normative understandings that govern the system of publication of knowledge.

As I will show, activists' attempt to precipitate institutional displacement – and shift the institutional logics of the field – has not been successful. Because we know so little about the *failure* of radical field-level change, this case offers a great opportunity to shed light on this neglected area of research. Further, there is evidence that some degree of institutional change has occurred in the field of scientific publishing. Open Access simply did not exist twenty years ago, yet it is an

important reality today. In this regard, it is relevant to note that the story of the Open Access movement in scholarly publishing does not neatly fit the pathway of institutional accommodation as thus far described in the literature. The body of work at the intersection of organizations and social movements recognizes collaborative and/or cooptive strategic interactions between challengers and incumbents (de Bakker, den Hond, King, & Weber, 2013) as the primary mechanism through which social movements compromise their original ideals or, in extreme cases, experience "political emasculation and moral diminishment" (Coy & Hedeen, 2005: 409).

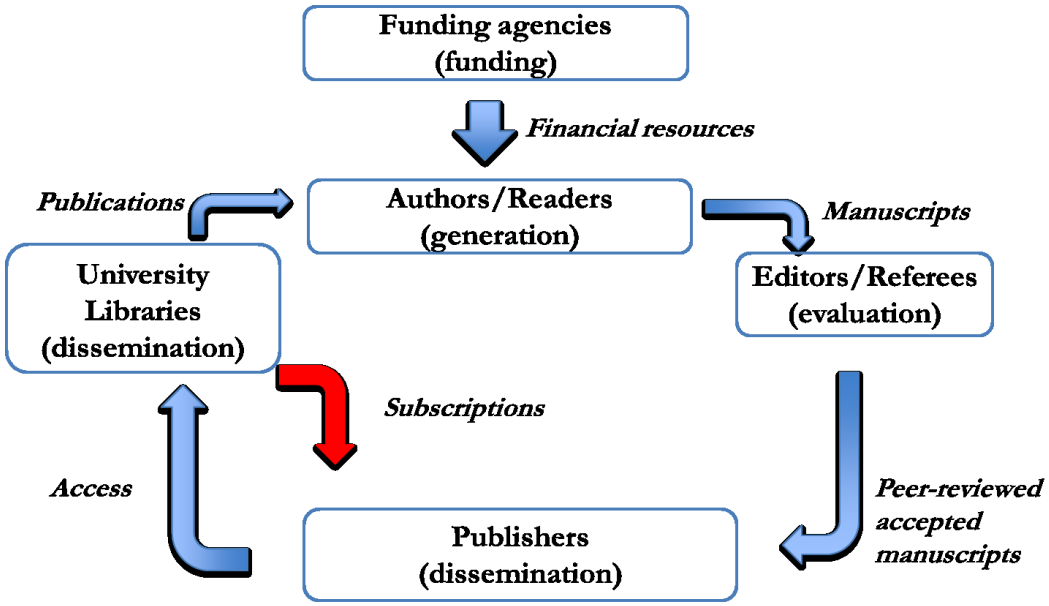
Open Access challengers, however, have not been forced to surrender because of scarcity of resources (Lounsbury et al., 2003) or the weakening of standards (Jaffee & Howard, 2010). Also, differently from the collaborative work between activists and tourist operators in the Dutch sustainable tourism industry (van Wijk et al., 2013) or between Open Source activists and software companies (O'Mahony & Bechky, 2008), the movement did not seek to push change by establishing formal and organized collaboration with incumbents (i.e. commercial publishers). Thus, this case offers the possibility to probe further into the relationship between activists' strategies and field-level change and, more broadly, into the variegated ways in which institutional accommodation unfolds.

Research Context: The Field of Scholarly Publishing

The field of scholarly publishing is a mature field governed by deeply institutionalized practices and norms of knowledge production and dissemination (Knorr-Cetina, 1999). In its most simplified structure, the field includes four primary actors: academics, funding agencies, publishers and university libraries (Figure 3). Academics are the primary "producers" (and "consumers"), of scientific

publications. Scholars are granted financial support from funding agencies to conduct research that is expected to be widely disseminated and ultimately benefit society. Publishers support the dissemination of scientific results by offering a wide array of research outlets. Further, they coordinate the peer-review process and ensure that rigorous results are made available in a timely fashion to the scientific community. University libraries, in turn, sustain scientists' requirement for updated publications by purchasing journals from publishers and granting academics access to this body of literature.

FIGURE 3
The Field of Scholarly Publishing



The field of scholarly publishing is very mature and highly coordinated. Practices are assigned to different groups of actors whose behaviors are informed by different institutional logics, i.e. "socially constructed, historical pattern of cultural symbols and material practices, assumptions, values and beliefs" (Friedland & Alford, 1991; Thornton et al., 2012). As a result, the field is governed by a constellation of logics

but institutional complexity is settled because field-level practices are segmented between different group of actors (Goodrick & Reay, 2011). Specifically, the generation and validation of knowledge is a prerogative of academics, groups of experts that balance the logic of science (i.e. pursuit of truth and progress) with the logic of the profession (i.e. pursuit of career benefits, status and prestige). The funding of research is a prerogative of the State, which provides resources through funding agencies on the basis that scientific progress is a national responsibility and duty (i.e. a public logic).

Notably, dissemination of knowledge (which is the contentious target of the Open Access movement) is governed by the *commercial logic*. The commercial logic informs shared understandings that knowledge generated by academics through their research is a "product" that is exchanged through transactions between content providers (i.e. publishers) and consumers (i.e. academics through university libraries). Knowledge, in other words, is codified in an artifact – an article included in a journal – that can be sold, shipped, and advertised. The commercial logic is dominant over the field-level practice of knowledge dissemination, as demonstrated by two elements: the dominance of the multinational for-profit corporation as organizational forms and the widespread use of commercial exchange practices.

First, the multinational for-profit publishing corporation is the dominant organizational form in the field. As other studies document (Thornton, 2004; Thornton & Ocasio, 1999), large for-profit publishing corporations brought the logic of the corporation and the market in higher education publishing field. Scientific publishing is no exception. The dominance of multinational publishing corporations is evident by looking at their size and increasingly concentrated market share. Today

there are approximately 9,900 publishers and more than 23,500 active peer-reviewed journals (McGuigan & Russell, 2008; Morris, 2007). The largest group of these journals is in the STM (Science, Technology and Medicine) sector, which is today a $19 billion industry. While myriad non-profit publishers exist, many waves of mergers and acquisitions in the 1980s led to a publishing industry dominated by a small group of global commercial publishers (i.e. Elsevier, Springer, Wiley and Taylor & Francis). This elite group publishes science and social sciences journals; collectively, they own more than 25% of the totality of articles and over 50% of the journals covered by the Thompson Journal Citation Report (Morris, 2007; Ware & Mabe, 2009). Non-profit academic publishers (i.e. university presses, professional associations that act as publishers) do exist but they are relatively minor competitors of multinational corporations. University-based publishers and learned societies are not corporations and their approach to publishing is primarily driven by the professional logics (i.e. serving their membership and fulfilling their professional mission).

A second indicator of the pervasiveness of the commercial logic is that virtually all publishing organizations (both for-profit and non-profit) utilize subscription-based dissemination practices. That is, knowledge contained in an academic journal is only accessible to those who pay a subscription price for access. The main (70%-80%) source of revenues for publishing organizations is the subscription that university libraries pay to purchase their collections. A smaller percentage of revenues derive from the ownership of the copyright for the distribution and reuse of papers (i.e. reprint and distribution).

Of particular interest for my analysis is to understand how large multinational

corporations have come to play such a dominant role in this sector of publishing. Since Henry Oldenburg created the first scientific periodical –*Philosophical Transactions of the Royal Society of London* – in 1665, publication in academic journals is the primary channel for the dissemination of knowledge. Given the relatively expensive technology (i.e. printing), publishing organizations played an essential role. The publication of scientific findings widened access to research beyond the selective audiences who could read books and enabled academics to make their discoveries available to fellow researchers much faster, and therefore establish scientific priority upon them. Despite its key role in academia, at its inception the dissemination of scientific knowledge through journals was far from being a lucrative for-profit business. In a world of printed publications, publishing organizations needed to achieve economies of scale in order to make a profit after recovering the high costs of producing and distributing journals. Academic publishing was therefore primarily handled by non-profit learned societies and academic institutions, driven by educational and professional missions.

A series of events gave commercial publishers an incentive to enter the sector, (Meadows, 1980). Recurrent delays in publishing and fears of censorship of some disciplines by academic-led publishers provided the initial opportunity. Yet, profits remained relatively low and for-profit commercial publishers remained for some time "a fragmented and marginal lot in the secondary business field centered upon scholarly journals scientific publishing" (Guédon, 2001: 15). After World War II, however, publishing became a profitable "business" and revealed its remarkable economic potential. With the creation of the Impact Factor by a librarian, Eugene Garfield, in 1955 and the establishment of the Science Citation Report, academic

journals were officially ranked. The ranking of journals based on citations enabled the rapid identification of a small fraction of academic journals that were considered of excellent quality. When the Impact Factor was endorsed as an efficient measure of quality and impact in universities – and became associated with professional status and prestige – the small fraction of "core" journals created a "sizable and secure market, with an inelastic demand" (Guedon, 2001: 15).

The exponential growth in scientific publications fuelled the business of scholarly publishing. Academics were inclined to submit their best work to high-impact journals, driven by university career systems, funding systems and professional prestige and status. University libraries, that purchase journals on behalf of academics, increasingly focused their purchases on high-impact serials – the ones most requested by faculty members – which had become 'must-have' items in their collections. Not surprisingly, when commercial publishers entered the newly-created market of academic serials, they first competed to acquire those high-impact titles that attracted the best submissions. Then, they created their own titles, progressively transforming journals into commercially attractive brands. Commercial success made publishers grow and progressively transformed them into large publicly-traded corporations.

Open Access and Institutional Change in Scholarly Publishing

Until the Internet, there was no feasible (and cheaper) alternative to print publishing and the concentration of the market continued undisturbed. In the early 1990s, however, electronic publishing became available and its potential to dramatically lower the cost of knowledge dissemination did not go unnoticed. In 1997, a coalition of librarians and academics started a grassroots mobilization that became later

known as the Open Access (OA) movement. The movement pursued a radical goal: to use the Internet to revolutionize scholarly communication and design a more democratic system of knowledge dissemination (Johnson, 1999). The idea that the current system of knowledge dissemination is elitist and badly in need of repairs (Case, 2002) stemmed from the consideration that the results of scientific research are only available to those who can afford to pay the subscriptions fees that publishers require for access. To Open Access activists, however, this seemed paradoxical and unfair, because scientific knowledge is generated by academics for free (i.e. with no expectations of revenues) and through public funding; yet, the dissemination of scientific knowledge is restricted to a limited group of subscribers. Activists sought to leverage on the significantly lower costs of electronic publishing (as compared to printing publishing) to eliminate price (i.e. subscriptions, licensing fees) and permission barriers (i.e. copyrights and licensing restrictions) that, they argued, hindered societal and scientific progress (Willinsky, 2006).

Table 3 offers a chronology of the key events that have shaped the field of scholarly publishing in the last two decades. The movement started as a grassroots mobilization of librarians and academics. In 1997, the Association of US Research Libraries (ARL) took a stance against the dramatic increase in serials' subscription prices (the so called "serials pricing crisis") and created a spin-off – the Scholarly Publishing Academic Resources Coalition (SPARC) – whose mission was to be "a catalyst for change through the creation of a more competitive marketplace for research information". Collective mobilization was also organized in the biomedical community, where three eminent scientists founded a not-for-profit advocacy group named Public Library of Science (PLoS) and called for a boycott of publishers.

TABLE 3
Chronology of Key Events

Year	Event
1990	Tim Berners-Lee writes the first web page
Early1990s	Electronic publishing was born. Academics engage with the Internet on their desks
1994	The "Serials Pricing Crisis" gains public attention
1997	US Association of Research Librarians launches SPARC, the Scholarly Publishing and Academic Resources Coalition
1998	SPARC starts its campaign for radical change and independent publishing
2001	Three biomedical scientists found the Public Library of Science and call for a boycott of publishers. Biomed Central invents Article Processing Charges.
2002	The Budapest Open Access Initiative (BOAI) defines Open Access and strategies to implement it. Private funding agencies (e.g. Wellcome Trust) issue position statements endorsing Open Access publishing
2003	The Public Library of Science (PLoS) receives a $9 million grant from the Moore Foundation and announces the launch of two open access journals
2004	National governments (UK, USA, European Union) launch inquiries into the prices of journals and access to publicly-funded research findings Elsevier and Sage Publications announce new policy permitting authors to post the final editions of articles to repositories Springer launches its Open Choice hybrid journal program
2005	The U.S. National Institutes of Health (NIH) releases its long-awaited public-access policy Universities UK, representing all UK universities, issue a statement endorsing open access and the draft RCUK open-access policy Blackwell Publishing and Oxford University Press launch Online Open hybrid journal programs Springer creates the position of Director of Open Access and appointed Jan Velterop, former publisher of BioMed Central
2006	The European Commission releases a report calling for an open-access mandate to publicly-funded research. The Research Councils UK (RCUK) issues its long-awaited Open Access policy
2007	New Open Access publishers are founded and launch hundreds of journals
2008	Springer acquires BioMed Central Congress passed, and the President signed, a spending bill mandating Open Access to research funded by the US National Institutes of Health.
2009	The opposing proposals - Federal Research Public Access Act (FRPAA) and The Fair Copyright in Research Works Act - are debated in the US Congress to change the extend or nullify the current NIH policy
2013	The White House releases a Directive that confirms that NIH policy and extends it to agencies with budgets of over $100 million

The initially dispersed mobilization of activists became coordinated in 2002, when the Budapest Open Access Initiative (BOAI) was launched. At this meeting, Open Access was officially defined and strategies for implementation were elaborated. Notably, commercial publisher BioMed Central and the Public Library of Science pioneered the template of Open Access as a "business model of publishing". In order to recover the costs of dissemination, while ensuring free access to every reader, Open Access publishers charge authors with a fee (Article Processing Charges or APC) after the paper has been reviewed and accepted for publication (Esposito, 2013; Laakso et al., 2011). These fees are expected to be covered by scholars through the grants they receive by private and public funding agencies. Whereas important private funding agencies (i.e. Howard Hughes Medical Institute and Wellcome Trust) endorsed the new model of publishing and committed themselves to cover the publication costs, national governments responded to the increasing social pressure by launching inquiries into the cost of publishing. In 2004, the UK House of Commons Science and Technology Committee, the European Commission and the US House Appropriations Committee launched investigations into the issue of access to publicly-funded research.

By 2005 the mobilization for Open Access had become a global movement, successfully capturing the attention of national governments, funding agencies, professional associations and publishers. National policies in the United States, United Kingdom and Continental Europe endorsed the principle of Public Access to research (National Institute of Health, 2005; Sherpa/Romeo, 2014) but not Open Access publishing as a "morally superior business model". Grant-giving organizations demanded that research published with their grants should be made

freely available after a reasonable time after publication (embargo periods up to 12 months). Interestingly, the radical change activists strived for was *not* realized. As the following excerpt reveals, activists are disappointed that the campaign for Open Access has yet to dismantle financial and legal barriers:

> "Ten years ago the Budapest Open Access Initiative launched a worldwide campaign for open access (OA) to all new peer-reviewed research. Today we're no longer at the beginning of this worldwide campaign, and not yet at the end. We're solidly in the middle. Nothing in the last ten years makes OA less necessary or less opportune. On the contrary, it remains the case that "scientists and scholars...publish the fruits of their research in scholarly journals without payment" and "without expectation of payment." In addition, scholars typically participate in peer review as referees and editors without expectation of payment. Yet more often than not, access barriers to peer-reviewed research literature remain firmly in place, for the benefit of intermediaries rather than authors, referees, or editors, and at the expense of research, researchers, and research institutions."
>
> *Budapest Open Access Initiative 10 years, 2012*

Despite a global collective mobilization and the intervention of national governments on the matter, the dissemination of knowledge still occurs in a "closed" system where the dominant institutional logic is the commercial logic. The subscription-based model, which entails the payment of a fee by readers in exchange for access, remains the dominant mechanism of dissemination of scholarly work (Elsevier, 2013). According to estimated, only 20% of the global peer-reviewed literature is available for free on the Web and, at this rate, it is suggested that it will take several decades for all the literature to become Open Access (Gargouri, Larivière, Gingras, Carr, & Harnad, 2012).

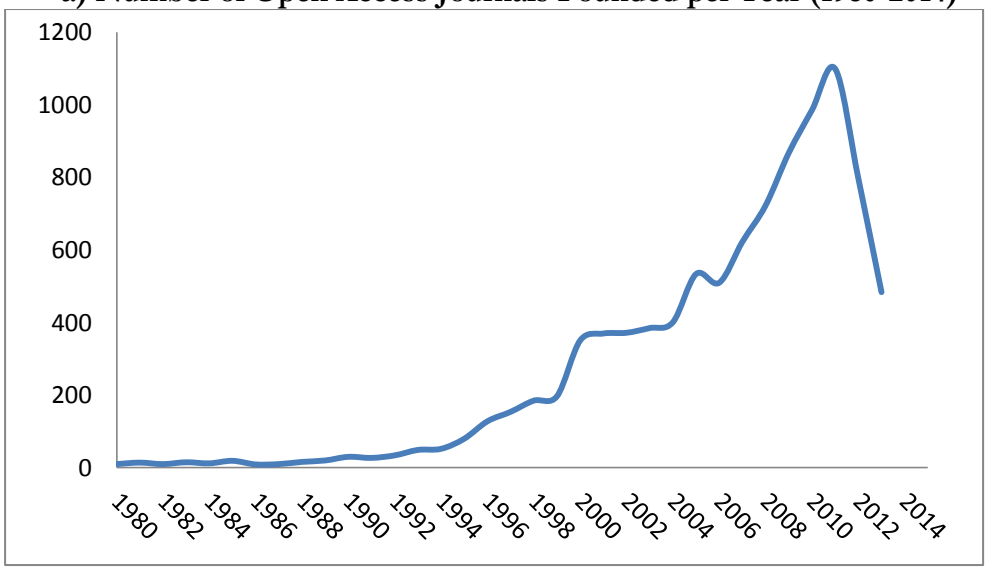
Importantly, until *all* the literature (or at least the majority of contributions published in 'must-have' journals) will be available for free on the Internet, university libraries will not in the position to cancel subscriptions. As a consequence, commercial publishers are still the dominant players in the industry, even though Open Access has to some extent impacted how these corporations operate. More

precisely, the development of an alternative publishing model based on Open Access publishing is changing the ecology of organizations that populate the highly concentrated publishing industry. Early on, Open Access publishing was generally regarded by the academic community as a dangerous and "unproven experiment" (Frank, 2004) and very few ventures were willing to embark in such endeavor. In the last five years the number of Open Access journals has seen a steady increase, with a remarkable spike in 2010-2011 (see Figure 4a and Figure 4b).

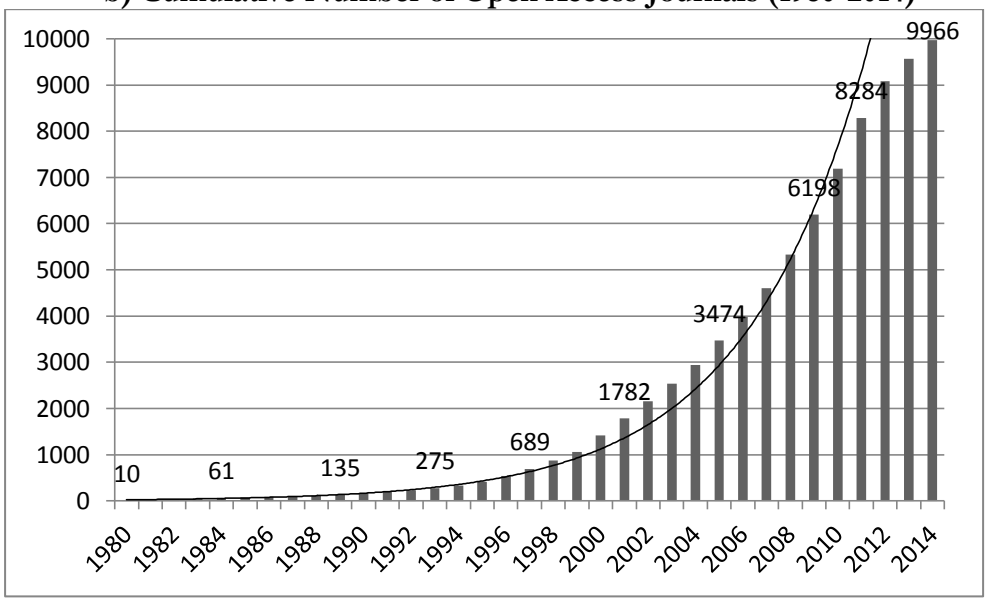
Multinational publishing companies initially resisted the principle behind Open Access, but they have begun to adapt their structures and practices to accommodate this new paradigm. In 2004, copyright policies were relaxed to allow researchers to comply with mandates from public funding agencies archive (ROMEO Database, 2014). Further, commercial publishers perceived early on the opportunity to strategically leverage it by creating Open Access hybrid programs. Hybrid options allow authors of accepted peer-reviewed articles to pay a fee in order to make their published article immediately available in open access. Springer was the first publisher to offer an 'Open Access Choice' in 2004 (Suber Timeline, 2004; Springer Press Release, July 1 2004). In a few months, Springer was imitated by virtually every other commercial and non-profit publisher, such as the American Institute of Physics (2004), Blackwell Publishing and Oxford University Press (2005), Elsevier, John Wiley, American Chemical Society, Taylor and Francis and Cambridge University Press (2006).

FIGURE 4

a) Number of Open Access Journals Founded per Year (1980-2014)



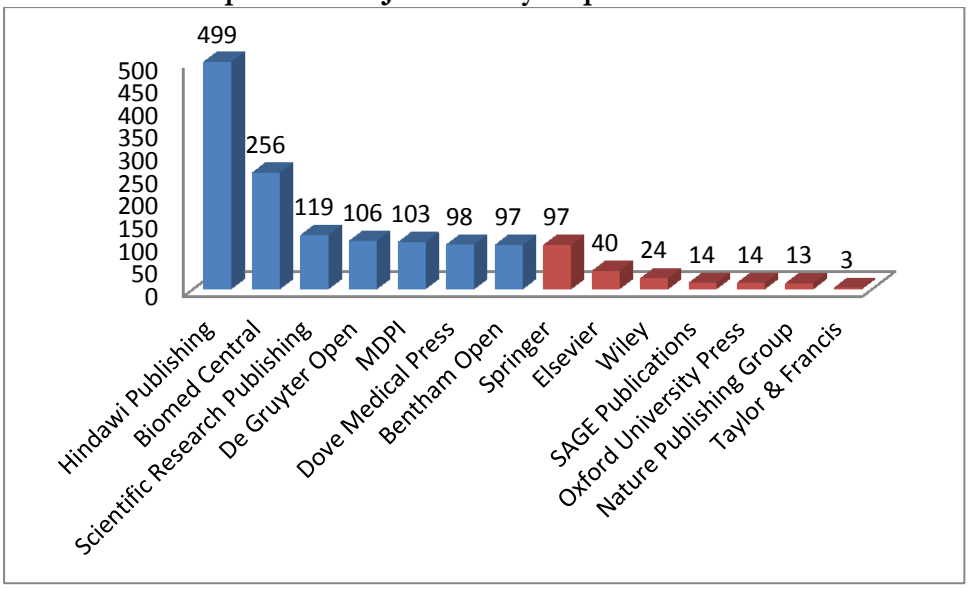
b) Cumulative Number of Open Access Journals (1980-2014)



Further, even though major publishing corporations periodically question the author-fees business model and still doubt its financial sustainability (Butler, *Nature*, 2008), they have recently ventured in the publication of Open Access journals, in order to "address the needs of customers and researchers" (Elsevier Annual Report, 2013). As Figure 5 reveals, the growth in the number of Open Access journals is still

primarily due to the founding of new publishing ventures. These new publishing organizations are electronic-only Open Access publishers that have followed the example of Biomed Central and Public Library of Science.

FIGURE 5
Number of Open Access Journals by Top OA and Commercial Publishers



(Source: Database of Open Access Journals, accessed March 11, 2015)

The Case of Open Access as Failed Institutional Displacement and Accommodation

By asking to make the scientific literature *immediately* available upon acceptance for publication on the Internet to *everybody* at *no cost* for the readers, the movement created a vision for a radical departure from the status quo. This vision aimed at leveraging the immense potential of the Internet to make it a "public library of science", where knowledge would have been accessible to everyone able to connect to the Web. In this vision, academic articles, after been submitted to journals for peer-review, would have been made available for free on the Web, permanently accessible to researchers and the public (Varmus, 2009). Thus, activists rejected the

commercial logic that had come to dominate the exchange of knowledge to reconnect with the key principle that scientific knowledge is a public good and thus it should be treated and distributed according to the public logic (Willinsky, 2006).

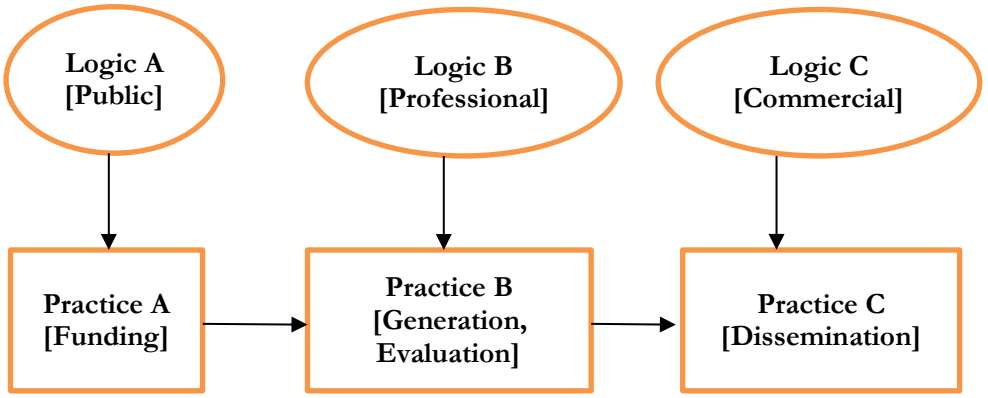
The mobilization for Open Access transformed the field of scholarly publishing from a community of organizations (Scott, 2014), where the relationships between networks of actors are well-understood and institutionalized practices are highly coordinated, into a social arena (Fligstein & McAdam, 2012) where "challengers" of the status quo emphasize contradictions and leverage tensions. The push for change challenged the dominance of large publishing corporations, whose role and value were now questioned. Embracing the Access principle and "freeing the literature" required commercial publishers to relinquish their primary source of revenues (i.e. subscriptions). As initially envisioned, Open Access constituted a threat to the existence, not only the profits, of publishing corporations (Suber, 2012).

Figure 6 provides a simplified visual representation of the constellation of institutional logics in the field of publishing and the practices they govern. Figure 6a shows the status quo, with a clear delineation of logics and the practices they govern. Figure 6b shows the institutional displacement that activists sought to achieve (vision for radical change). The vision for radical change included a shift in the institutional logic that govern Practice C (i.e. the dissemination of scientific knowledge) from a commercial logic (i.e. knowledge as a private good that can be accessed for a price) to a public logic (i.e. knowledge is a public good that should be non-rival and non-excludable). Figure 6c shows the convergent change in the field in the form of logics' contraction and expansion. The public logic has been expanded to a sub-segment of Practice C (i.e. the dissemination of published articles at time2, six months or one

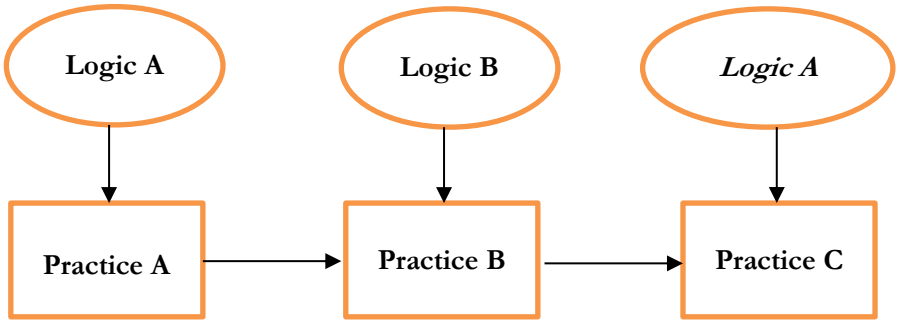
year after publication); Logic C remains in control but is contracted; that is, temporally limited to time1.

FIGURE 6
Institutional Change in the Constellation of Logics and Practices

a) Status quo



b) Vision for radical change - Shift [from C to A] over practice C



c) Convergent Change – temporal segmentation of practice C, contraction of logic C and expansion of logic A

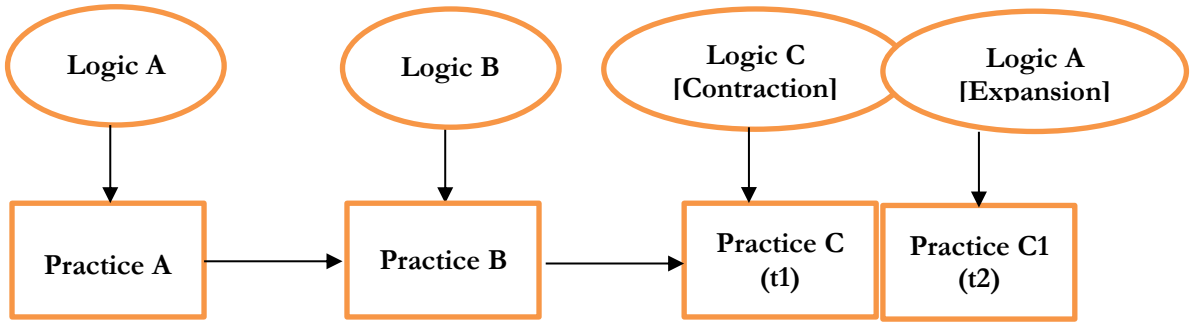


Table 4 provides a summary of the implications of the radical institutional change that activists sought to achieve and the convergent institutional change that has been accomplished for dominant organizational forms and their organizational practices. A shift in institutional logics entailed: (1) the deinstitutionalization of the publishing corporation as dominant organizational form and its replacement with a new template of (publicly-subsidized) Open Access publisher; and (2) the deinstitutionalization of subscription-based dissemination practices. Open Access would prevail as default dissemination practice and Article Processing Charges as main revenue-generating practices for publishers.

As indicated in the Table, the movement has succeeded in infiltrating Open Access in the field but change has been convergent, rather than radical. The intervention of the State has mandated that knowledge is a "semi-public" good. In consequence, the dominant organizational form and subscription-based dissemination practices have not been abandoned. The contraction/expansion of institutional logics has stimulated new field-level practices that support the dissemination of findings after publications. The movement has also spurred the diffusion of a new organizational form (i.e. Open Access publishers) and organizational-level practices of commercial publishers have been altered accordingly to include Open Access (i.e. hybrid models). In consequence, there is an increasing variety of organizational forms in the field of scholarly publishing. In addition to traditional for-profit and non-profit publishers that adhere to the subscription-based model, there are now three other organizational forms: (i) "hybrid" publishers that combine the subscription-based model with the author-pays model; (ii) Open Access publishers that fully rely on an author-pays model; and (iii) Open Access publishers

that rely on private funding and therefore do not charge authors Article Processing Charges (APC).

TABLE 4
Scope of Institutional Change in Scholarly Publishing

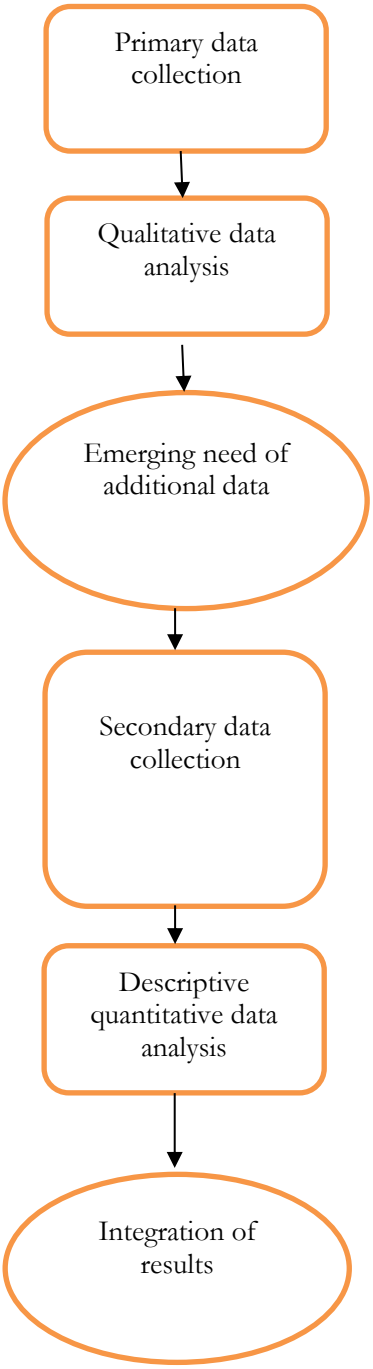
Field Characteristics	Status Quo	Radical Change	Convergent Change
	Shift of dominant institutional logic governing knowledge dissemination		**Logics' contraction (commercial) and expansion (public)**
Dominant logic of knowledge dissemination	• Commercial logic	• Public logic	• Commercial logic • Public logic
	Deinstitutionalization of dominant organizational form		**Diffusion of new organizational form**
Representative organizational forms	• Multinational for-profit publishers	• Template for Open Access publishing (publicly-subsidized)	• For-profit Open Access publishers • Non-profit Open Access publishers
	Deinstitutionalization of dominant field-level practice		**New practice creation**
Dissemination practices	• Subscription-based: readers pay subscription to access content	• Full Open Access • Article Processing Charges covered by grants	• Free access after embargo period (12 months) • Subscription-based with Open Access option (hybrid) • Open Access with Author Processing Charges (APC) • Open Access without Author Processing Charges (APC)

Research Design: The Choice of Methods

I designed a longitudinal field-level analysis of a case of institutional change that combines *qualitative data analysis* of archival materials, interviews and non-participant observations with *bibliometric network analysis*. While the use of a mixed methods design can be "fixed" (i.e. predetermined and planned at the start of the research process), in my case it was "emergent" (Johnson & Onwuegbuzie, 2004; Tashakkori & Teddlie, 2010). The qualitative analysis was not able to adequately capture some of the effects of institutional change at the level of analysis of the scientific community. Thus, a secondary data collection of bibliometric data was added while the study was underway (Morse & Niehaus, 2009). Figure 7 presents a visual model of the mixed-methods procedure.

The mixed methods approach involves the collection and analysis of both qualitative and quantitative data (Greene, Caracelli, & Graham, 1989). The core assumption of this form of inquiry is that the combination of qualitative and quantitative approaches provides a more complete and refined understanding of a research problem than either approach alone. In particular, according to Creswell (2013), the mixed methods approach is valuable at three levels: at a general level, analytical procedures that combine qualitative and quantitative methodologies enable researchers to leverage upon the strengths of both methods while minimizing their weaknesses; at a practical level, mixed methods provide a novel sophisticated approach to conduct innovative type of research; at a procedural level, mixed methods is a useful approach to gain a more nuanced and complete understanding of a research question/problem.

FIGURE 7
Visual Model for Design Procedures



PROCEDURE	OUTCOME
Collection of: • Archival materials • Interviews • Non-participant observation	Database of text material
Coding and thematic analysis • Creating a narrative of field-level change • Capturing evolving strategic interactions • Connecting actions to outcomes • Linking outcomes and theorizing mechanisms	Data structure • 24 first-order codes • 11 second-order themes • 5 theoretical dimensions
In-depth exploration of theoretical dimension "institutional anchoring" • Choice of bibliometric network analysis • Choice of Biomedical community	Definition of method and case selection Design choices
Citation data from the Thompson's Journal Citation Report (JCR) database of biomedical journals • number of citations that a journal y (cited) receives to any of its articles previously published from any journal x (citing) in the given time slice year [1999, 2005, 2001] Directory of Open Access journals (DOAJ) • founding and conversion dates	Decision 1: network bounding Decision 2: stability of subject categories Decision 3: temporal granularity Decision 4: selection of data to create partitions
Visual inspection of networks with Pajek and VOS Viewer Analysis of network measures of centrality and univariate statistics with UCINET 6	Networks graphs Tables with measures Core-periphery partition
Interpretation of theoretical dimension "institutional anchoring" Triangulation and cross-checking of other theoretical dimensions	Refinement of first-order codes and second-order themes for the theoretical dimension " institutional anchoring" Development of process model

The combination of two methods allowed me to gain an understanding of changes that occurred in a relatively dispersed empirical setting (i.e. the scholarly publishing field), at multiple levels of analysis, and over a relatively long period of time (i.e. two decades). Although my approach was exploratory and aimed at inductive theory building, the collection of quantitative data provides an excellent foundation for subsequent testing. My analysis follows a sequential mixed methods approach (Creswell, 2013). The two data sets were collected and analyzed in sequence. The results of the respective analyses were compared and integrated in the interpretative phase.

DESCRIPTION OF DESIGN PROCEDURE

Primary Data Collection

The qualitative dataset comprises three different types of data – archival materials, interviews, and non-participant observation – collected from multiple sources. I used archival materials as primary source. Archival research methods are based on the investigation of documents and textual materials produced by and about organizations (Kieser, 1994; Ventresca & Mohr, 2002). These methods are versatile, as they can be applied to materials that range from historical accounts to digital texts including electronic databases, emails, and web pages. I chose to use a design that draws heavily on archival methods for three reasons. First, archival methods have the ability to convey the complexity of the social processes involved into field-level transformations and the inherent struggle and contestation that characterize processes of institutional change (Scott et al., 2000; Hargadon & Douglas, 2001; David et al., 2011). Although interviews, ethnographies and observations are highly

appropriate methodologies to gather rich illustrations and in-depth understanding of organizational phenomena, archival methods are a good option for investigating large-scale institutional change processes at the field level (Ventresca & Mohr, 2002; Kaiser, 1994).

Second, archival methods provide a rich set of tools to reconstruct with great accuracy sequences of events and mitigate the risk of retrospective bias that is typically associated with interview data. Archives enable a researcher to draw robust conclusions from the data. Documents and texts produced by and about contemporary organizations are able to render behaviour in specific time and societal contexts (Zald, 1993, cited in Ventresca & Mohr, 2002). Third, in the specific case of Open Access, archival methods are particularly appropriate because archival materials are extraordinarily abundant. The motivation for such abundance is twofold: (a) the movement is geographically dispersed and web-based. That is, it was born and propagated primarily on the web through web pages, blogs, newsletters, online petitions, online publications and electronic communications in variegated forms; (b) the "open access" ideology of the movement has made most of the archival materials written by and about the actors involved openly available and conveniently accessible in electronic version. These three conditions – ability to capture complexity of social change, accuracy in reconstructing events and richness of data and data sources – make my field-level study particularly suitable for exploration through archival methods.

Interviews and notes from non-participant observation were used as supplementary sources of information. They were used to confirm my interpretation of the events, integrate archival data in cases of scant or contradictory information,

and check the trustworthiness and reliability by triangulating multiple sources (Jick, 1979; Miles & Huberman, 1984). Secondary data sources were also essential to connect apparently uncorrelated events and inform my understanding of the often complex relationships between a wide array of different field-level actors (academics, librarians, publishers, associations, and universities).

Data Sources

Archival materials. Data collection started with a careful examination of the FOSN (Free Online Scholarship Newsletter) a timeline that Peter Suber, the unofficial leader of the Open Access movement, began to compile with events starting in the early 1990s (http://legacy.earlham.edu/~peters/fos/index.htm). The timeline provides a detailed list of events associated with Open Access and supplements the brief description of each event with links to related documents and resources. I read the timeline carefully and revisited it multiple times to familiarize myself with the institutional change in scholarly publishing. The timeline suggested a more selective data collection. I retrieved all the texts and documents mentioned in the timeline compiled by Peter Suber and classified them according to two criteria: (i) chronologically, and (ii) the source of provenance, based on whether the texts were produced by social movement organizations (i.e. Scholarly Publishing Academic Resources Coalition), librarians, academics, publishers (traditional and Open Access), governments, or media.

This classification of the producers of texts (Maguire & Hardy, 2009) was used to search for additional data. For example, in order to better understand the claims of the Open Access movement and its potential changes over time, I browsed the SPARC website and systematically retrieved the promotional and educational

material (including blogs, discussion forums, and early publications such as *Open Access News* – now discontinued). I also read four books (*In Oldenburg's Long Shadow*, written by Jean Claude Guedon in 2001; the *Open Access Principle*, written by John Willinsky in 2006; *The Art and Politics of Science*, written by Harold Varmus in 2009; and *Open Access*, written by Peter Suber in 2012). Similarly, to appreciate the point the view of librarians, I collected documents and publications related to the 'serial pricing crisis' written by librarians and members of the Association of Research Libraries (ARL), including the ARL Annual Reports, available surveys, and material from workshops and presentations on the impact of electronic publishing on libraries.

To understand the point of view of academics on Open Access, and capture their involvement in debates on scholarly communication, I searched for articles about Open Access and scholarly communication published in academic journals (e.g., *Nature*, which has published special issues on the debate around academic publishing from 2001 to 2004; *Science*, *Proceedings of the National Academy of Science* (PNAS)) and consulted publicly available surveys of academics on the topic (e.g., the SOAP survey whose results have been released in 2011). Additional materials, i.e. editorials and commentaries on Open Access by editors of prestigious academic journals, missions and editorials of newly-created Open Access journals or journals which "converted" from subscription-based journals to Open Access publishing, press releases and annual reports from publicly traded publishing companies, were used to understand the points of view of publishers on Open Access and the implications of changes in publishing models.

Finally, I sought to understand whether regulators, funding agencies, external consultants, analysts, and the general media sources were favourable, skeptical, or neutral towards the claims of the movement. To this end, I collected reports on the publishing industry written by Research Committees, funding agencies, consultants, and governments (primarily in the US and UK), and media articles from the general press. By cross-referencing the retrieved documents, additional online sources were found and consulted, such as blogs discussing Open Access and scholarly communication, e.g. Richard Poynder's "Open and Shut" blog (http://poynder.blogspot.ca/), Michael Eisen's blog "It is NOT junk (http://www.michaeleisen.org/blog/). As a collective, these data sources informed my understanding of the sequence of events, the positions of different stakeholders in the debate, the varying degree of their involvement over time, and the rationales of both supporters and critics of Open Access.

Interviews. To supplement archival materials, I conducted twenty semi-structured interviews with key informants. Informants were selected based on their direct involvement in the Open Access movement and/or knowledge about the changes in scholarly communication. For example, the interviews to one of the leaders of the Open Access movement and a senior executive member of SPARC were revelatory to understand the trajectory of the movement. These interviewees signalled the need to probe deeply into the obstacles faced by the movement and the debates that happened 'behind the scenes' (2 informants). The rest of the interviews were conducted with members of the library community in charge of purchasing library collection (8 informants), university administrators at Offices of Scholarly Communication (2 informants), academics actively involved or knowledgeable about

Open Access (4 informants) and representatives of publishing companies (4 informant). I asked my informants to illustrate their activities and eventual involvement in Open Access initiatives; the relationship between librarians, academics and publishers was also examined by asking informants to reflect upon the current state and the changes occurred in the higher education publishing field.

Non-participant Observation. Data were also collected from non-participant observation of seminars, conferences, and workshops. These events, organized by a wide array of organizations (e.g. SPARC, publishing companies, and librarians) offered the opportunity to witness discussions and lively debates about the role that publishers have in scientific communication and the positive and negative reactions to the proposed changes. Observation was conducted both *in situ* and remotely. Whenever possible, I attended events in person. For instance, I attended the event organized by Harvard University for the launch of the book *Open Access* by Peter Suber in October 2012. The launch of the book represented an opportunity to see the author reflecting on the origins and progress of the Open Access movement, and listen to the lively Q&A session that followed. Additionally, given the informal setting of the event, I was able to approach Peter Suber and have informal conversations with a few members of the library community at Harvard University. Other events attended in person include sessions on Open Access publishing organized in 2012 and 2013 at the University of Alberta during Open Access Week (October 21-25) on the following themes: (1) the NIH policy on Open Access, (2) metrics for the evaluation of scientific outputs in the Digital Age, (3) policies for the creation of institutional repositories, and (4) meeting with an Open Access publishers – Biomed Central.

When it was not possible to attend in person, I participated to webinars (web-seminars) and watched online videos of previously held conferences and seminars available on YouTube. For example, watching videos such as "Who pays for Open Access?" (http://www.youtube.com/watch?v=x-Wwukfwiek) helped me to appreciate economic arguments in favor and against new publishing models and observe the effect of deeply the shared assumptions and beliefs about research and publishing on the attitude of individuals and organizations towards change. Similarly, other videos deepened my understanding of policies and initiatives undertaken by universities and professional associations (e.g., "The Harvard Open Access initiative" at www.youtube.com/watch?v=xQBuXlW1gxc) and "The future of learned societies" at youtube.com/watch?v=PrxXQuDGUhY).

Qualitative Data Analysis

Following techniques for analyzing qualitative process data from heterogeneous sources (Langley, 1999; Locke, 2001; Reay, 2011Langley, Smallman, Tsoukas, & Van de Ven, 2013), I conducted an inductive analysis of archival materials, interviews and notes from non-participant observation. The analysis consisted of four stages, during which I moved iteratively between data and theory in order to aggregate primary data in emerging themes and identify theoretically meaningful aggregated dimensions (Gioia, Corley, & Hamilton, 2013). The linkages between aggregate dimensions were theorized in a process model. The data structure is presented in Figure 8.

First stage: Creating a narrative of field-level change. In this stage of the analysis, I used a strategic narrative approach (Stryker, 1996) to analyze the development of issues over time. I sifted through the vast amount of data multiple times in order to organize them into a coherent narrative. I organized the data in

chronological order, highlighted the sequence of events – the "plot" – and the voices of the stakeholders involved – the "protagonists" of the story (Pratt, 2009). Particular attention was given to the interactions between different stakeholders, in order to capture the relative salience and positioning of these groups over time. In this phase, my primary interest was the assessment of the type of impact that Open Access has had on the field of scientific publishing. When no new evidence emerged from the data, I wrote an historical narrative of the case study. The narrative summarized key events, delineated the starting point, intermediate and final outcomes and began to unveil the strategic interactions between actors seeking change ("challengers") and actors defending the status quo ("incumbents").

Second stage: Capturing evolving strategic interactions. In this stage, the historical narrative and the original sources were re-examined in order to capture the strategic interaction of the actors and understand how they affected field-level change (de Bakker, den Hond, King, & Weber, 2013). Although the coding process was informed by my knowledge of the (stereo)typical distinction between "challengers" and "incumbents" (Fligstein & McAdam, 2012), I approached the data openly, keeping in mind that actors may shift positions over time. To this end, it is essential not to enforce constructs from the literature and to retain the language of the original data (Gioia et al., 2013). I manually compiled a comprehensive set of incidents, grouped them based on common themes and then labelled each first-order construct with a short phrase. Twenty-four first-order codes emerged from this round of coding. These categories began to reveal the evolutionary trajectory of field level events: the evolution of "challengers" from a relatively small group centered around librarians ("serial pricing crisis") to a well-organized group with financial

backing ("financial endorsement") proposing a new business model of publishing ("Open Access publishing as a win-win solutions"); they also revealed the responses of "incumbents" in the form of increasing involvement of public funding agencies and state-governments ("referee role of funding agencies" and "pressure to act") and commercial publishers ("lobbying of publishers' associations" and "commercial publishers embrace Open Access publishing").

Third stage: Connecting actions to outcomes. I then proceeded to the axial coding of the first-order constructs. The codes were contrasted and compared, looking for similarities and differences between them. I also went back and forth between the data and the literature, comparing emerging concepts with theoretical analytical categories (Gioia et al., 2012). For example, the first-order code "talking poverty to the rich" captured the observation that Open Access activists elaborated arguments based on high costs of publications and inability to access them; however, their audience was relatively insensitive because they had no direct experience of such problems. I connected the lack of emotional arousal to the analytical concept of "hot cause" (Rao, 2008). In particular the focus on "serials pricing crisis" and the fact that this argument was used to (unsuccessfully) mobilize academics provided support for the aggregation into the second-order theme "emotionally unappealing hot cause". The same approach was used for the twenty-four first-order codes. I often went back to the historical narrative and original data to check my interpretation. This iterative process led to the refinement of the first-order codes and the elaboration of eleven second-order themes.

Fourth stage: Linking outcomes and theorizing mechanisms. In the last stage of analysis, I focused on the theoretical linkages between second-order themes and

aggregate them in theoretical dimensions. Two dimensions "failure of bottom-up deinstitutionalization" and "failure of top-down deinstitutionalization" captured the failure of the deinstitutionalization goals originally pursued by the Open Access movement. The distinction between bottom-up and top down deinstitutionalization was based on two elements that emerged from the first three steps of the analysis: (1) the type of mobilization strategies used by activists (contentious mobilization in the former and rationalized theorization in the latter) and (2) the audience to which the mobilization was targeted (targeted to proximate academic communities in the former and to referee actors such as funding agencies and governments in the latter). Other two dimensions – "theorization re-targeting" and "institutional arbitration"– emerged clearly from the qualitative analysis as field-level *mechanisms*. Theorization re-targeting is a mechanism that explains how the "failure of bottom-up deinstitutionalization" did not stop activists' efforts and triggered the events that eventually led to the dimension "failure of top-down deinstitutionalization". Likewise, institutional arbitration is a mechanism that explains the causal link between the dimension "failure of top-down deinstitutionalization" and some observed outcomes of convergent change (i.e. logic's contraction and expansion and new practice creation).

Importantly, the qualitative analysis provided suggestive evidence for other observed field-level outcomes (i.e. the diffusion of Open Access publishing as a new organizational form). Archival data and interviews suggested that organizations such as Biomed Central and Public Library of Science had been relatively successful. However, it was often difficult to discern the facts from the rhetoric. Importantly, evidence of increasing legitimation of the new form was counterbalanced by the

negative discourse about new Open Access publishers as "predatory" organizations. I therefore decided to create a temporary aggregate dimension "institutional anchoring" and conduct a more in-depth analysis of the qualitative emerging themes by adding a quantitative phase and triangulate with bibliometric network data. I wanted to check whether Open Access journals published by Biomed Central, Public Library of Science and other newly-founded Open Access publishers were really being accepted as legitimate outlets for publication by scientists.

Emerging Need of Additional Data: Bibliometric Networks

An analysis of institutional change in scientific publishing cannot be satisfactorily completed without understanding the effect of Open Access on the "hierarchy of science" (i.e. the status and relationships between academic journals). Hence, this part of my study sought to better understand whether Open Access has been able to challenge the highly stable, stratified structure of scholarly publishing by combining archival research methods with bibliometric network analysis.

Social network analysis has a long-standing tradition in the social sciences to study interactional (e.g., social) networks (see Brass, Galaskiewicz, Greve, & Tsai, 2004; Provan, Fish, & Sydow, 2007 for reviews). Some scholars, however, have begun to use relational modeling techniques originally developed for the study of social networks to capture culture, in the form of structuration (van Wijk et al., 2012), power dynamics (Mohr & Neely, 2009), and institutional logics (Jones & Livne-Tarandach, 2008). Thus far, however, bibliometric networks based on citations have been more typically used by scholars in Information Science to map disciplinary intellectual domains, study the intellectual structure of research fields, and infer some of the characteristics of the corresponding scientific community (Velden et al., 2010;

White & McCain, 1998; Zhao & Strotmann, 2008).

I used bibliometric network data to capture the acceptance of Open Access journals in an academic community. My argument is that citations are also cultural constructs, very much similar to vocabularies of words. Citations are "the codes and media of scientific communication" (Riviera, 2013) and they significantly contribute to the stratification of academic science (Crane, 1969). Thus far, citations have been considered an engine for the reproduction of scientific communities (Riviera, 2013). Interestingly, tracking changes in citations may be revealing of change as well, with alterations in citation practices being the primary mechanism. Importantly, the use of bibliometric network analytic techniques reveals the theoretical link between institutions at the micro-level – the cultural forces that inform and orient scientists' citation practices – with institutions at the macro-level – acceptance as reflected in citation behaviors. Such perspective would have been hardly noticeable had the analysis been conducted exclusively with archival methods.

Secondary Data Collection

To create network maps, I focused on the Biomedical Sciences as a discipline. This is the community where changes in the bibliometric networks should be more accentuated. The Open Access publishing model was pioneered by biomedical publishers (i.e. Biomed Central and the Public Library of Science) and the author-pays model is more likely to diffuse in disciplinary domains such as biomedical studies where scholars typically have large availability of funding to cover processing fees. Additionally, biomedical scientists were expected to be particularly sensitive to the potential of Open Access publishing, given their lively participation to the debate around the criticality of ensuring the rapid dissemination of biomedical

breakthroughs. Preliminary examination of other disciplines revealed heterogeneity and confirmed the appropriateness of selecting the biomedical community for exploratory purposes. For instance, qualitative evidence indicates that scholars in Chemistry are skeptical of Open Access journals. In fact, there are only 18 newly-founded OA journals in the JCR database (versus 88 biomedical journals) and none of them are top ranked in the Chemistry category (versus 3 Open Access Biomedical journals in the top 10).

I manually collected citation data from the Thompson Journal Citation Report (JCR) website for the population of journals listed in the category "biomedical sciences". Citation data for journals listed in the JCR are reliable and available through university library access. Journals in the JCR database are considered as high quality based on the attribution of the Impact Factor (IF). In order to argue that Open Access publishing has had any significant impact on the field, we should be able to see a relatively visible impact on this "elite" group of journals. The delineation of the discipline biomedical sciences and the selection of data required attending to four methodological issues.

Issue 1 – network bounding: JCR reports data at the level of the sub-discipline (e.g. audiology), not the entire discipline (e.g. biomedical sciences). Hence, the first issue was to decide which ISI subject categories to use to map the discipline of biomedical sciences. It was decided to base the delineation upon disciplinary clusters found in the literature on science maps (Rafols, Porter, & Leydesdorff, 2010) based on factor analyses of citations patterns between ISI subject categories in 2007 and 2010.

Issue 2 – stability of subject categories: the science maps are dynamic because of

changes in the definition of JCR subject categories but, more importantly, because science evolves and new areas of research emerge (e.g. toxicology). The issue here was to decide which science maps to base the delineation on. It was decided to include the *union* of subject categories that are mapped in the biomedical sciences macro categories in the 2007 and 2010 maps (see Table 5 for the list of categories).

TABLE 5
List of Disciplinary Categories in the Biomedical Sciences

1999	2005	2011
Biochemistry & Molecular Biology	Biochemistry & Molecular Biology	Biochemistry & molecular biology
Biology	Biology	Biology
Biology Miscellaneous	-	-
Biochemical research methods	Biochemical research methods	Biochemical research methods
Biophysics	Biophysics	Biophysics
Biotechnology & applied microbiology	Biotechnology & applied microbiology	Biotechnology & applied microbiology
Cell biology	Cell biology	Cell biology
Anatomy & Morphology	Anatomy & Morphology	Anatomy & morphology
Developmental biology	Developmental biology	Developmental biology
Andrology	Andrology	Andrology
Genetics & Heredity	Genetics & Heredity	Genetics & heredity
Endocrinology & metabolism	Endocrinology & metabolism	Endocrinology & metabolism
Medical laboratory technology	Medical laboratory technology	Medical laboratory technology
Medicine, legal	Medicine, legal	Medicine, legal
Medicine, research & experimental	Medicine, research & experimental	Medicine, research & experimental
Microscopy	Microscopy	Microscopy
Multidisciplinary sciences	Multidisciplinary sciences	Multidisciplinary sciences
Nutrition & dietetics	Nutrition & dietetics	Nutrition & dietetics
Obstetrics & Gynecology	Obstetrics & Gynecology	Obstetrics & gynecology
Oncology	Oncology	Oncology
Pathology	Pathology	Pathology
Pharmacology & Pharmacy	Pharmacology & Pharmacy	Pharmacology & pharmacy
Physiology	Physiology	Physiology
Reproductive biology	Reproductive biology	Reproductive biology
Toxicology	Toxicology	Toxicology
		Mathematical & computational biology
		Cell & tissue engineering

Issue 3 – temporal granularity: JCR provides annual citation data since 1998 (University of Alberta access). Because data were retrieved manually from the JCR website, collecting data for each year seemed excessively onerous and not particularly relevant for the purpose of the analysis. Further, changes in the network are expected to take more than one year to be visible. These considerations led to the decision to collect data at three different points in time: 1999, 2005, and 2011. These three years have been selected based upon natural breaking points in the development of Open Access (Björk et al., 2010). The 1999-2005-2011 slices are appropriate to capture visible differences in the citation network as a result of the progressive inclusion of Open Access journals in the JCR database. In 1999, the movement was still in its preliminary stage and an extremely limited number of Open Access journals had been indexed in the JCR; in 2005, Open Access entered a growth stage, with an increasing number of Open Access journals being launched; finally, in 2011, Open Access entered a stabilization and consolidation stage.

Issue 4 – selection of additional data to create partitions: the citation data collected from JCR enable the visualization of the knowledge structure of scientific disciplines based upon subject categories (White & McCain, 1998; Velden et al., 2010; Zhao & Strotmann, 2008). I collected two additional variables to create partitions in the data and enable the mapping of the evolution of the network. The first partition classifies journals based upon their Open Access status (OA-born; OA-converted; non-OA). To create this partition, I manually collected founding and 'conversion' dates of Open Access journals from the Directory of Open Access Journals (DOAJ). Given the limited reliability of the database, I directly contacted by email the editors of journals and/or administrators to retrieve the correct date. The

second partition classifies journals based upon the name of the publishing company owning the journal, e.g. Elsevier. I recoded each name of publisher under the denomination of the holding company, e.g. Springer Group, to account for mergers and acquisitions over the years. An overview of data sources is provided in Table 6.

TABLE 6
Overview of Data Sources and their Use in the Analysis

DATA	DOCUMENT TYPE AND SOURCE	YEARS	USE IN ANALYSIS
ARCHIVAL MATERIALS	• Peter Suber Open Access newsletter • Books by Guedon, Willinsky, Varmus and Suber • • Promotion and educational material from Scholarly Publishing Academic Resources Coalition (SPARC) website (www.sparc.arl.org) • Reports, talking points, position statement and statistics from Association of Research Libraries (ARL) website (www.arl.org) • Papers, editorials, essays, commentaries, letters to the editors from academic journals (general search in Google Scholar, Google, Web of Science, and specific search in *Nature* and *Science*) • Statements, press releases, annual reports, commentaries and announcements from publishers, Association of STM Publishers (www.stm-assoc.org) and Open Access Scholarly Publishers Association (www.oaspa.org) • Directives, reports, policies from governments and funding agencies websites (i.e. US Congress, National Institute of Health, RCUK, European Union) • Media coverage, commentaries, secondary interviews from media and commentators (search in Factiva, and blogs, e.g. www.poynder.blogspot.ca)	Since 1990 2001; 2006; 2009; 2012 Since 1997 Since 1990 Since 1997 Since 2000 Since 2004 Since 2000	• Create historical narrative • Track changes in publishing practices • Track regulatory changes • Track emergence of Open Access journals • Understand motivations, interests, values and actions of actors (librarians, academics, professional associations, commercial publishers, funding agencies, government)
INTERVIEWS	Semi-structured and open interviews (20) • Leader of the Open Access movement and executive member of SPARC (2 informants) • Librarians in charge of purchasing collections (8 informants) • University administrators at Offices of Scholarly Communication (2 informants) • Academics engaged in promoting Open Access (4 informants) • Representatives of publishing companies (4 informants)	2012-2013	• Understand claims and actions of actors (triangulation) • Capture 'backstage' events and relationships
NON-PARTICIPANT OBSERVATION	Participation to Open Access events, seminars, and workshops (in situ and remotely) • Open Access Week events • YouTube videos of meetings, seminars, and presentations • Webinars	2012-2013	• Capture contested issues and emotional involvement of actors
BIBLIOMETRIC DATA	Citation data from the Thompson's Journal Citation Report (JCR) database of biomedical journals • number of citations that a disciplinary journal y (cited) receives to any of its articles previously published from any journal x (citing) in the given time slice year [1,2,3] Directory of Open Access journals (DOAJ) and emails to publishers • founding and conversion dates	Three time slices [1]:1999 [2]:2005 [3]:2011	• Visualize 'hierarchy of science' • Track changes in relationships between journals • Creation of partitions for networks

Descriptive Quantitative Data Analysis

The exploratory quantitative data analysis of network data was conducted in three stages.

Stage I: Generate visualizations of the networks. In this stage of analysis, I created visualization of the network in order to provide a representation of the network data in a graphic form that shows the vertices (nodes) and their relationships (ties or edges). Visual network maps were produced for each year (1999, 2005 and 2011) using Pajek (Powell et al., 2005) and VOS Viewer (Van Eck & Waltman, 2010). Compared to the NetDraw tool in UCINET typically used in social network analysis, Pajek and VOS Viewer are able to visualize large networks.

Importantly, the networks are un-directed, weighted network in which the nodes represent the 'cited' journals and the links represent associations between journals. The association is based on how they are getting cited by those journals from which they receive most of their citations. Specifically, the link between journals is calculated based on the "similarity" of their citation vectors. A citation vector consists of the number of citations received by a focal journal by each of the journals that have cited it. Citation data used are the total cites (number of citations from citing journal in a reference year (1999, 2005, and 2011). The similarity between two journals, therefore, is a non-negative number between 0 and 1 that is calculated based upon Salton's cosine similarity measure for a pair of cited journals (see Egghe & Leydesdorff, 2009). The closer the number is to 1, the more similar the citation vectors of two journals will be. In terms of network visualization, two journals with a high similarity measure will appear close to each other.

I visualized the network graphs with VOSviewer for inspection using a partition

(attribute vector) that distinguishes the status of each journal based on its Open Access status. Red dots represent journals that in the given year were not Open Access; blue dots represent journals that have been "converted" to Open Access; and green dots represent journals that have been founded (i.e. born) as Open Access journals. The size of the node is based on the total number of articles published by a journal in a given year.

This stage of the analysis informed an initial understanding of the extent to which Open Access penetrated the JCR rankings of journals and the position of new journals. Questions about drivers of network evolution also emerged. While my cross-sectional sample does not allow hypotheses testing, I sought to delve deeper and more systematically uncover temporal differences in the networks with some simple descriptive statistics in the second stage of analysis.

Stage II: Descriptive statistics of the networks. I used UCINET in combination with VOS Viewer to conduct an exploration of the changes in the networks. Three network characteristics were examined: (i) networks size, (ii) composition of the network according to the Open Access status of its nodes, (iii) cohesion measures for three types of networks. First, the *whole network*, that comprises all nodes; second, the *connected network*, that includes only those nodes that have an active connection with other nodes (i.e. they are not isolates); and third, the *core network*, that includes only those nodes that are "core" based on the strength of their links with other nodes. The core/periphery function in UCINET 6 was used in order to identify the partition of nodes in core and peripheral.

In this stage, I was able to identify which Open Access journals had been able to access the "core" of the network and to assess whether the competitive positioning

of established journals had been eroded. A third step of analysis was used in order to explore deeper the composition of the nodes in the core network, their centrality and the strength of their ties.

Stage III: Exploration of the core network. The more manageable number of nodes allowed me to look more carefully at each node. For each node in the network, I calculated two centrality measures. The first measure is the *total link strength*. This measure represents the sum of the strength of the links that a focal node has with other nodes in the core network. It was obtained with the command "univariate statistics in UCINET" and is also reported in VOS Viewer. The Bonacich measure of centrality in UCINET was also calculated. I used an attenuation factor (or beta parameter) of +0.5 based on the consideration that in my networks the effect of a journal's neighbor connections on its power is a positive function. Being connected to journals that are more connected makes a journal more central and more powerful.

This analysis confirmed the effect of the entrance of Open Access journals on the relative positioning of journals in the centrality ranking. Additional analysis on the 2011 network was conducted to assess whether Open Access journals would be connected more strongly to other Open Access journals (versus non-OA journals). To do so, I calculated how much strongly each category of journals (OA converted, OA born and non-OA) is connected to nodes in its category and any other category.

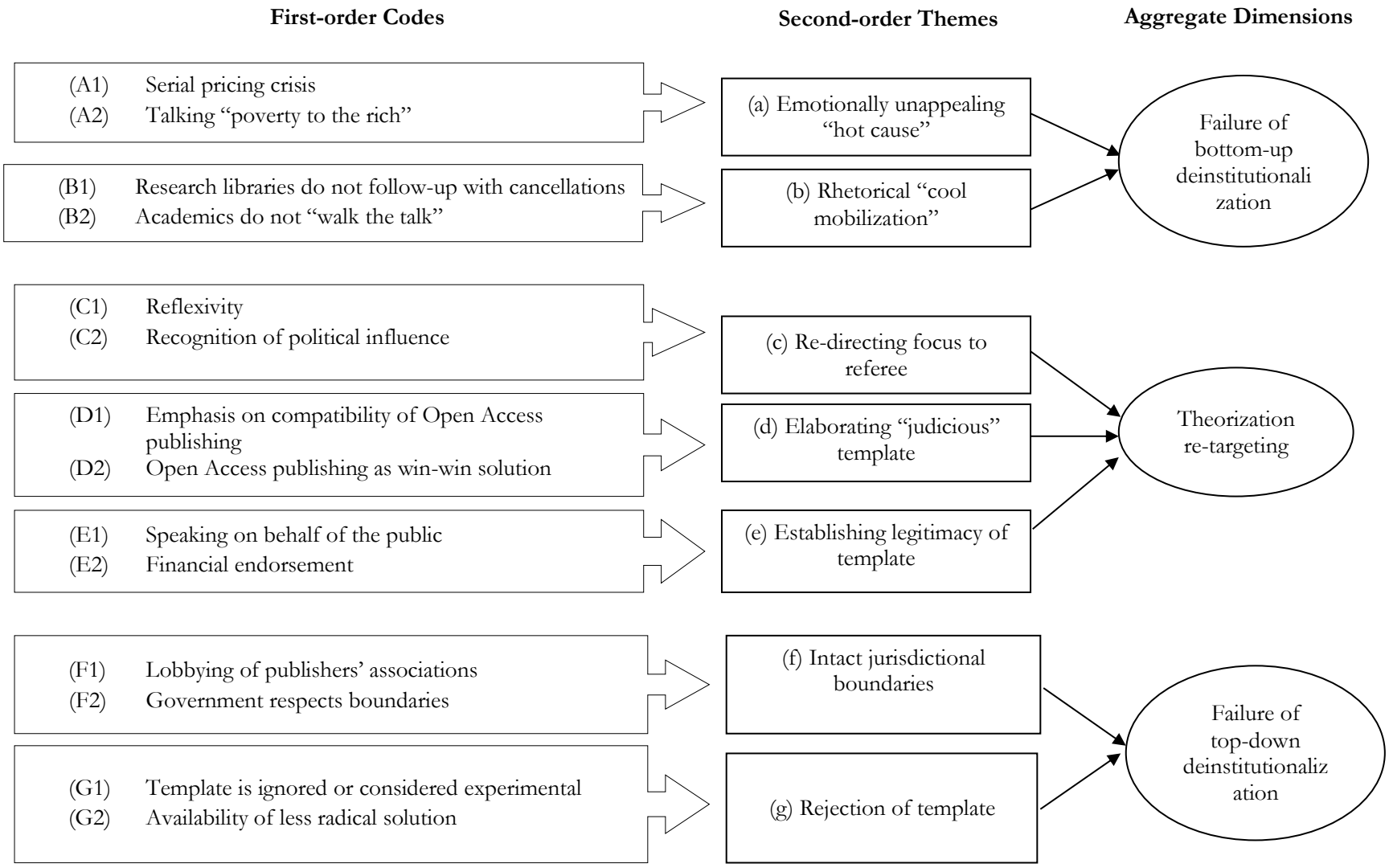
Integration of Results

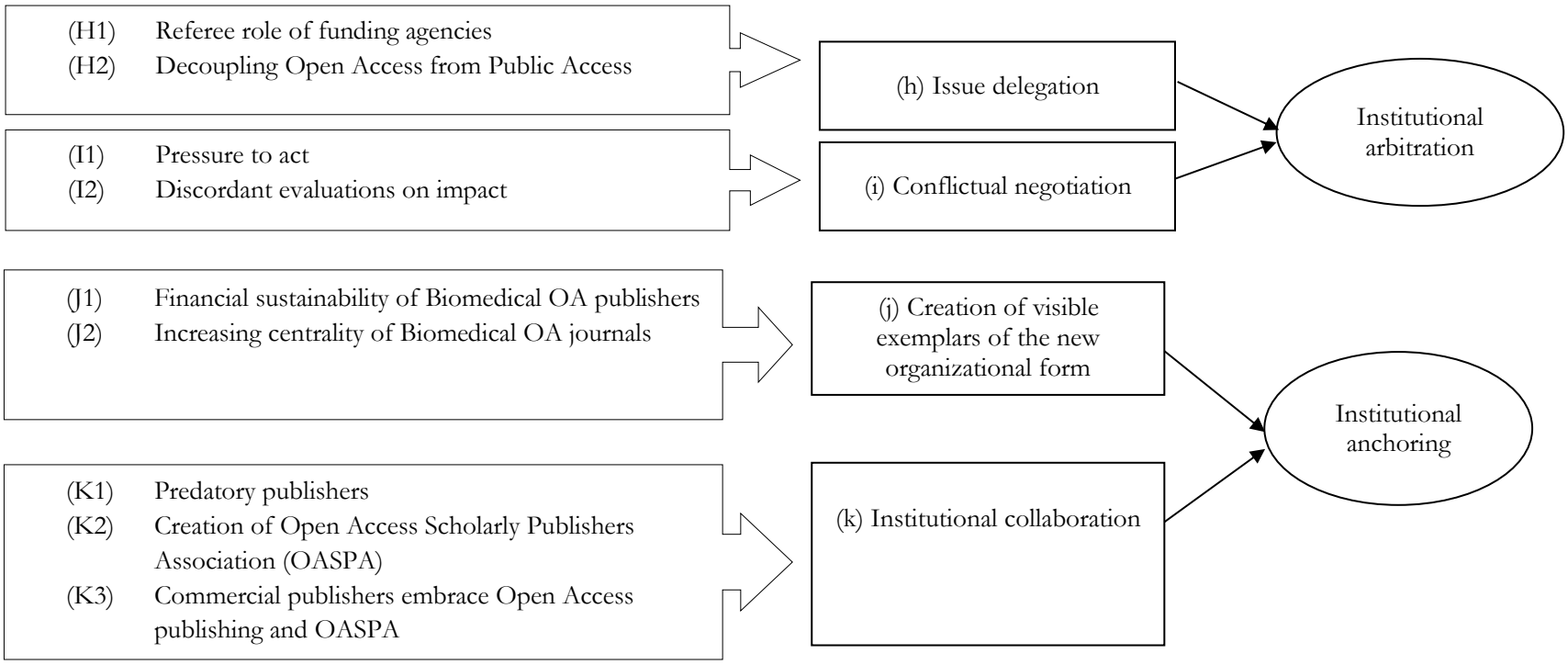
Although exploratory, the quantitative analysis of network data was very helpful to refine the first-order codes, second-order themes of the previously identified aggregated dimension "institutional anchoring". For example, my previous

understanding that Biomedical Open Access publishers were "successful" was better qualified and confirmation was found that non-OA journals and their publishers still have a quite strong presence in the competition between journals. Further, because the network analysis covered the year 1999 and 2005, I triangulated data sources and confirmed the adequacy of my previous interpretation for other codes and themes. For instance, the effect of Open Access journals on Journal Citation Report rankings emerged as negligible at least until 2005, despite the increasing media attention to Open Access.

The combination of the two analyses enabled the refinement of the data structure, which is reported in Figure 8. Illustrative evidence from the data is reported in Chapter IV and V to support the presentation of the findings. The aggregate dimensions were then linked together to elaborate a theoretical process model. This step required another round of iteration with the literature. The model, which is discussed in Chapter VI, identifies two critical processual phases of institutional change. The first phase is "failed institutional displacement"; the second phase is "institutional accommodation". The model offers theoretical elaboration of how and why deinstitutionalization attempts fail and, critically, how and why convergent institutional change resulted from such failed attempts.

FIGURE 8
Data Structure




(H1) Referee role of funding agencies
(H2) Decoupling Open Access from Public Access
(I1) Pressure to act
(I2) Discordant evaluations on impact
(J1) Financial sustainability of Biomedical OA publishers
(J2) Increasing centrality of Biomedical OA journals
(K1) Predatory publishers
(K2) Creation of Open Access Scholarly Publishers Association (OASPA)
(K3) Commercial publishers embrace Open Access publishing and OASPA
(h) Issue delegation
(i) Conflictual negotiation
(j) Creation of visible exemplars of the new organizational form
(k) Institutional collaboration
Institutional arbitration
Institutional anchoring

Chapter IV

FINDINGS: HOW AND WHY RADICAL FIELD-LEVEL CHANGE FAILED

Chapter IV reports the empirical findings of the investigation of the first research question. *How and why does a revolutionary process of change aimed at radical field-level change (institutional displacement) fail?* The chapter shows that Open Access activists sought to displace the commercial logic that governs the dissemination of scientific knowledge and replace it with the public logic (radical change). Displacement was sought through two deinstitutionalization attempts. The bottom-up deinstitutionalization of the dominant practice (i.e. rejection of the use of subscriptions in exchange for access) and the top-down deinstitutionalization of the dominant organizational form through replacement with a novel template of organizing (i.e. publishing organizations using publicly-subsidized author-fees instead of subscriptions as main source of revenues). This chapter explains why both forms of deinstitutionalization were used, which field-level actors were involved and why the attempts eventually failed. I structure the findings around the aggregate dimensions and second-order themes emerged from the analysis. Illustrative evidence is provided in the Tables that accompany the text.

The Beginning: Implementing the Vision for Radical Change

In the early 1990s the development of digital technologies in the publishing field promised to revolutionize the existing paradigm of scholarly communication by enabling the shift from a costly, slow, print-based communication regime to a fast, cost-effective, electronic-based alternative. In particular, two communities had great

expectations about the change brought about by the Internet: the library community – that considered the publishing system to be dysfunctional, and "badly in need of repair" (Case, 2002: 10) and the academic community – that perceived the publishing system to be inefficient and constraining.

In 1997, academics and librarians began to implement such vision for radical change with the founding of SPARC, the Scholarly Publishing Academic Resources Coalition. The main concern of the library community was the rising cost of journals subscriptions (the "serials pricing crisis"). Research libraries had been worried since the 1980s by the progressive concentration of the publishing industry – dominated by few large commercial publishers – and the steep increase in subscriptions prices (Association of Research Libraries Report, 2004). In 1988 the Association of Research Libraries (ARL), that represents over 200 libraries in North America, commissioned a study of trends in average subscriptions prices. The study covered the years from 1973 to 1987 and concluded that "the distribution of a substantial portion of academic research results through commercial publishers at prices several times those charged by the not-for-profit sector is at the heart of the serials crisis" (Economic Consulting Services Report, 1988: 43; Case, 2002). For librarians, the emergence of the Internet represented an unprecedented opportunity to significantly lower the costs of publication for publishers and, consequently, translate these savings in reduction of subscriptions prices for libraries (Awre, 2003).

The potentialities of web-based scientific communication were also evident to those academic communities who consistently struggled with slow speed of communication and the long time needed for papers to be published in printed journals. Many academics believed that the Internet would have dramatically reduced

delays and improved scholarly communication. In High Energy Physics (HEP), for instance, exchanging papers before publication is a long-standing, albeit costly, practice. By enabling electronic papers to be exchanged with no temporal and geographical barriers (Taubes, 1996), scientists hoped to eliminate the limitations of sending materials by regular postal mail (Brown, 2001; Tompson, 2001). Inspired by the values of freedom and democracy imbued in the electronic medium, other scholars went further and began to question the role of publishers. Perennial discussions about the tyranny of the status hierarchy created by the citation impact factor rankings resurfaced (Lawrence, 1999). Scholars lamented the "servitude" of scholars to the interests of profit-maximizing organizations and the increasing marginalization of scholars in developing countries who could not access state-of-the-art knowledge locked-up in expensive journals (McCabe & Snyder, 2005).

SPARC started an aggressive advocacy campaign – named Declaring Independence – intended to challenge the dominance of commercial publishers and their allegedly exploitative practices by promoting competition in the marketplace (Albanese, 2001; Blixrud, 2002; Garwin, 1998; Bachrach, 2001). In particular, the organization intended to "encourage innovative uses of technology to improve scholarly communication" (Johnson, 1999). The organization immediately excluded the possibility to become a publisher (Case, 2002) and sought to ignite change from the *bottom-up* and start changing the *practices* of scholarly communication. Although SPARC could ignite change, librarians were keenly aware that appealing to researchers was the key to ensure change. As Mary Case, the director of the US Association of Research Libraries noted (Case, *Nature*, 21 Jan 1999): "the real success will come if authors and editors look at the titles they support, and refuse to sit on

editorial boards, submit to and review papers for some of these expensive titles. This is the dramatic change that has to take place to iron out the distortions in the market."

SPARC leveraged feelings of anger and frustration to push academics to "regain control over publishing" and subvert the current system by rejecting the "Faustian bargain" that commercial publishers had imposed on academics (Harnad, 1995). In an attempt to spur a wave of resignations of journals editors and other academic gatekeepers, SPARC gave ample resonance to the stories of editors of prestigious journals (published by commercial publishers) who courageously decided to resign from their position to protest journals' price increase to start (affordable or free) electronic journals. These statements were divulgated as "Declarations of Independence" and used to offer examples of bravery and integrity. The one below is the statement of Henry Hagedorn, who resigned as editor of the *Archives of Insect Biochemistry and Physiology* (then Wiley-Liss) in order to launch the *Journal of Insect Science* (a free online journal published by the University of Wisconsin Library and supported by SPARC):

> "I resigned as Editor of *Archives* because I strongly feel that commercial publishers are ripping academic scholars off. By being an editor for *Archives* I was an accomplice to highway robbery […] Beyond the issue of cost, the commercial journals have also subverted the basic concept that is essential to academic communication; free access. Since Gutenberg, academic publishing has been tied to paper, and that tied us to an expensive method for the dissemination of our work. In the previous century this evolved into a lucrative commercial operation. Authors were obliged to trade the copyright to their work to ensure its publication so they could get tenure. It was a particularly insidious bargain because it allowed market forces to distort the basic drive of academia to disseminate ideas and encourage discussion. Forcing readers to pay dearly for the right to read our work is the last thing we want; free dissemination should be the long-term goal. I think the goal is attainable."

SPARC also took a leading role as incubator, endorsing new publishing ventures in the non-profit sector considered to "give value for the money" (Garwin, 1998).

Academics willing to create new electronic cost-effective journals that could compete with established journals were supported morally and financially (Michalak, 2000; Savenije, 2004). In turn, libraries that joined SPARC promised to cancel subscriptions to highly priced journals in order to free resources necessary to support these non-profit ventures.

SPARC was relatively successful in generating interest in its initiatives and gaining recognition and support from libraries. The number of its members increased from 76 Founding members in 1997 to 115 by the end of 1998. By the end of 2001, it had over 200 members (SPARC website). In 1999, the campaign initiated by librarians started to have resonance within scientific communities. In particular, biomedical scientists showed particular sensitivity to the progress that Internet could bring to science and society. In the hope of constructively stimulating change, three eminent scientists – Patrick Brown, from Stanford University School of Medicine, Harold Varmus, Nobel Prize winner and at the time Director of the National Institute of Health (NIH) and David Lipman, Director of the US National Council for Biotechnology Information (NCBI) proposed to create an electronic publishing website – E-Biomed – to reunite the functions of collection, organization, and dissemination of both peer-reviewed and non-peer-reviewed literature in a community-led archive freely and openly accessible to anyone (Varmus, 1999, E-Biomed proposal). After extensive public consultation, the resistance of publishers (including learned societies) led to the rejection of the original proposal and the transformation of E-Biomed into PubMed Central (Kling, Spector, & Fortuna, 2004), a "pale shadow of the revolutionary new electronic publications system that Varmus had envisioned" (Poydner, 2006).

Dissatisfied with the outcome, Varmus and Brown then joined Michael Eisen, a researcher at the University of California Berkeley, to continue their battle by founding a not-for-profit advocacy organization named Public Library of Science (PLoS). On March 23rd 2001, they made a call to boycott publishers who refused to archive their articles in PuMed Central. Their Open letter was published in the journal *Science*.

> "We recognize that the publishers of our scientific journals have a legitimate right to a fair financial return for their role in scientific communication. We believe, however, that the permanent, archival record of scientific research and ideas should neither be owned nor controlled by publishers, but should belong to the public and should be freely available through an international online public library. To encourage the publishers of our journals to support this endeavor, we pledge that, beginning in September 2001, we will publish in, edit or review for, and personally subscribe to only those scholarly and scientific journals that have agreed to grant unrestricted free distribution rights to any and all original research reports that they have published, through PubMed Central and similar online public resources, within 6 months of their initial publication date."

The letter received extensive attention because of the high profile of the proponents and the coverage by the scientific and popular press. More than 30,000 signatures were collected in a few weeks. Similarly to SPARC, that attempted to mobilize academics by leveraging upon their pride and frustration, the founder of PLoS insisted for scientists to "take full control of the publishing process", emphasizing that it was "free, untaxed by the parasites in the publishing world" (Brown, cited in *Nature*, 2000).

Over time, it became evident that the campaigns initiated by SPARC and PloS had not been successful. The response of academics to SPARC's call for disruption was less enthusiastic than expected. Between 1989 and 2004 there were only 14 episodes of resignation of editors or entire editorial boards, and none after that date (Suber, *Timeline Open Access*). In consequence, commercial publishers did not find

sporadic episodes of resignation of editorial boards and the creation of alternative journals by rebellious academics particularly disruptive or of serious concern. They reacted by bringing in new editors and, when necessary, renaming their journals (Doyle, Gass, & Kennison, 2004). Additionally, a survey conducted by SPARC among their members in 2001 revealed that the campaign had not significantly altered the purchasing policies of research libraries, a commitment that constituted the backbone of its incubating strategy (Case, 2002). The outcome of PloS' protest was equally unsuccessful and the boycott was officially declared a failure (Reich, 2001). So, why did that happen?

The Failure of Bottom-up Deinstitutionalization

Two elements are needed to ensure a successful mobilization: "*hot cause"* and "*cool mobilization"* (Rao, 2008). A hot cause is needed for activists "to arouse to action individuals who are usually busy, distracted, uninvolved, or apparently powerless. Hot causes arouse pride or anger and impel individuals to invest time and energy" (Rao, 2008: 9-10). While hot causes are needed to foster emotions, cool mobilization is essential to "activate emotions and enable the formation of new identities by engaging audiences in new behaviors and experiences" (Rao, 2008: 11).

Feelings of perceived injustice and cumulated grievances against the dominant position of commercial publishers provided the hot cause for the mobilization of librarians and a small fraction of academics. Critically, however, one of the key reasons why this attempt of bottom-up deinstitutionalization failed is because the "hot cause" that SPARC and librarians evoked was relatively *emotionally unappealing* to the majority of academics. Librarians had been complaining about the issue of serials pricing since the 1980s, to little avail. As a member of the library community simply

put it, "academics are often unware or uninterested in the cost of publishing" (Interview, Librarian, 2012). Additionally, academic institutions in the United States (where the mobilization was sparked) are overall well-positioned in terms of access to research. These two elements – the fact that the majority of academics in the US is shielded from the preoccupations of libraries about affordability of scientific journals and did not experience directly the frustration of lack of access – prevented SPARC's campaign from successfully generating the desired 'domino effect'.

There is, however, a second reason that emerged as equally influential in determining the failure of the mobilization: the interests of librarians, academics and publishers are tightly interlocked by career and incentive systems (Guedon, 2001). As a result, much of the cool mobilization that librarians and scientists engaged in was rhetorical, rather than effective. SPARC became aware of such *rhetorical cool mobilization* when the libraries that pledged support for new venture and to cancel the competition did not follow through (see Table 7, B1); similarly, a few academics who signed the petition of PLoS declared that they "simply wanted to make a point". In principle, academics scientists were sensitive to the responsibilities of scientists towards society. In practice, however, the interlocking of publishing practices with career systems prevented scientists from "walking the talk" (see Table 7, B2).

Very few scientists were willing to jeopardize their career by volunteering to renounce to publish in – and being associated with – the most prestigious biomedical journals. In theory, academics could cut the supply of submissions to journals and therefore transform overnight the terms and conditions of their relationship with publishers. In practice, academics had both strong interests in *not* changing their behavior in order to continue to gain the benefits accrued from the persistence of

the status quo. Scientists would not change their behavior because not publishing in highly prestigious journals (owned by commercial publishers) represented a self-sabotage of their careers. Table 7 provides additional supporting evidence.

TABLE 7
Illustrative Evidence of "Failure of Bottom-up Deinstitutionalization"

Aggregate dimensions, second-order themes and first-order codes	Illustrative evidence
FAILURE OF BOTTOM-UP DEINSTITUTIONALIZATION	
Emotionally unappealing "hot cause"	
(A1) Serials pricing crisis	"Over the last 15 years the library community has been faced with high and ever rising prices for scholarly resources (i.e. serials pricing crisis). A number of factors have contributed to this situation, most fundamentally, the commercialization of scholarly publishing. (Case, ARL Director *Advances in Librarianship*, 2002)
(A2) Talking "poverty to the rich"	"Scientists depend on publishing for career advancement, but they do not pay directly for journals, so they have no incentive to stop submitting to high-priced titles. And, as long as publishers attract good authors, libraries will come under pressure to buy journals, some of which they cannot afford. ARL data shows that library spending per US faculty member averages $ 12,000 per year. If researchers internalized the price of journals in their budgets they would behave differently." (McCabe, Jan 21 1999, *Nature*)
Rhetorical "cool mobilization"	
(B1) Research libraries do not follow-up with cancellations	"The SPARC Members Survey had revealing that adding and canceling journal titles is not as straightforward a process as SPARC founders had hoped. Librarians indicated that they were reluctant to add a new title until it had established itself or had been requested by a faculty member. Very few libraries indicated that they planes to cancel the competition." (Case, ARL Director, *Advances in Librarianship,* 2002)
(B2) Academics do not "walk the talk"	"When the PLOS boycott deadline came and went, PLOS claim that the boycott failed because the publishers wouldn't change. But could it be that it failed because so many of the scientists who signed it didn't follow through on what they said they would do? When I queried some of the signatories about their discrepancy between pledge and action, they said essentially that they didn't really mean it, but they just wanted to make a point." (Reich, APS Director, 2001, *The Physiologist*)

Theorization Re-targeting

By 2002, activists realized that profound change to the publishing system would have been very difficult to achieve by keeping the focus on fighting publishers. In fact, changing publishing practices was hardly possible without requiring the self-infliction of damage to scientists' careers (Interview, Movement Leader, 2012). The reflexivity about the great hurdle of precipitating endogenous change within academia prompted activists – led by PloS and SPARC – to redefine their strategies and collectively re-organize. Promoters of Open Access met in Budapest and launched the Budapest Open Access Initiative (BOAI). This milestone event signalled the shift of the mobilization from a relatively dispersed group that campaigned aggressively against publishers to a coordinated movement that actively promoted a broad reform of scientific publishing.

Importantly, for the first time, activists obtained significant financial support. The BOAI initiative was sponsored by the Open Society Institute of philanthropist George Soros with 3 million US$ (BOAI, 2012; Suber, 2012). The new strategy elaborated during the meeting was to promote radical change from the top-down rather than bottom-up. As the Director of SPARC (Johnson, Conference Presentation at University of Oklahoma, 2004) affirmed:

> "The coordination problems associated with bottom-up change suggest that top-down action -- coming from national governments and funding bodies -- may be needed to put open access solidly on track, at least in the near term."

To this end, activists engaged in *theorization re-targeting* and, more precisely, in three activities: (i) re-directed focus from contender to referee actors; (ii) elaborated a "judicious" template; and (iii) established the legitimacy of the Open Access template. First, activists re-directed their attention from their proximate contenders

(i.e. publishers) to "referee" actors (i.e. public funding agencies and governments). Such a shift was meant to win support from institutional stakeholders with the capability to "impose" change upon academics and publishers. Despite their significant authority in scholarly publishing, until this moment funding agencies had not been involved in the contestation between publishers and the coalition of academics and librarians. Indeed, funding agencies were expected not to be involved in publishing at all. Failure to maintain this neutrality was regarded as concerning in scholarly circles. For example, as soon as the National Institute of Health offered to physically host the central publishing repositories E-Biomed in 1999, concerns about a potential "conflict of interest" were raised in the biomedical community (Varmus, 1999, *Public comments to E-Biomed proposal*).

For Open Access (i.e. the free and unrestricted access to the academic literature) to happen, its promoters realized that it had to become a theme of public policy. The intervention of public funding agencies was the natural consequence of the recognition that political influence was essential. To this end, promoters had to *theorize* the intervention of public agencies as a necessity and elaborate a template that could provide a valid Open Access alternative to the traditional subscription-based model (Brown et al., 2003). During the event Open Access was officially defined:

> "By "open access" to this literature, we mean its free availability on the public internet, permitting any users to read, download, copy, distribute, print, search, or link to the full texts of these articles, crawl them for indexing, pass them as data to software, or use them for any other lawful purpose, without financial, legal, or technical barriers other than those inseparable from gaining access to the internet itself. The only constraint on reproduction and distribution, and the only role for copyright in this domain, should be to give authors control over the integrity of their work and the right to be properly acknowledged and cited." (BOAI Declaration, 2002)

The specification of Open Access as an abstract category was followed by the elaboration of a template of Open Access publishing. More precisely, the commercial

publisher BioMed Central in the UK and the Public Library of Science pioneered the template of Open Access as a "business model of publishing" (Adam, 2003; Butler, 2003; Shearer, 2002). As the founders of Public Library of Science explained:

> "We founded the Public Library of Science three years ago as a grassroots organization of scientists, advocating the establishment and growth of online public libraries of science, such as the National Institutes of Health's PubMed Central, to provide free and unrestricted access to the scientific literature. Today, with the launch of PLoS Biology, we take on a new role as publishers, to demonstrate that high-quality journals can flourish without charging for access. Our aim is to catalyze a revolution in scientific publishing by providing a compelling demonstration of the value and feasibility of open-access publication." (Brown et al., 2003, *PLoS Biology*)

The core feature of this template was the free availability of papers upon publications to any reader and a reversed funding model to sustain the costs of publication and dissemination. While the traditional subscription-based model is funded by readers (i.e. universities through research libraries), the two publishers introduced an author-pay model based upon article processing charges (APC), where fees paid by authors at the moment of the final acceptance of the manuscript cover the costs incurred by the publishers. Funding agencies were asked to dedicate a portion of their grants to the payment of these fees, based on the argument that the dissemination of research through publishing is an integral part of the research process.

Between 2002 and 2004, Open Access publishers made efforts to persuade field-level constituents that their new model of publishing would enable a profound reform of the system of scholarly communication. This was a critical moment for the movement. On the one hand, Open Access publishers had to convince funding agencies that the proposed model did not constitute a threat to peer-review and it was not an untested business model that put the quality and reputation of journals at risk. Particular emphasis was given to the compatibility of this model with existing publishing practices and even with the interests of the publishing industry. The Open

Access model was presented as a win-win solution: it made the goal of unconstrained access to the literature obtainable while retaining a healthy publishing industry (a "judicious" template). Once all publishers converted to this model, Open Access publishing would become a sustainable (and profitable) industry.

On the other hand, the movement had to establish its own legitimacy in order to convince regulators that change was necessary because the current publishing system was no longer addressing critical needs. To this end, activists emphasized that the rationale for supporting Open Access was not the "affordability of journals" or a war against commercial publishers but "public access" to the results of scientific research. The open dissemination of published literature was abstracted from academic settings and previously heralded issues were significantly deemphasized. The "public" was now invoked as the primary relevant stakeholder. This extract of the BOAI declaration illustrates the emphasis of the movement's claims:

> "An old tradition and a new technology have converged to make possible an unprecedented ***public good***. The old tradition is the willingness of scientists and scholars to publish the fruits of their research in scholarly journals without payment, for the sake of inquiry and knowledge. The new technology is the internet. The ***public good*** they make possible is the world-wide electronic distribution of the peer-reviewed journal literature and completely free and unrestricted access to it by all scientists, scholars, teachers, students, and other curious minds. Removing access barriers to this literature will accelerate research, enrich education, share the learning of the rich with the poor and the poor with the rich, make this literature as useful as it can be, and lay the foundation for uniting humanity in a common intellectual conversation and quest for knowledge." (BOAI Declaration, 2002, emphasis added)

Between 2003 and 2004, the movement for Open Access slowly established its legitimacy. The Budapest Open Access Initiative (February 14, 2002) was followed by the Bethesda Statement on Open Access Publishing (June 20, 2003) and the Berlin Declaration on Open Access to Knowledge in the Sciences and Humanities (October 22, 2003). The movement received official endorsements by several members of the academic community. With unprecedented resolution, Faculty

Senates at major academic institutions, such as Cornell, Harvard, Stanford, Maryland, MIT, University of California and Columbia, condemned the "exorbitant pricing" charged by publishers to libraries. Similarly, professional associations, including the Royal Society, the Medical Library Association, the Association of Learned and Professional Society Publishers (ALPSP) released public statements that encouraged reforms to widen access to scientific publications and endorsed, although cautiously, 'experiments' with open access publishing (*Open Access newsletter*, 2004). Critically, much needed financial endorsement for the Open Access model came from private funding agencies. The two largest private funders of biomedical research in the world – the US Howard Hughes Medical Institute (HHMI) and the UK-based Wellcome Trust accepted to assign funding to the payment of author processing charge (Butler, 2003).

Between December 2003 and June 2004, the US House Appropriation Committee had been alerted and conversations were ongoing; similarly, the UK House of Commons Science and Technology Committee and the European Commission launched inquiries into the prices and accessibility of scientific journals, and access to research findings. In the UK, the debate also included the question whether the government should support Open Access journals. Table 8 provides additional supporting evidence.

TABLE 8
Illustrative Evidence of "Theorization Re-targeting"

Aggregate dimensions, second-order themes and first-order codes	Illustrative evidence
THEORIZATION RE-TARGETING	
Re-directing focus to referee	
(C1) Reflexivity	"I was naïve not to have anticipated the furore. I must have known that I was not going to be at NIH for much longer because this caused a tremendous political argument: what the hell was I trying to do to destroy the publication industry." (Interview to Varmus, quoted in *New Scientist*, 2003)
(C2) Recognition of political influence	"You have to be pragmatic, working on policy in Washington, DC. We've seen a typically slow, iterative process over the years, and it has slowed down now; the stakes are a lot higher" (Interview with SPARC Executive, 2012)
Elaborating "judicious" template	
(D1) Emphasis on compatibility of Open Access publishing	"PLoS will begin by publishing two journals - PLoS Biology and PloS Medicine - that will retain all of the important features of scientific journals, including rigorous peer-review and high editorial standards, but will use a new business model in which the costs of these services are recovered by modest fees on each published paper." (Announcement from PloS, 2002)
(D2) Open Access publishing as win-win solution	"Because publishing is an integral part of the research process, a natural alternative to the subscription model is to consider the significant but relatively small costs of open-access publication as one of the fundamental costs of doing research. The institutions that sponsor research intend for the results to be made available to the scientific community and the public. If these research sponsors also paid the essential costs of publication—amounting, by most estimates, to less than 1% of the total spent on sponsored research we would retain a robust and competitive publishing industry and gain the benefit of universal open access. (Brown et al., *PLoS Biology*, 2003)
Establishing legitimacy of template	
(E1) Speaking on behalf of the public	"Scientists and budget-squeezed librarians have long railed against publishers' stranglehold on scientific literature, to little avail. But with surprising political acumen, the Public Library of Science -- or PLoS -- has begun to make "open access" scientific publication an issue for everyday citizens, emphasizing that taxpayers fund the lion's share of biomedical research and deserve access to the results. (Weiss, *Washington Post*, Aug 5 2003)
(E2) Financial endorsement	"The Howard Hughes Medical Institute in the US has strongly endorsed this concept by offering to cover the costs of open access publication by means of a budget supplement to each of its investigators." (Announcement from PloS, 2002)

Failure of Top-down Deinstitutionalization

National inquiries confirmed that the current market structure was "not operating in the long-term interests of the research community and the public good element of scientific work; market solutions are therefore inefficient" (UK House of Commons Science and Technology Committee, 2003). The US Appropriation Committee also expressed "concerns that insufficient public access was not in the best interest of American tax-payers" (Congress Reports, 2004). Both the US and UK governments, however, did not acquiesce to force a regulatory intervention that would have deinstitutionalized the existing model of knowledge dissemination (House of Commons Science and Technology Committee Report, 2004; NIH Open Access policy, 2004; *ASCB Newsletter*, 2006).

Two conditions prevented the deinstitutionalization of the subscription-based model from the top-down: *intact jurisdictional boundaries* and the *rejection of the Open Access publishing template* (see Table 9 for illustrative evidence). First, a potential ruling in favor of Open Access publishing required governments to extend the scope of their actions beyond agreed-upon jurisdictional boundaries between the State and the Market. In particular in the US, regulatory interventions on market issues are typically frowned upon as "inappropriate intrusion of free enterprise" (Association of American Publishers, quoted in Kaiser, 2004, *Nature*). Entangled in the web of national political strategies and under the pressure of powerful lobbies of publishers (see quote F1 in Table 9), the US Congress did not make full use of its regulatory power to push the issue.

Instead, on July 14 2003, the U.S. House Appropriations Committee issued a statement proposing that the National Institutes of Health (NIH) require open

access to NIH-funded research through deposit in the NIH's PubMed Central within six months of publication. No mention to Open Access publishing as a template was made. In other words, the US Congress responded to growing concerns about access to publicly-funded research by supporting the *archiving* of biomedical published papers after publication in the national biomedical repository PubMed Central. Not only did this political stance leave large concessions to publishers, but it also narrowed down the public access issue to the dissemination of research findings generated within a single discipline (i.e. biomedical sciences) and supported by a single funding agency (i.e. NIH).

Although a compromise, activists welcomed the intervention of the US Congress as a major win for the movement. As Peter Suber (Suber, *Open Access News*, 2004) commented "OA through archiving is less expensive, less disruptive, and more readily scalable than OA through journals, although OA through journals is no less essential. Publishers have already won large concessions and should be satisfied. For the first time ever, we have a realistic political chance of achieving a significant wave of bona fide OA in one giant step." Nevertheless, supporters of Open Access publishing waited the release of the UK House of Commons report in the hope of receiving a strong endorsement that could have eventually spilled over to US policy makers (Interview, OA leader, 2012).

The UK House of Commons Science and Technology Committee conducted a 7-months inquiry, leading to four sessions of oral testimony, with 23 witnesses and 143 written submissions. Leaders in research, libraries, universities, publishing, and government proffered arguments for and against Open Access to help answer the question whether the government should be more involved in publishing, eventually

supporting Open Access journals (Suber, 2003). In the July 20, 2004 report, the Committee called "for a national commitment to open access encompassing all UK higher education institutions, the British Library, the Research Councils, the government funding agencies, and government policy-makers" (Suber, 2004). Consistent with the orientation of US policy-makers, however, the Committee refused to endorse the Open Access template based on Article Processing Charges (APC). This model was deemed too "experimental" and in need of further analysis, as the following extract indicates:

> "Institutional repositories will help to improve access to journals but a more radical solution may be required in the long term. Early indications suggest that the author-pays publishing model could be viable. We remain unconvinced by many of the arguments mounted against it. Nonetheless, this Report concludes that further experimentation is necessary, particularly to establish the impact that a change of publishing models would have on learned societies and in respect of the "free rider" problem." (House of Commons Science and Technology Committee Report, 2004)

Compared to the US, the UK Committee was more outspoken in highlighting the weakness of the Government when dealing with the powerful publishing industry. According to the report, the issue of public access spoke to a broader problem of failure of *laissez faire* national political strategies and lack of regulation of the publishing industry (UK House of Commons Science and Technology Committee Report, 2004, emphasis in the original text).

> "This Report draws a clear distinction between the activities of Government and those of private industry. Although the inquiry has required us to examine the publishing industry in some depth it is not our intention to make recommendations to private sector companies. We can, however, make recommendations to Government and its associated bodies. Several memoranda expressed the view that Government had no role to play in the field of STM publishing at all. The Royal Society of Chemistry, for example, noted that "it is the competitive and well-functioning market, and not governments, that must choose which business models and which publishers are best equipped to stay apace of the ever-increasing demand for information exchange".
>
> Our investigations, however, have led us to believe that there are several areas in which Government could take action to improve the operation of the market for STM publications

to the benefit of the research and student community as well as the public more generally. ***We are convinced that the amount of public money invested in scientific research and its outputs is sufficient to merit Government involvement in the publishing process. Indeed, we would be very surprised if Government did not itself feel the need to account for its investment in the publishing process. We were disappointed by how little thought has been given to the issues within Government thus far and hope that this Report will prove to be a catalyst for change.*"**

Segue to the Next Chapter

By the end of 2004, national Governments in the US and the UK had been put under considerable pressure to address the issue of access to publicly-funded research findings. However, the opportunity to radically change the current publishing system was missed because the template of Open Access publishing proposed by the newly-funded ventures PloS and Biomed Central was rejected. Critically, the possibility to endorse a less radical solution to the problem – self-archiving in institutional repositories – offered national regulators a political "way out" that likely contributed to the failure of institutional displacement.

Even though activists failed to achieve radical change and precipitate institutional displacement, change had been catalysed and it could not be easily stopped. Two field-level mechanisms – *institutional arbitration* and *institutional anchoring* – emerged as critically influential in shaping the evolutionary trajectory of the field of scholarly publishing. These mechanisms explain how the convergent change that is observable today unfolded. First, convergent field-level change occurred in the form of a contraction of the commercial institutional logic of publishing in favor of an expansion of the public logic to the dissemination of NIH-funded research ("public access"). This change in the respective areas of influence between the two institutional logics was driven by implementation of the recommendation of the US

House Appropriation Committee by the U.S. National Institutes of Health (NIH). After an intense negotiation with interested parties, the NIH published the final version of its policy open-access policy on February 3, 2005 and it went into effect on May 2, 2005.

Second, although activists failed to obtain regulatory endorsement of their radical template as a "morally superior model" (Eisen, cited in Owens, *EMBO Reports*, 2003: 742), Open Access publishing did not vanish. On the contrary, it has since become a market alternative that co-exists with the prevalent subscription-based model. I found that institutional anchoring enabled the diffusion of the new organizational form of Open Access publishing. Institutional anchoring occurred as a result of: (1) the creation of visible exemplars of the organizational form and (2) the institutional collaboration between Open Access publishers and commercial publishers. These mechanisms are discussed in Chapter V.

TABLE 9
Illustrative Evidence of "Failure of Top-down Deinstitutionalization"

Aggregate dimensions, second-order themes and first-order codes	Illustrative evidence
FAILURE OF TOP-DOWN DEINSTITUTIONALIZATION	
Intact jurisdictional boundaries	
(F1) Lobbying of publishers associations	"The Association of American Publishers (AAP) has launched an emergency appeal to its members to stop the Appropriations Committee's open-access plan. AAP President Pat Schroeder has written to the members of the AAP, members of the Appropriations Committee, the NIH Director (Elias Zerhouni) and the President's Science Advisor (John Marburger) urging them to oppose the plan. She is asking AAP members to phone and fax their members of Congress today." (Peter Suber, *Open Access News*, July 15 2004)
(F2) Government respects boundaries	"The Committee is very concerned that there is insufficient public access to reports and data resulting from NIH-funded research. This situation, which has been exacerbated by the dramatic rise in scientific journal subscription prices, is contrary to the best interests of the U.S. taxpayers who paid for this research." (Committee Reports, 108th Congress, 2003-2004)
Rejection of template	
(G1) Template is ignored or considered experimental	"The US plan says nothing about OA journals or their business models. The UK plan doesn't endorse the upfront funding model for OA journals but finds it promising enough to deserve further experimentation and even a government fund to help authors cover their fees." (Suber, *Open Access News*, 2004)
	"Advocates of Open Access suffered a setback on 8 November when the British government rejected proposals for reform favouring open access. In particular the government rejected the House of Commons Science and technology Committee's call to provide money so that scientists could meet author charges in open-access journals. "The government does not think it should intervene to support one model or the other" it said in a formal response to the committee report, adding that "it was not convinced that the author-pays model is inherently superior to the current model" (Giles, 2004, *Nature*, November)
(G2) Availability of less radical solution	"The Committee is aware of a proposal to make the complete text of articles and supplemental materials generated by NIH-funded research available on PubMed Central (PMC). The Committee supports this proposal and recommends that NIH develop a policy, to apply from FY 2005 forward, requiring that a complete electronic copy of any manuscript reporting work supported by NIH grants or contracts be provided to PMC upon acceptance of the manuscript for publication in any scientific journal listed in the NLM's PubMed directory." (Committee Report, 2003-2004)

Chapter V

FINDINGS: HOW AND WHY THE FAILURE OF RADICAL CHANGE RESULTED IN CONVERGENT CHANGE

Chapter V reports a set of findings that answer the second research question: "How and why does failure of institutional displacement result in convergent field-level change (institutional accommodation)?" This chapter elucidates institutional accommodation and its two primary components: *institutional arbitration* and *institutional anchoring*. Through institutional arbitration, referee actors respond to field pressure to implement change and define a novel arrangement in practices that is acceptable for field-level constituencies. Through institutional anchoring, novel organizational forms are progressively assimilated in the field. The resulting convergent change is the contraction of the dominant institutional logic and the diffusion of the new organizational form. I elaborate the accommodation mechanisms and provide illustrative evidence below.

Institutional Arbitration

With the recommendation to the NIH to elaborate a Public Access Policy, the issue of how to enhance access to publicly funded research moved under the jurisdiction of funding agencies. Given its *super-partes* position, the NIH had the mission to elaborate a policy that would provide a "reasonable approach for sustaining subscription revenues, while ensuring that ideas and information are exchanged as freely and rapidly as possible" (Council of the National Academy of Science, September 15, 2004). Thus, field-level constituencies with different interests in the matter were consulted in order to decide how to implement the change. Importantly,

the consultation process underpinning institutional arbitration led to a 'selective implementation' of change. The motivation is twofold.

First, the task of solving the issue and generating consensus around a solution was delegated to the NIH, that is, a "referee" actor assumed to be impartial. In several occasions, the funding agency clarified that ensuring Public Access to scientific research was an issue substantially different from revisiting business models of publishing. In other words, Public Access was decoupled from Open Access publishing. As a policy analyst at Public Library of Science acknowledged: "mandates for open access to articles summarizing the results of publicly funded research would not be mandates for scientists to submit work only to a handful of journals like PloS Biology" (Gass, *PloS Biology*, 2004).

The second reason for selectivity is that the elaboration of the final NIH policy followed a procedure of intense and conflictual negotiation during which the NIH director Elias Zerhouni engaged in consultation with publishing organizations and other relevant stakeholders (Kaiser, 2004; *Science*). This negotiated approach was intended to reach a decision over two particularly controversial issues (see Table 10 for illustrative evidence). First, whether the request to deposit their publications should be voluntary or mandatory for authors; and, second, how much time should be given to publishers as an embargo period, that is, the amount of time after which publishers would be required to make their content freely available on PubMed Central.

A few scientific societies and Open Access activists considered a mandatory 6-months' time limit to be a reasonable expectation (Suber, 2004; Cozzarelli, 2004); conversely, commercial publishers and the majority of scientific societies strenuously

opposed the idea, complaining that "publishers has not been sufficiently consulted" (Adler, Head of Government Affairs at Association of American Publishers, *Nature*, Sept 9, 2004), or stating that "Zerhouni is making us all do this experiment" (Frank, Executive Director of the American Physiological Society). A group of fifty-free non-profit scientific societies even banded together in the group Washington DC Principles for Free Access to Science to "embrace the concept of free access, but in a way that does not jeopardize the revenues that allow these societies to publish journals" (Paul, *Bioscience*, December 2004).

The final policy recognized the concerns advanced by publishers and selected out the most extreme options to converge to a middle-ground solution. In its final draft, the NIH suggested – but *did not mandate* – that NIH-funded investigators would deposit their manuscript at their convenience, and "the length of the delay to be determined by the author, but no later than 12 months from publication." (*Open Access Timeline*, 2005). Although an important achievement, the policy revealed that any implementation of policies in favor of Open Access would have been extremely contested and selective. Peter Suber called the policy "a retreat from the earlier version of the policy, retreat that was unjustified and regrettable". Activists also highlighted the concern that scientists would have not responded to the recommendations of the NIH without enforcement rules or penalties for non-compliant behaviours. Scientists had proven to be extremely inertial to changes in their cultural practices (Interview, Open access activist, 2012).

An investigation into compliance to the recommendation conducted by the NIH in April 2006 revealed that activists were indeed right and the compliance rate of scientists was extremely low. Without an enforcement of the policy, only 5% of

publications had been deposited by authors in the repository within the time frame (*ASCB Newsletter*, November 2006). Such recognition spurred once again congressional interest and provided lawmakers with incentives to introduce bills that would *require* government-funded researchers to make their results freely available. Since then, the debate over Public Access has become a legislative war. Lobbying efforts of Open Access supporters pushed in 2006 the introduction of the Federal Research Public Access Act (FRPAA). The bill mandates Open Access, limits embargoes to six months, and extends compliance to all eleven federal funding agencies spending more than $100 million/year on research grants. Publishers counterattacked in 2008 by supporting the introduction of the Fair Copyright in Research Works Act (FCRWA), that would have swiped the NIH policy and bar any federal agency from requiring "the transfer or licence to the government of a work that has been produced in part with nongovernment funds or to which value has been added by the publisher through peer review" (US Congress legislative text, 2008).

On April 7th 2008, the US Congress settled the controversy when President Bush signed an omnibus bill that mandated Open Access for research funded by the NIH within 12 months of publication. As Peter Suber noted, the policy was "ground-breaking because it provides the first open access mandate for a major public funding agency in the United States; it was also the first one for a public funding agency anywhere in the world that was demanded by the national legislature rather than initiated and adopted independently by the agency" (Suber, 2008). Since then, the FRPAA and the FCRWA have been slightly modified and reintroduced in Congress in 2009 and 2011. Finally, on February 22, 2013 the issue has been once

again settled with a Directive from the White House. The Directive affirms the "principle that the public has a right to access the results of taxpayer-funded research and calls on all federal agencies with annual research and development budgets of $100 million or more to provide free and timely online access to the results of that research. Articles reporting on the results of publicly funded scientific research must be made available after a 12 month embargo period." (SPARC media release, 2013).

Mandates to widen access to publicly-funded research after publication have had the effect of indirectly forcing publishers to relax their copyright policies. In order to enable authors to keep submitting their articles to journals and be compliant with mandates, publishers had to allow the self-archiving of published paper after publication. Commercial publishers have quickly adjusted their copyright policies to enable the deposit of publications in institutional and discipline repositories with embargo periods that do not jeopardize their subscription revenues (http://www.sherpa.ac.uk/romeo).

In conclusion, institutional arbitration explains the implementation of policies and the creation of new practices in support of archiving of publications. Yet, regulative intervention and compliance to mandates do not fully account for another element of field-level change: the relative quick diffusion of the Open Access publishing model, particularly among incumbent commercial publishers (Database of Open Access Journals, 2015). My analysis reveals the importance of a second component of institutional accommodation – institutional anchoring – to explain this outcome.

TABLE 10
Illustrative Evidence of "Institutional Arbitration"

Aggregate dimensions, second-order themes and first-order codes	Illustrative evidence
INSTITUTIONAL ARBITRATION	
Issue delegation	
(H1) Referee role of funding agencies	"The NIH must balance the need to provide free access to all with the ability of journals and publishers to preserve their critical role in the peer review, editing and scientific quality control process. The economic and business implications of any changes to the current paradigm must be considered as the NIH weighs options to ensure public access to the results of studies funded with public support without compromising the quality of the information being provided. The NIH has established and intends to maintain a dialogue with publishers, investigators, and representatives from scientific associations and the public to ensure the success of this initiative. (NIH Enhanced Public Access to NIH Research Information Note, September 3, 2004)
(H2) Decoupling Open Access from Public Access	"Some commenters believed that the NIH Public Access Policy constitutes an open access model of publishing. The NIH Policy is not a form of publishing; rather, it creates a stable archive of peer-reviewed research publications resulting from NIH-funded research. In addition, the Policy does not dictate the means of publishing but is compatible with any publishing model that authors and journals choose to employ. Copyright to all material deposited in PMC remains with the publisher, individual authors, or awardees, as applicable." (NIH Enhanced Public Access to NIH Research Information Note, September 3, 2004)
Conflictual negotiation	
(I1) Pressure to act	"NIH director Elias Zerhouni told journal publishers he is not happy with the "status quo" and is under pressure from the public to expand access to research results." (Kaiser, August 6 2004, *Nature*)
(I2) Discordant evaluations on impact	"The Association of American Publishers (APP) and other groups called NIH's plan a "radical new policy". They content that it could force journals to adopt an "unproven" model in which authors pay publication costs" (Kaiser, September 3 2004, *Nature*)
	"Varmus says that the six-months delay would allow publishers to continue generating income from subscriptions" (Brumfield, September 9 2004, *Nature*)

Institutional Anchoring

The increase in number of Open Access journals has been driven by the creation of Open Access publishing as an alternative organizational form for publishing. Commercial Open Access publishers are not charities or organizations involved in publishing on an occasional basis (i.e. universities). These ventures are commercial enterprises that are able to provide immediate and free access to readers while being financially viable. The anchor of this model is the payment of Article Processing Charges by authors to cover dissemination costs. Even though the last five years have seen a dramatic increase in the *number* of Open Access journals and the founding of Open Access publishers that adopt this business model, the diffusion of a new organizational form is conditional on its social acceptance by field-level constituencies. Otherwise, it is likely that the entrepreneurial ventures will be short-lived and the alternative form is going to be a fad.

In the empirical case under examination, the endorsement by national Governments of Open Access publishing would have made this template a standard, promoted its widespread diffusion, and the relatively quick deinstitutionalization of the subscription-based model. However, because such endorsement was not obtained, commercial publishers had solid arguments to severely question the author-fees business model and to doubt its financial sustainability (Butler, *Nature*, 2008). The feasibility and adequacy of the Open Access publishing model is still debated. Yet, solid foundations for field-level diffusion are being created. I found that two mechanisms – the creation of visible exemplars of the new organizational form and institutional collaboration – are *anchoring* the new organizational form to the field, facilitating its acceptance and diffusion (see Table 11 for evidence).

TABLE 11
Illustrative Evidence of "Institutional Anchoring"

Aggregate dimensions, second-order themes and first-order codes	Illustrative evidence
INSTITUTIONAL ANCHORING	
Creation of visible exemplars of the new organizational form	
(J1) Financial sustainability of Biomedical Open Access publishers	"PLoS trumpeted its business model as being better than everyone else's, as being 'the one'." The tack taken by BioMed Central, a London-based open-access company, of publishing mostly lower-impact journals in a wide variety of disciplines "is probably closer to what works in open access." (John Hawley, executive director of the free-access *Journal of Clinical Investigation*, cited in Butler, 2013, Nature)
(J2) Increasing centrality of Biomedical Open Access journals	"Why did anyone submit great work to a journal that didn't even exist yet, from a publisher with no established reputation? The answer is that it was on the strength of promises made by our editors and academic editorial board to uphold high standards and rigorous peer review. Based on our first three issues, Thompson ISI has calculated a 2004 preliminary impact factor for PloS Biology of 13.9." (Parthasarathy, August 5, *PloS Biology*)
Institutional collaboration	
(K1) Predatory publishers	"Some are embarrassingly, toe-cringingly amateurish, but predatory is a term that, I think, implies intent to deceive," says. Damage could be done if "a damning verdict is given to otherwise honest, though perhaps amateurish, attempts to enter the publishing market." (Jan Velterop cited in Butler, *Nature*, 2013)
(K2) Creation of Open Access Scholarly Publishers Association (OASPA)	"Over the last few years those involved in Open Access journals publishing have run into one another at trade or scientific conferences. Given that all are involved in a similar approach to publishing, it has been natural to share experiences, advice, and thoughts on how to support Open Access publishing generally and grow the OA market place in particular. Within an otherwise highly competitive publishing market, Open Access publishers found it useful to be open and frank about their business models, experiences and plans for the future." (OASPA website)
(K3) Commercial publishers embrace Open Access publishing and OASPA	"This acquisition reinforces the fact that we see open access publishing as a sustainable part of STM publishing, and not and ideological crusade. We have gained considerable positive experience since starting Springer Open Choice in 2004, and Biomed Central's activities are complementary to what we are doing." (Derk Haank, *Springer Press Release*, 2008)

Creation of visible exemplars of the new organizational form

The first mechanism that facilitates the diffusion of the new organizational form is the creation of visible exemplars. Empirically, there is ample qualitative evidence of the increasing popularity of the newly-funded publishers that pioneered this form in the biomedical community – Biomed Central and Public Library of Science. These organizations played a pivotal role in establishing the feasibility of the author-pays publishing model in the scholarly community of Biomedical Sciences. In this scientific discipline, these pioneers of Open Access publishing have emphatically promoted their business model over the years in order to prove its feasibility and financial sustainability.

For example, PLoS was able to start a publishing company with the mission to "provide an open-access alternative to the best subscription journal in the life sciences, and to put open access firmly on the map" (Patterson et al., April 2005, *PLoS Biology*) thanks to a 9 million$ donation from the Moore foundation. Since the organization announced with great fanfare its flagship journal – *PLoS Biology* – in 2003, the publisher "has been kept afloat financially by some US$17.3 million in philanthropic grants" (Butler, 2008, *Nature,* 454, 11). Thus, the organization's challenge has been to prove that their business model would stand on its own, without further support from private donors. Since 2003, the Public Library of Science has launched other six journals, cut expenses, raised author fees for its top two journals, and created a journal – PLoS ONE – with an innovative format, i.e. high acceptance rate and lower author fees. PloS ONE was intended to financially support other top and specialist journals with higher author fees (e.g. *PloS Biology*). As Peter Jerram, chief executive of PLoS reported to the press:

"It's fair to say that the community-run journals, including PLoS One, are contributing very well to our overall financial picture, says, adding: "PLoS is on track to be self-sustaining within two years. In the interim some philanthropic support will be needed."

Biomed Central has also attracted significant media attention over the years and has demonstrated the potential for profitability of its business model (Kent, 2012). In 2008, years in which it was acquired by Springer, media reported that BioMed Central had "estimated annual revenues of around £10 million ($20 million). It is already pleasantly profitable. BioMed Central knows well that much of the journal middle order is more profitable than the great brands because of the lower editorial costs and the cheaper marketing costs for bundles of journals" (Butler, 2008, *Nature,* 454, 11).

In addition to demonstrating their financial sustainability and success by market standards, the success of Open Access publishers is revealed by qualitative indicators of recognition from peers in the academic community. Journals published by these organizations were able to secure early on very prestigious editorial boards (Butler, 2000, *Nature*, 405; Hersh, 2001, *Nature*, 413; Tamber et al., 2003, *Lancet*) and to receive the Impact Factor for their journals only a few months after their launch (Velterop, 2001, *BMC News & Views*; PloS website). Further, these organizations publish Open Access journals that have reached top positions in citation academic rankings. The visualization of the biomedical citation networks (Figure 9) offers confirming evidence that these publishers' journals are increasingly considered by fellow scientists as critical sources of knowledge and sought outlet for publications.

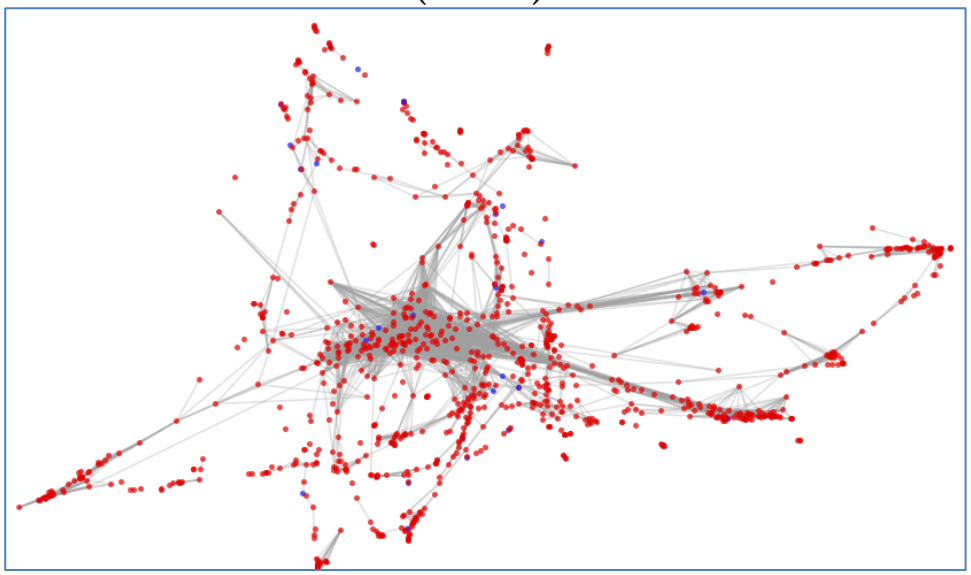
Figure 9 shows the composition of the population of journals with Impact Factor in the Biomedical Science for the years 1999, 2005 and 2011. The networks represent the population of journals that are included in the Journal Citation Report

ranking in that year. Each node represents a journal and its color indicates whether the journal is an Open Access journal or not. Specifically, red dots indicate that the journal is not Open Access (non-OA); blue dot that the journal had "converted" to Open Access (OA converted); green dots indicate new journals that were founded as Open Access journals (OA born). The position of journals in the networks reveals their centrality in the system of knowledge creation. Journals in central positions (core network) are the most heavily cited by scholars in the discipline. In other words, they are the "reference" journals that publish articles that are recognized as highly influential and on which knowledge is primarily built on. Journals that are close to each other in the network are more strongly connected in terms of "similarity" of their citation vectors. That is, they are cited a similar number of times by a similar set of journals.

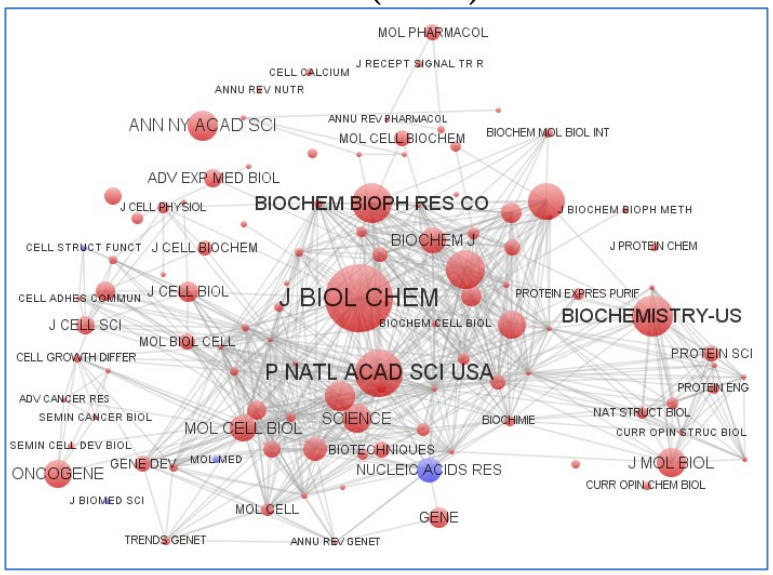
Figure 9 shows that Open Access journals have progressively become more prominent in the JCR rankings. In 1999, only 55 out of 1257 journals were Open Access; by 2005, there were 75 Open Access journals (out of 1321) and by 2011 the number had grown to 204 (out of 1781). The number of OA journals in the core network has also increased going from 4 (1999) to 3 (2005) to 45 (2011). The graphs show three interesting findings. First, the growth in Open Access journals is primarily due to new journals being founded (OA born – green dots) rather than journals being converted (OA converted – blue dots); an increasing number of OA born journals have moved from peripheral to central positions; the journals that have become more central are published primarily by Public Library of Science and Biomed Central. Table 12 and Table 13 in Appendix provide more detailed illustration of the networks and report descriptive statistics.

FIGURE 9
Visualizations of Citation Networks

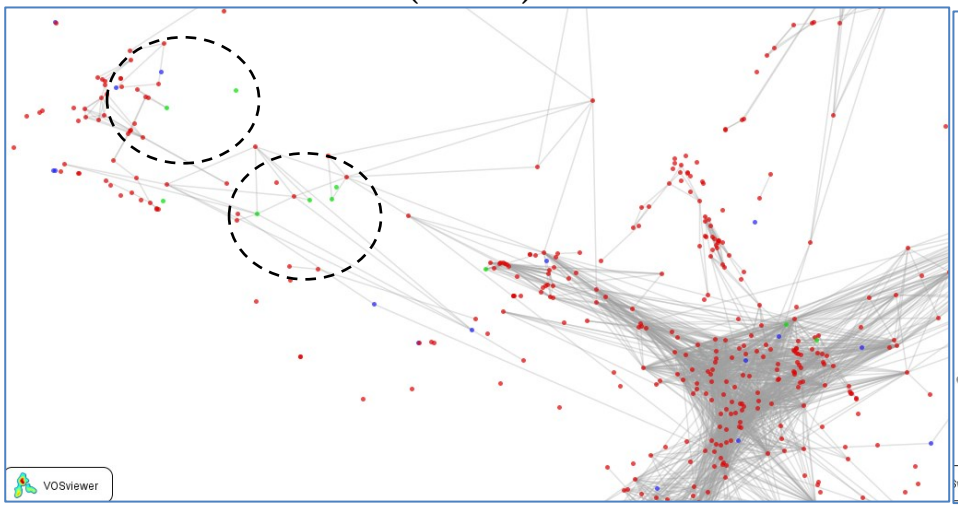
1999 **Whole network (N=1257)**



Core network (N=110)



2005 **Whole network (N=1321)**



Core network (N=138)

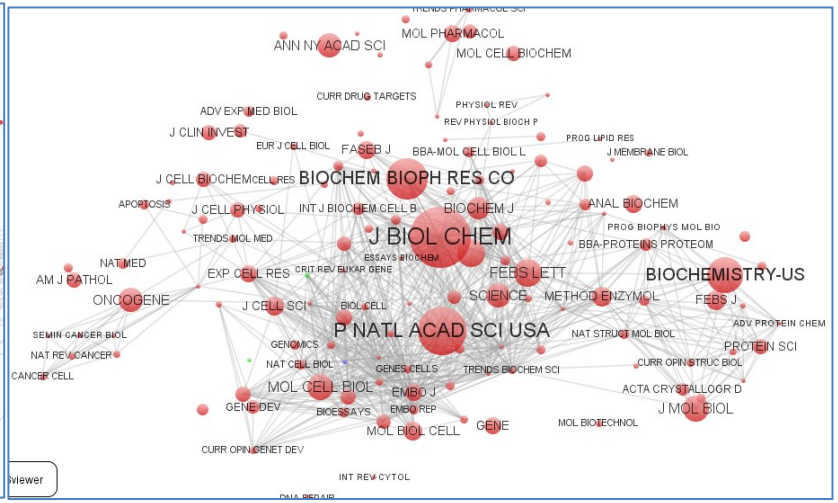
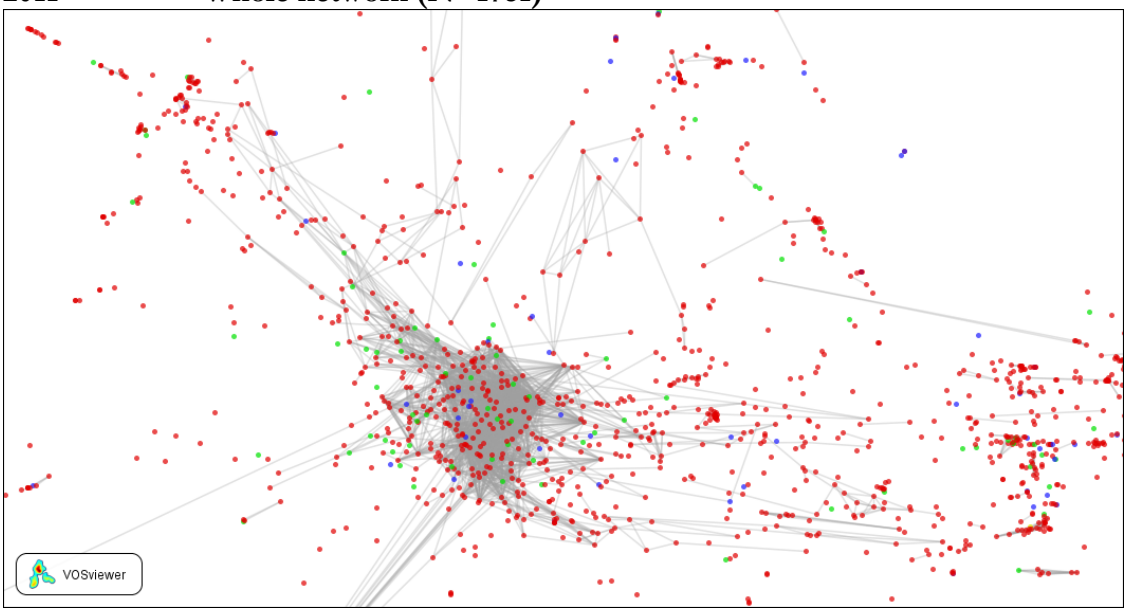
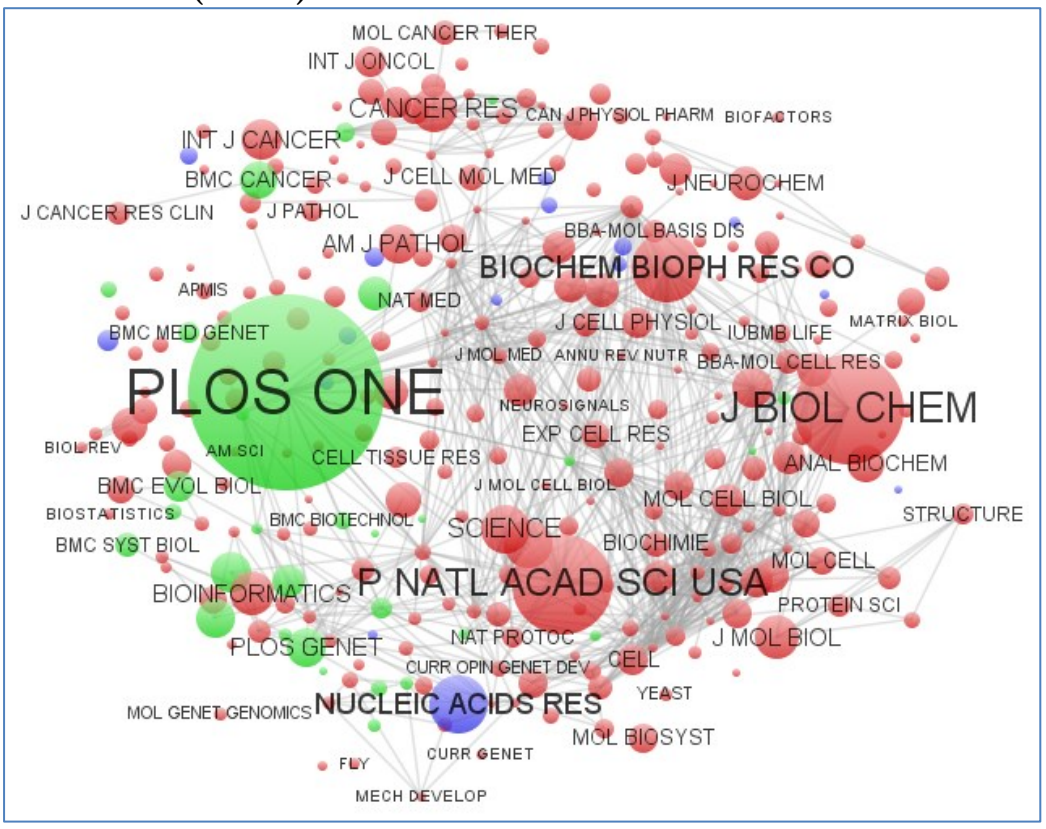


FIGURE 9 [continued]
Visualizations of Citation Networks

2011 **Whole network (N=1781)**



Core network (N=294)



Institutional collaboration

A second accommodation mechanism is the institutional collaboration between Open Access publishers and traditional commercial publishers. Since the inception of the Open Access movement, the positions of activists and commercial publishers have been ideologically antithetic. On one side, large multinational corporations consistently fought to defend their right to make profits. On the other side, Open Access activists consistently fought to reduce the dominance of commercial publishers and pushed for the deinstitutionalization of the subscription-based model. Not surprisingly, in the last two decades there has been little room for collaboration between challengers and incumbents.

Since 2004, however, the interests of Open Access publishers and traditional commercial publishers have become increasingly aligned. This alignment has culminated in the creation in 2008 of the Open Access Scholarly Publishers Association (OASPA). OASPA is a trade association that represents small and large publishers, both commercial and non-profit, that embrace the Open Access model of publishing. Its founding members include the Public Library of Science, Biomed Central and SPARC but also newly-created publishing ventures such as Co-Action Publishing, Hindawi Publishing Corporation. The commercial publisher SAGE was also involved in the creation of OASPA as a result of the collaborative relationships it established with Hindawi Publishing Corporation in 2007. As the history page on the organization's website reports:

"During 2007 and 2008 two different groups of OA publishers – professional publishing organizations on the one hand and independent (scientist/scholar) publishers on the other – began discussing the possibilities of creating a more formal association to represent the interests of OA publishers. When these two groups became aware of one another, they decided to work together to create an umbrella association that would support the entire spectrum of OA journals publishers – for profit, non-profit, university presses, society

publishers, and scientist/scholar publishers working independent of a publishing organization. All recognized the value of bringing this community together in order to develop appropriate business models, tools and standards to support OA journals."

The Association has now opened its membership to traditional commercial publishers. Large organizations such as Nature Publishing Group, Springer Science+Business Media, Wiley and Taylor & Francis have joined OASPA. In fact, as large multinational corporations become more willing to experiment with Open Access, the distinction between Open Access publishers and non-Open Access publishers is less and less defined.

So, what is driving institutional collaboration? Two elements emerged from the analysis. First, commercial publishers have come to the realization that Open Access is no longer avoidable (Interview, Publisher, 2012). These organizations have perceived the opportunity to strategically embrace the author-pays model since 2004, when they started to offer Open Choice options to their subscribers. Hybrid options allow publishers to keep their stream of revenues from subscriptions and, simultaneously, benefit from the payment made by scholars with the willingness and means to choose the Open Access option. As Derk Haank, CEO of the Springer specialist publishing group, explained in an interview (Poynder, 2004, *Information Today*):

"What we are saying is: "Look. It's not that we don't want to change on principle; we've been advocating the traditional model simply because we thought it was practical. But if you want to try open access, and you can really organize yourselves in a different way, and the money starts to come out of a different pot, we are happy to change our internal procedures to accommodate you." So, with Open Choice, authors are now able to choose between publishing their papers using the traditional subscription model, or they can pay to have their work published so that anyone can read it at no cost."

The relatively cautious implementation of Open Access-oriented practices has seen a significant acceleration since Springer acquired BioMed Central and its 180 peer-reviewed journals in 2008. The acquisition made Springer *de facto* the largest Open Access publishers (Springer press release, 2008; Suber, *Open Access News*, 2008). The experimentation of large commercial publishers has gone even further and today, multinational publishers are Open Access publishers themselves. Even the multinational Elsevier, typically pointed at as the symbol of corporate greed in publishing and often the target of boycott (www.thecostofknowledge.com), has made some moves. The company now publishes 40 OA journals and 1,200 journals with hybrid arrangements in which authors can opt to pay to make their articles OA (Elsevier Annual Report, 2013). A similar strategy has been followed by other commercial and large not-for-profit publishers, including Wiley, Nature, and SAGE.

These moves are part of the strategic repositioning of commercial publishers in the Open Access publishing marketplace. As the following quote from Sam Burridge – the Managing Director for Open Research at Nature Publishing Group – reveals, publishers are overemphasizing their commitment to Open Access models. Also, they are creating narratives that frame their past limited experience with Open Access not as responses to market and institutional pressures but as part of their strategic planning. The participation in the activities of OASPA gives those publishing companies the opportunity to become active members of the emerging Open Access publishing industry.

"Open Access publishing models and policies have been at the heart of NPG's business development and strategic thinking throughout the last decade, and in the past year we have made concrete steps in accelerating our open access programme. We are delighted to be members of OASPA." (*NPG Press Release*, October 22, 2014)

On the other hand, new OA publishers are interested in collaborating with established publishing companies in order to promote the acceptance of the new organizational form and shield it from accusations of being "predatory publishers" (Bealls, 2010). "Predatory" publishing has become a controversial issue since Jeffrey Bealls, a librarian at the University of Colorado Denver, invented this stigmatizing label and compiled a list of (now 28) questionable scholarly Open Access publishers (the list is available at scholarlyoa.com/publishers). Bealls was compelled to start the list after he saw the explosive founding of a handful of publishing start-ups that launched thousands of virtual Open Access journals. New publishers are generally unknown; they publish several electronic journals across disciplines and operate from less developed countries (i.e. Egypt). The content of their journals is severely scrutinized or, more typically, these outlets are discarded *ex-ante* by potential authors (Butler, 2006; Walters & Wilder, 2007). That said, there are also "hundreds of thousands of naïve researchers" who accept the selling of publishing services that these organizations offer because they are "keen to bulk out their CVs" (Poynder, 2011). Bealls' goal was to help academics discriminate serious publishing enterprises from 'scams' that are allegedly interested only in the fees paid by authors.

Although reasonably justified, Bealls' list has also attracted criticism because it symbolizes the more general attitude of suspect (and prejudice) for new publishing ventures that might do anything improper or unethical. Several executives at Open Access publishing companies suggested caution and refraining from quick condemnation of new ventures (Poynder, 2014; Butler, *Nature*, 2013). For instance, Matthew Cockerill, a publishing executive at Biomed Central, voiced this concern by stating that:

"He [Bealls] risks throwing undue suspicion on start-up publishers. "Although rapid launches of many journals may well correlate negatively with journal quality, it is certainly not enough in and of itself to warrant describing a publisher as predatory," says. "Similarly, some publishers identified on Beall's list are guilty of poor copy-editing and user-interface design on their websites," he says. "Again, this is, at best, circumstantial evidence for problems with the scholarly standard of the material they publish."

The preoccupation that the rush of Open Access publishers "is in serious danger of bringing Open Access into disrepute" (Poynder, 2011) stimulated the creation of OASPA and increased the interest in collaboration with incumbents. In other words, OASPA members share the same goal of fostering the new organizational form and creating a profitable market around it. As Matthew Cockerill, executive at Biomed Central and member of the OASPA Board indicates in the following quote: "Open Access is not a religion. It's not just a "movement" anymore, either. It is a working, legitimate and sustainable business model for publishing." (Poynder Blog Interviews, October 2009)

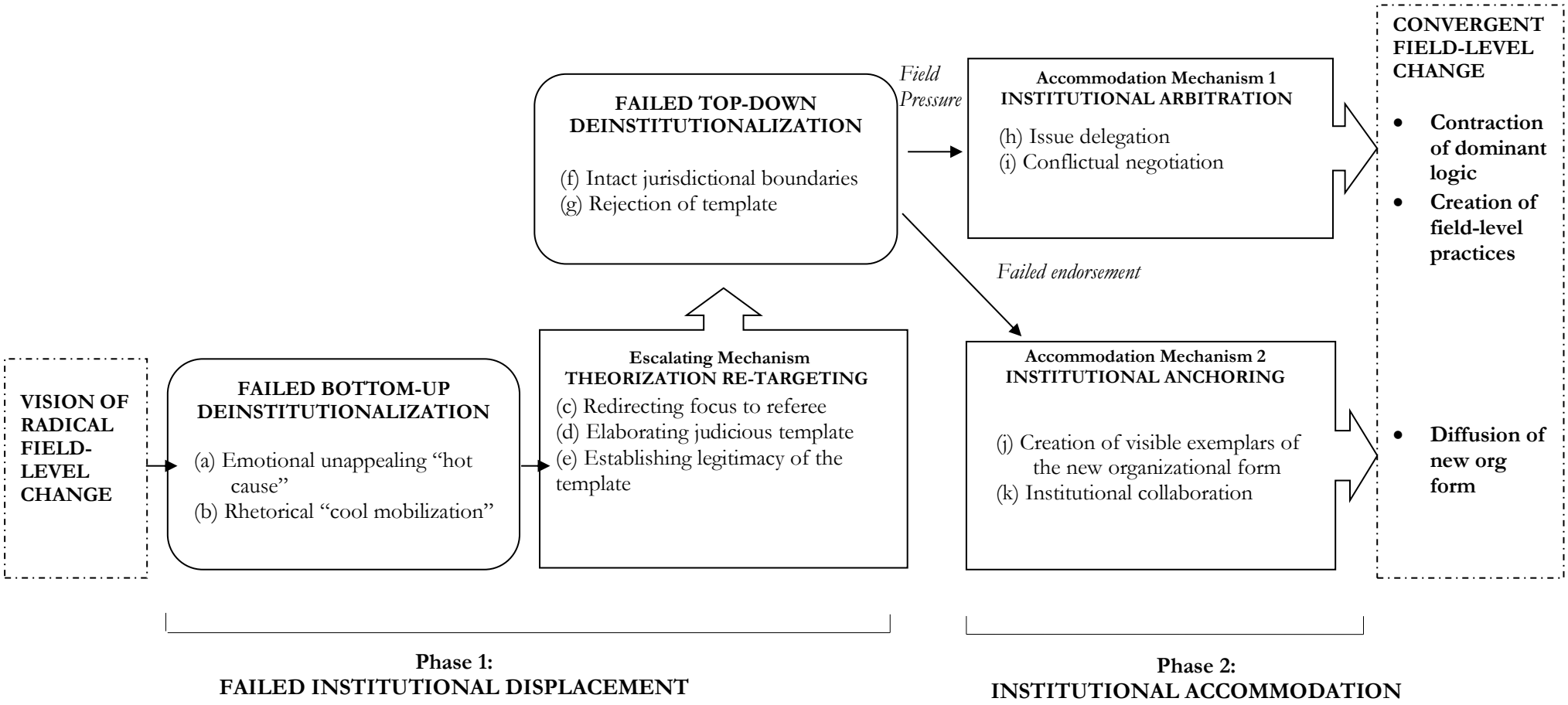
Chapter VI

A PROCESS MODEL OF INSTITUTIONAL ACCOMMODATION

Based on the examination of the case of Open Access in the field of scholarly publishing, a process model of institutional accommodation can be identified. The model – shown in Figure 10 – suggests that convergent institutional change field-level is the outcome of two phases: *failed institutional displacement* and *institutional accommodation*. In the first phase – failed institutional displacement – challengers elaborate a vision for radical change and mobilize to implement it. In the case under examination, attempts were made to deinstitutionalize dominant practices from the bottom-up and to deinstitutionalize dominant organizational forms from the top-down. Both attempts were unsuccessful. My analysis identifies the conditions under which the failure of institutional displacement triggers a second phase – institutional accommodation.

In the case I examined, in other words, failed institutional displacement represents an antecedent of institutional accommodation. Specifically, accommodation occurs through two field-level mechanisms: institutional arbitration and institutional anchoring. These two mechanisms explain how and why the outcome of the process model is convergent field change. The comparison of the field as *it was* (status quo), as *it could have been* (vision of radical change) and *as it is* (convergent change) allows the examination of the conditions that prevent grand visions from turning into reality, yet enable them to precipitate less dramatic amendments to field arrangements. The two phases are elaborated below.

FIGURE 10
A Process Model of Institutional Accommodation



Phase 1: Failed Institutional Displacement

Consistent with previous accounts of institutional change (Greenwood et al., 2002; Rao et al., 2003; Seo & Creed, 2002) and institutional entrepreneurship (Battilana et al., 2009; Hardy & Maguire, 2008; Maguire et al., 2004), the model starts with the identification of the trigger of institutional change. A core assumption of institutional theorists is that mature fields are stabilized until a precipitating dynamic interrupts the phase of "institutional stability" (Zietsma & Lawrence, 2010: 201). In the case under examination, the precipitating dynamic is a technological innovation. New technologies may be welcomed because of their potential to increase efficiency and decrease the costs of conducting activities. Some technologies, however, have the potential to completely transform the way activities are conducted. These technologies are more likely to be resisted because they are culturally disruptive and "new ways of doing things" are at odds with the interests, values and beliefs of field incumbents. The contradictions between the benefits of the technology and the entrenched interests of incumbents may be intolerable for some actors with heightened sensitivity (Seo & Creed, 2002). When those actors contest institutionalized structures and practices and actively pursue change, they become "challengers" of the status quo (Fligstein, 1997; Fligstein & McAdam, 2012) or "institutional entrepreneurs" (DiMaggio, 1988; Maguire & Hardy, 2009).

While scholars recognize that challengers are often 'peripheral' actors who seek to disrupt the status quo and challenge powerful central incumbents (Battilana, 2011; Hensmans, 2003; Rao, Morrill, & Zald, 2000), it is less explicitly recognized that those who challenge the status quo may seek heterogeneous goals. Some actors, for instance, pursue recognition for neglected causes and attention from incumbents

(Creed et al., 2002; Maguire et al., 2004); others aim at introducing/abolishing/modifying field-level or organizational-level practices that are deemed unjust/unsafe/unnecessary (Hardy & Maguire, 2010; Maguire & Hardy, 2009); finally, every once in a while, actors see the opportunity for a transformation of the status quo or a 'paradigmatic shift' (Kuhn, 2012). These actors are often labelled visionaries or utopians (Hirsch & Hilton, 2014; Weyler, 2004). What they aspire to is to precipitate large-scale, societal-level change that constitutes a 'radical' departure from the existing arrangements in the field (i.e. institutional displacement). Institutional displacement is a transformational type of change that entails the abandonment of a dominant institutional logic in a field and the rejection of field-level practices and organizational forms associated with it (Goodrick & Reay, 2011; Thornton et al., 2012).

Institutional displacement occurs when the practices and organizational forms that materially instantiate the dominant institutional logic are subject to *deinstitutionalization* (Davis et al., 1994; Maguire & Hardy, 2009; Oliver, 1992). Deinstitutionalization is:

> "the process by which the legitimacy of an established or institutionalized organizational practice erodes or discontinues […] as a result of organizational challenges to or the failure of organizations to reproduce previously legitimated or taken-for-granted organizational actions (Oliver, 1992: 564)

Figure 10 shows that two attempts of deinstitutionalization were initiated by change agents. The first was an attempt to deinstitutionalize field-level practices prescribed by the dominant logic and to precipitate its displacement from the *bottom-up*. The second one was an attempt to precipitate the shift in institutional logics by enforcing upon the field an alternative form of organizing that would replace the dominant organizational form. In the vision of challengers, the endorsement of the new form

would make the currently dominant organizational form obsolete and therefore determine its deinstitutionalization from the *top-down*. In the case under examination, both attempts failed. Importantly, the model provides insights into why both forms of deinstitutionalization were used, to whom the attempts of deinstitutionalization were targeted and why they eventually failed.

Failed bottom-up deinstitutionalization. As noted by other scholars, institutional entrepreneurs are not "omnipotent and clairvoyant" strategic planners (Aldrich, 2011: 2). Change agents may have a radical and visionary goal but their mobilization is often distributed and relatively uncoordinated in the early stages (van Wijk et al., 2013). I found that change efforts, in the setting under examination, are oriented towards the abandonment and de-legitimation of dominant practices, rather than dominant organizational forms (i.e. bottom-up deinstitutionalization). There are two reasons that justify the resort of challengers to bottom-up deinstitutionalization in the early stages of mobilization.

First, the disruption of practices has an immediate effect that is more likely to capture the attention of incumbents, whereas creating a new organizational template is a difficult and complicated endeavour. Such endeavour requires innovativeness, proselytizing efforts to change beliefs and values, and time and persistence to achieve any meaningful effect (Soule, 2012; Weber, Heinze, & DeSoucey, 2008). Second, change agents typically address targets that are relatively proximate to them. The target is a central factor that shapes the form social change will take (Walker, Martin, & McCarthy, 2008; Zietsma & Winn, 2008). Proximate means that change agents may try to first persuade audiences that are accessible to them to abandon the practices. Because these audiences are the primary performers of the practices, they

have the power to precipitate change by withdrawing support to the practices and refraining from using them.

As previous studies have shown, if there is enough support for the rejection of the practices, their legitimacy begins to be questioned; as contested practices are increasingly rejected, they are no longer used and deinstitutionalization occurs (Ahmadjian & Robinson, 2001; Maguire & Hardy, 2009). Further, when contested practices are very important for the survival and/or success of organizations that use the dominant organizational form, their rejection may have broader consequences. For example, in a situation where the enactment of the practice provides critical resources to an organizational form, practice abandonment is likely to endanger the existence of the form itself by drying its resource stream; the deinstitutionalization of practices may lead to the deinstitutionalization of the dominant organizational form and its replacement with an alternative organizational form (Davis et al., 1994; Galvin, 2002; Holm, 1995); change may even escalate to the point where the endorsement of the new organizational form by key field-level representatives may lead to a shift in institutional logics (Smets et al., 2012).

For bottom-up deinstitutionalization to occur, extended participation and sustained commitment to the rejection of the practice are therefore essential. Extended participation and sustained commitment create the "safety in numbers" effect that explains why the abandonment of a practice is accelerated when the number of defectors increases (Ahmadjian & Robinson, 2001). When defectors become a "crowd", participation in the rejection of the practice ceases to be connoted as an act of defiance and begins to be perceived as a sign of conformity. The model builds on these critical insights to suggest that the *lack* of extended

participation and sustained commitment is an important driver of the failure of bottom-up deinstitutionalization. My case highlights two factors that explain why change agents failed to stimulate extended participation and to obtain sustained commitment: *emotionally unappealing "hot cause"* and *rhetorical "cool mobilization"*.

First, in order to garner attention and ensure participation, change agents usually leverage a "hot cause" (Rao, 2008). Hot causes grab the attention and arouse the emotions of otherwise distracted audiences. The more the cause is "hot", that is emotionally appealing, the more it will awaken the audience's feelings and provide a highly resonant motivation for adherence. Extended rejection of the practice may be difficult to obtain when there is not enough pressure to stimulate change, i.e. the cause is not 'hot' enough. While in many cases economic and technical pressures, such as poor performance and changes in consumer preference, may stimulate a collective sense of urgency in individuals and organizations (Oliver, 1992), social pressures from visionary change agents are less likely to engage audiences widely.

Indeed, when change agents are visionaries, generating a hot cause may be an extremely challenging task. Visionary change is typically less motivated by urgent problems and pressing grievances and oriented towards the vision of alternative, allegedly better, scenarios. If other field-level constituencies are content with the existing system, they may be resistant to envisioning the potential future benefits of an alternative system and very easily refuse to embrace those scenarios. Visionary change agents likely fail to stimulate participation because their "hot cause" is inherently unappealing to those audiences that benefit from the current system and are relatively content with the status quo.

Second, even if audiences are sensitive to the cause and share the challengers' grievances, bottom-up deinstitutionalization is likely to fail when change agents are unable to obtain sustained commitment from those audiences. In other words, even though these audiences are sympathetic to the challengers' cause, they may find it troublesome to show their commitment to the rejection of institutionalized practices. In particular, in mature fields where structures and practices are deeply entrenched, actors' interests are profoundly interlinked and may be tightly dependent upon the practices that challengers seek to displace. In my case, for example, university tenure systems are tightly linked to the publication of articles in prestigious journals that are owned by commercial publishers. Hence, despite challengers' success in attracting the attention of scientists on the issue of Open Access, the scientific community had little incentive to refrain from submitting to – and reviewing for – subscription-based publishers.

The more the field is "ossified" – i.e. the more practices and determinants of actor's status and position in the social hierarchy are interlocked – the stronger the incentive for any field-level actor to maintain the status quo. Those incentives counterbalance individuals' and organizations' proclivity towards change. In those instances when there is moral, but not practical, support for rejection of a practice, "cool mobilization" (Rao, 2008) – the inspired and improvisational generation of communities of supporters with shared feelings and a collective identity – remains purely rhetorical. In consequence, mobilization is likely to have little impact on the rejection of a practice. The combination of these two conditions – the inertia to participation on the part of audiences who are insensitive to the cause and the

paralysis of other audiences because of field-level disincentives to action – negatively affect the likelihood of success of bottom-up deinstitutionalization efforts.

The institutional literature has not given much attention to the failure of change efforts; as such, very little is known about how institutional entrepreneurs and other change agents experience and react to failure. Similar to other "entrepreneurs", failure may lead to grief and abandonment of the cause (Jenkins, Wiklund, & Brundin, 2014), or it can stimulate further reflexivity and be used as an instructive learning tool (Cope, 2011; Edmondson, 2011). In my case the latter occurred and failure pushed change agents to engage in *theorization re-targeting*. Theorization re-targeting represents the escalating mechanism through which change agents are able to attempt deinstitutionalization from the top-down.

Theorization re-targeting. My case suggests two ways in which failure may channel the learning of change agents. First, the experience of bottom-up deinstitutionalization may stimulate challengers to re-consider the possibility of implementing a vision for radical change by simply rejecting institutionalized practices. Failure, in other words, represents a 'reality check' for visionaries. It pushes challengers to become savvier about the broader implications of their vision and think carefully about the means through which change can be achieved (and not just the overarching goals). In the case of collective mobilization driven by social movements, failure may simply lead activists to reorganize, improve coordination and elaborate more persuasive frames for their targeted audiences; instead, this case points attention to failure as a driver of substantial modification of the identities of activists (Lounsbury, 2005; Soule, 2009) and the increasing professionalization of social movements (Armstrong & Bartley, 2013).

Under these circumstances, change agents are no longer disruptive "challengers" but seek to become "reformers"; that is, rather than protesting and educating audiences about why change is necessary, they concentrate on the elaboration of an alternative form of organizing that is "judicious" and reasonable; such template offers an alternative solution to the status quo that, if endorsed and implemented, could make their vision a reality. Importantly, previous research suggests that the elaboration of new alternatives to solve conflicts can be the outcome of a collaborative effort that brings together challengers and incumbents (Reay & Hinings, 2005; van Wijk et al., 2013; Zietsma & Lawrence, 2010). In those cases, the two parties implicitly or explicitly agree to negotiate and the solution will reflect the compromise.

In my case, however, change agents did not resort to negotiation and collaboration with their opponents. Instead, they engaged in a process of *theorization* of a new form of organizing congruent with their values and overarching goals (Greenwood et al., 2002; Strang & Meyer, 1993). Failure led change agents to recognize that larger constraints prevented audiences from rejecting highly institutionalized practices; there was a clear appreciation that sustained mobilization and collaboration were unfruitful ways to persuade audiences to abandon practices unless those larger constraints were removed. To this end, change agents engaged in theorization.

Theorization is "the self-conscious development and specification of abstract categories and the formulation of patterned relationships such as chains of cause and effect" (Strang & Meyer, 1993: 492). Theorization builds on rational and logical arguments and facilitates the broad recognition and endorsement of novel cultural

categories. It is therefore a key mechanism of cultural diffusion. Notably, when change agents are intellectuals and professionals (as in this case), it is relatively easier for them to be seen as legitimate theorizers. Nonetheless, theorizers need to signal the legitimacy of their template by foreshadowing its large-scale benefits and showing that they have already obtained initial moral and financial support from other constituencies.

When change agents engage in theorization, their goal is to receive from key actors in the field endorsement for the proposed model. A wide array of different actors may represent a key constituency. For instance, for social movements a key audience is typically the State because of its coercive influence (Amenta, Caren, & Olasky, 2005; Amenta, Carruthers, & Zylan, 1992; Cress & Snow, 2000); for professions, key audiences include professional associations because of their normative influence (Ferlie, Fitzgerald, Wood, & Hawkins, 2005; Greenwood et al., 2002; Smets et al., 2012), for corporations, key audiences are infomediaries (e.g. media, press, analysts) because of their cultural/cognitive influence (Deephouse & Heugens, 2009; King, 2008; Pollock & Rindova, 2003). It follows that it is relevant to identify *to whom* theorization is directed.

In the model, theorization is addressed neither to proximate audiences (as the previous mobilization was) nor to opposing incumbents (as it would be in the case of collaboration). Instead, it is targeted to a category of field-level actors that are not directly involved in the contestation (i.e. public funding agencies). To put it differently, *re-targeting* occurs, meaning that change agents focus attention away from audiences directly involved in the contestation and put the spotlight on *referee* actors. Referee actors are also "incumbents" but, when conflict arises in a field, they are not

directly in opposition to challengers. For example, they are not the target of change agents' deinstitutionalization attempt because they do not perform the contested practices; likewise, referee actors are not among the first-line defendants of the status quo because they are not dependent on contested practices for survival or success.

Referee actors, however, are powerful constituencies in a field and they can be very important allies for change agents. If referee actors support the new organizational template, for instance, they can change the patterns of dependencies between the challengers and their opponents. Their endorsement of the new template, in other words, can be decisive for change agents because such endorsement would provide resources that are critical for the implementation of the novel template. From this vantage point, top-down deinstitutionalization represents a 'successful' outcome for reformers. This group of actors brings forward a novel solution and, if the new template is endorsed by referee actors, the issue underlying the contestation can be resolved. To put it differently, the endorsement of the template by referee actors makes the new organizational form a reality and it may even trigger the *top-down deinstitutionalization* of the dominant organizational form if incumbent organizations can be coercively forced to adopt the new organizational form. Under these circumstances, the previously dominant organizational form may be abandoned and institutional displacement may follow.

The transition from bottom-up to top-down deinstitutionalization is akin to the request by change agents for a third-party actor's mediation. When Actor A (challengers) fails to force or persuade Actor B (opponent incumbents) to embrace radical change, the intervention of a third Actor C (referee actors) may be invoked. Because referee actors maintain relative neutrality in the conflict, they are likely to

remain on the sideline and not interfere unless their intervention is invoked. Theorization re-targeting is therefore an important 'escalating' mechanism that enables change agents to approach field-level constituencies that may act as mediating referee actors and persuade them to intervene. The proposed model indicates that the attempt to precipitate the deinstitutionalization of the dominant organizational form from the top-down also failed. Why did that happen? I elaborate the conditions leading to this outcome below.

Failed top-down deinstitutionalization. As noted above, the intervention and mediation of referee actors in a field-level conflict may lead to the endorsement of the template and the top-down deinstitutionalization of a dominant organizational form; however, depending on the actions of referee actors, such mediation may also lead to two other outcomes. In one scenario, referee may be insensitive to the request of intervention of challengers. The proposed template may not receive any recognition, with the consequence that collective mobilization collapses with no beneficial changes for reformers (Amenta et al., 1992; Gamson, 1990). Alternatively, the group of reformers may be able to stimulate a positive reaction from the referee actor. In this scenario, change agents receive some recognition for their ideas, but not a full endorsement of the solution proffered by them. The model describes the latter case, where the failure of top-down deinstitutionalization does not lead to collapse but to "institutional arbitration". Before I describe the characteristics of this mechanism, I elaborate two explanations for the failure of top-down deinstitutionalization that emerged from the analysis: (i) the protection of jurisdictional boundaries and (ii) the rejection of the novel field-level template.

Previous studies suggest that opponent incumbents typically engage in "defensive institutional work" to maintain the status quo (Maguire & Hardy, 2009). This case indicates that referee actors, despite their relative neutrality, are also likely to be conservative incumbents and they are expected to have little motivation to disrupt existing arrangements. For instance, in a mature field where the roles of field-level constituencies and their tasks are collectively understood, referee actors may have no interest in extending their influence beyond the set of practices that they govern and for which they proscribe and prescribe behaviors (Goodrick & Reay, 2011); hence, when asked by change agents to intervene, they may be reluctant to disrupt the balance of power and competencies in the field. The empirical evidence from this case suggests that referee actors have a primary interest in maintaining the jurisdictional boundaries that define field-level actors' areas of competence intact. As noted earlier, such conservativism is expected to be particularly heightened in mature fields (such as the one examined here) where established relationships between referee actors and other incumbents further incentivize the maintenance of the status quo. Additionally, referee actors may also be dependent on other constituencies' support. Hence, power asymmetry might also prevent them from intervening in favor of change agents (Fligstein & McAdam, 2012; Rao & Kenney, 2008).

Thus, my analysis reveals that similar dynamics are at play in both the failure of bottom-up and top-down deinstitutionalization. Similar to the way the interlocking of practices to incentives negatively affects bottom-up deinstitutionalization, relationships between field-level constituencies are also interlocked. For challengers to be successful in triggering top-down deinstitutionalization they need to "coopt" referee actors into accepting their vision; in this regard, visionaries who propose a

new organizational form are greatly disadvantaged because their model can be easily regarded as "experimental" and "unproven". In this case, challengers attempted to win support by emphasizing the familiarity and compatibility of the organizational template with existing arrangements. The literature typically refers to these strategies as "robust design" (Ferraro et al., 2014; Hargadon & Douglas, 2001; Leifer, 1991; Padgett & Ansell, 1993). Familiarity and compatibility may not be sufficiently compelling strategies, however, when audiences are not adopters (i.e. consumers) but referee actors. Referee actors may be unwilling to become "institutional entrepreneurs" themselves and to take the responsibility of sustaining a new template that is not widely accepted in the field and, if unsuccessful, might reflect negatively on them.

This case shows that, under these circumstances, the new template is likely to be rejected by referee actors. Yet, I found that referee actors are nonetheless compelled to show acknowledgment for the issue and display actions that show appreciation and satisfy the growing audience that requests a response. Such field level pressure is likely to arise in a field as an effect of the theorization of change agents. Through theorization, change agents are able to make their vision more comprehensible to wider audiences and convey a message of feasibility rather than utopian vision. Empirical evidence indicates that theorization reduced the initial skepticism and distrust of change agents' initial targets. Over time, visionaries gained new supporters and garnered interest for their cause. Referee actors, therefore, were under pressure to acknowledge that action was needed. Field pressure emerged from the analysis as a key driver of *institutional arbitration*. I suggest that institutional arbitration is an accommodation mechanism through which alterations to institutional arrangements

are made and convergent change occurs in a field. Simultaneously, the failed endorsement of the organizational template elaborated by challengers triggered a second accommodation mechanism – *institutional anchoring*. Institutional anchoring provides an explanation for the changes in the organizational forms that populate the field. Taken together, the two mechanisms illuminate how changes are *accommodated* in the field and lead to convergent field-level change.

Phase 2: Institutional Accommodation

Institutional accommodation is a phase of institutional change during which the field recomposes after the failure of change agents' attempts to precipitate institutional displacement. The failure of both top-down and bottom-up deinstitutionalization prevents radical change from being achieved. As a result of the lack of endorsement of the alternative template by referee actors, deinstitutionalization of the dominant organizational form or of field-level practices does not occur. At this stage in the model, the institutional field is in a state of relative entropy. A new template has been theorized, yet it has not been endorsed by key field-level constituencies; further, the mediation of referee actors has introduced the possibility of change in the field, but change has not been implemented yet. Contradictions are still lingering as field-level actors wait for the "dust to settle" and uncertainty to dissipate. Accommodation mechanisms explain how uncertainty dissipates as the field reconfigures around a new arrangement.

Institutional arbitration. Institutional arbitration is the field-level accommodation mechanism through which referee actors in their role as mediators shape field-level arrangements. As indicated earlier, referee actors have discretion to reject the

alternative template, but there is a mounting pressure on them to intervene and take some responsibility over contested practices. In fact, the status quo is no longer considered a viable option; change has to be implemented. At this stage, referee actors can no longer be neutral and engage in a process of *negotiation* with other field-level constituencies in order to reach consensus around a novel segmentation of practices.

The negotiation is conflictual. On one side, incumbents try to maintain as much control as possible over the contested field-level practice; on the other side, referee actors are pushed by challengers to take as much control as possible over the contested practice. This process ends when decisions are made over the extent to which the referee and incumbents will share responsibility over the same practice. In the case of Open Access, the decision involves *temporal* segmentation. That is, arrangements are made so that a time limit is given to the dominant logic and their representatives to control the practice. After that time, the practice is controlled by the logic represented by referee actors. Theoretically, segmentation establishes that the control of the dominant logic (i.e. the commercial logic) over the field-level practice will be *contracted* and some of the control is now taken over by referee actors and their representative logic (i.e. the public logic). The fact that the practice is going to be performed according to another set of "rules" in accordance with the referee logic after a certain amount of time represents an *expansion* of the domain of the referee logic beyond its initial jurisdictional domain.

The result of the negotiation is therefore an arrangement that ensures both logics have partial control over the same practice. Temporal segmentation is implemented in order to enable the coexistence of potentially competing logics over the same

practice. Examples of this arrangement can also be found in the governance of any artifact that is regarded as a semi-public good. For instance, there is a time limit before a patent expires and the knowledge associated with the patent is released in the public domain; similarly, copyright laws on music expires after a certain number of years from the composition. Segmenting arrangements do not necessarily need to be temporal, as the analogous case of geographical separation between logics described by Marquis & Lounsbury (2007) indicates. While the authors attributed the possibility of coexistence of two competing logics in the field of finance to geographical separation of the two logics (and their associated practices) in two different cities, the same arrangement is theorized here in the case of field-level practices that are broken down in two temporal frames and controlled by a different logic in each portion of time.

The outcome of institutional arbitration is convergent institutional change in the form of (a) the re-settlement of jurisdictional domain over contested practices through logics' contraction and expansion; (b) the creation of new field-level practices that instantiate in material artifacts and tools the re-defined segmentation of practices between logics.

Institutional anchoring. The final mechanism in the process model elucidates how accommodation entails the change in the ecology of organizational forms that populate the field. Specifically, institutional anchoring explains the diffusion of the new organizational form introduced by pioneering organizations in the *absence* of endorsement from referee actors. The key point here is that for a new organizational form to diffuse in a field, social acceptance is beneficial, yet it is not strictly necessary. Legitimation, as many scholars argue, is not a necessary and sufficient

condition for diffusion (Baum & Powell, 1995; Wry, Lounsbury, & Glynn, 2011). In fact, the number of organizations that adopt an organizational form that differ from the dominant template may increase in number (a "bandwagon" effect); yet, if endorsement to the new form has been denied by key field-level constituencies and the organizations that adopt the new form are new entrants in the field or peripheral actors, the new form is likely to be perceived as inappropriate, *despite* the growing number of organizations that use it. Under these conditions, the survival of new ventures is likely in jeopardy as these new players can be marginalized or even stigmatized. It follows that the new organizational form may be short-lived (but see, Tracey, Phillips, & Jarvis, 2011)

My case suggests that this scenario may be avoided if the new organizational form is *anchored* in the field; that is, if the diffusion of the new form is driven by adoption from central, rather than peripheral actors, it is more likely that it will be progressively recognized as appropriate (Deephouse & Suchman, 2008). I found that two mutually reinforcing dynamics positively affect the anchoring of the new form: the creation of visible exemplars and the collaboration with established incumbents. First, anchoring occurs when the organizations that pioneer the template succeed in becoming *visible exemplars* in the field and are increasingly recognized as successful players. These organizations tend to display and emphasize their success in order to show incumbents that the innovative template they propose is not only a legitimate form of organizing but also a profitable and successful one. Vivid examples of success have a positive effect on the recognition of the new form by incumbents.

Recognition is bestowed upon the pioneers of the organizational form but not to new players that adopt the form and enter the field. Indeed, the success of the

pioneering organizations becomes a double-edged sword. On the one hand, it has a beneficial effect as it validates recognition; on the other hand, it stimulates the entrance of new peripheral organizations that have an incentive to "copy" them (Wry et al., 2011). In fields where there is a strong shared cultural understanding of the most appropriate template for organizing, this dynamic has a negative effect for early innovators. Adoption by new entrants may increase the perception of illegitimacy and may potentially taint the reputation that innovators are trying to build around the new form.

This is why innovators wish to have their form adopted by established and central actors. The pioneers of the new organizational form are strongly inclined to seek recognition from incumbent organizations and, simultaneously, protect their reputation from those who can damage it with improper representation of the new form. Defining boundaries and criteria for membership is a typical way in which this objective can be achieved (Lawrence, 1999). In this specific case, a field-level representative organization was created in order to monitor the behaviors of adopters of the new organizational form (i.e. OASPA). Notably, the organization offers an ideal channel to select membership but also to create a space of interaction and dialogue with incumbent organizations (David et al., 2013; Rao, 1994, 1998; Zietsma & McKnight, 2009).

Importantly, at this stage the success of the early innovators provides an incentive for incumbent organizations to join the organization. Among the reasons for joining there is the opportunity to learn about the new organizational form and experiment with it. The field-level organization, in other words, provides the platform for a second anchoring dynamic, namely *institutional collaboration* (Lawrence

et al., 2002; O'Mahony & Bechky, 2008; Reay & Hinings, 2009; van Wijk et al., 2013). Collaboration is beneficial for the organizations involved because their interests are now aligned. Incumbents seek collaboration in order to protect the new organizational form and 'anchor' it in the field through adoption by central actors. Incumbents are willing to collaborate because the new organizational form is increasingly recognized as a potential "opportunity". At the field-level, institutional collaboration positively contributes to the diffusion of the new organizational form.

In conclusion, the proposed model supports existing evidence that institutional change is a contested and negotiated process. This study extends knowledge in this domain by more clearly identifying the processes and mechanisms that lead to convergent change. Specifically, the notion of institutional accommodation offers a promising theoretical lens to appreciate the nuances of institutional change processes and the deeply intertwined relationships between incumbents and challengers. Chapter VII further elaborates the contributions of the thesis by discussing: (i) *How* institutional accommodation occurs; (ii) *Who* engages in institutional accommodation; (iii) *Why* institutional accommodation occurs; and (iv) *Where/When* institutional accommodation occurs. A discussion of the limitations of the study and promising directions for future research concludes the dissertation.

Chapter VII

CONCLUSIONS

This dissertation builds on a long and established tradition of institutional research that addresses the question of how institutional fields change (Greenwood et al., 2002; Greenwood & Hinings, 1996; Reay & Hinings, 2005; Scott et al., 2000; Zietsma & Lawrence, 2010). My overarching goal has been to demonstrate that the *scope* of change – that distinguishes convergent from radical outcomes – is a meaningful, yet relatively neglected, dimension in the institutional change literature. Hence, I sought to show that paying more attention to this dimension can significantly advance our understanding of change processes and mechanisms.

Specifically, the contribution of this dissertation to the study of institutions is twofold. First, I developed a typology that provides conceptual clarity to the ubiquitous term "institutional change" and sheds light on undetected sources of variation in change processes. I offered a classification of meta-processes ("pathways") of institutional change based on the pace and scope of change. The four pathways – institutional *displacement*, institutional *alignment*, institutional *accretion*, and institutional *accommodation* – highlight specific underpinning mechanisms of each pathway. Additionally, my review of the literature revealed that the process of institutional accommodation – characterized by revolutionary pace and convergent scope – is currently understudied. The second contribution of the dissertation is therefore to provide an empirical examination of institutional accommodation and to elaborate its critical role in shaping field-level change. I now proceed to a detailed

discussion of institutional accommodation and conclude the chapter with the limitations of the dissertation and directions for future research.

Institutional Accommodation and Convergent Field Change

My empirical examination was motivated by two questions about the relationship between processes and outcomes of institutional change. Specifically, I asked: *(1) How and why does a revolutionary process of change aimed at radical field-level change (institutional displacement) fail? (2) How and why does failure of institutional displacement result in convergent field-level change (institutional accommodation)?* These questions were examined in the context of scholarly publishing, a mature institutional field whose stability was destabilized by a major technological and social disruption, i.e. a movement for Open Access triggered by the emergence of Internet and electronic publishing.

The analysis of the attempt of activists to precipitate radical change (i.e. to make the entire peer-reviewed literature available for free on the Internet on the basis that it should be public knowledge) offered the opportunity to examine how and why "challengers of the status quo" (Fligstein, 1997; Fligstein & McAdam, 2012) or "institutional entrepreneurs" (Battilana et al., 2009; DiMaggio, 1988; Hardy & Maguire, 2008) may not succeed in their attempt to deinstitutionalize dominant institutional logics and practices. Importantly, the failure to precipitate institutional displacement did not lead – as it could be reasonably expected – to the recomposition of the field around the status quo. Field-level change occurred, but it was *convergent*, and not radical, in scope. By explaining how and why change efforts that are intended to be radical in scope (Hensmans, 2003; Rao et al., 2003; Schneiberg & Lounsbury, 2008) result in convergent outcomes, this study theorizes institutional accommodation as a key mechanism of institutional change.

Additionally, because I examined a case of activists-driven change, my findings also answer the call to probe deeper into the "not straightforward connection between field change and collective action" (van Wijk et al., 2013: 358).

How does Institutional Accommodation Occur? Institutional Arbitration and Institutional Anchoring

A first key finding of the study is the identification of two mechanisms of accommodation – institutional arbitration and institutional anchoring. Institutional arbitration is a mechanism through which salient field constituencies engage in a consultative process in order to negotiate to what extent the governance structure of the field should be modified (Scott et al., 2000). In this specific case, the object of contestation is the jurisdiction of the commercial and the public logic over knowledge dissemination practices. Institutional arbitration is led by referee actors who act as mediators. Their role is to negotiate with other field-level constituencies the terms of the alteration of the relationship between dominant institutional logics. Arbitration, therefore, enables referee actors to accommodate the demands of challengers within existing institutional arrangements *and*, simultaneously, maintain the core features of the status quo, as demanded by incumbents.

Institutional anchoring is a second mechanism that is similar to arbitration in the underlying accommodating nature of the interaction between actors; however, it differs in two ways. First, only challengers and incumbents engage in it (i.e. referee actors are not involved) and, second, anchoring does not affect the governance of the field but it changes the ecology of organizations. Collaborative behaviors between challengers and incumbents emerge as challengers face the lack of endorsement by key field representatives for a proposed field-level innovation and

become increasingly interested in 'anchoring' the innovation to the field (i.e. to promote social acceptance and diffusion of a new organizational form).

Institutional arbitration and institutional anchoring are de-escalating mechanisms that confirm previous examinations of convergent change as the result of "pragmatic or non-trust collaboration" (Reay & Hinings, 2005: 648). This type of collaboration is relatively common and is based on the premise that groups of actors in opposing positions may engage in interactions and work together for personal interest. Importantly, this study demonstrates that the mechanisms that explain change in governance structures (i.e. logics and field-level practices) and those that explain change in the population of organizations may, under certain conditions, differ. My work therefore extends the currently selective understanding of the role of collaborative behaviors in institutional accommodation by specifying the link between specific mechanisms (i.e. arbitration and anchoring) and specific outcomes (i.e. change in the relationship between logics and change in the population of organizations).

Who Engages in Institutional Accommodation? Challengers, Incumbents and the Mediating Role of Referee Actors

By illuminating the different constituencies that are involved in institutional accommodation and the mechanisms that trigger the engagement of those actors, my study nuances understanding of the role that "incumbents" play in institutional change processes. The term "incumbent" is typically used to identify those actors that benefit from the status quo and are therefore expected to resist change. This definition is coarse-grained as it glosses over important sources of heterogeneity between field-level actors that do not belong to the group that initiates change (i.e.

they are not challengers). A key insight from this study is that different incumbent actors contribute in unique ways to shaping the outcome of change processes. In particular, my study focuses attention on the role that *third-party* organizations – referee actors – may play in institutional change processes and demonstrates the benefit of analysing the *mediating role* of those constituencies.

A key tenet of institutional theory is that gaining and maintaining the approval of key field-level "audiences" (Suchman, 1995; Tolbert & Zucker, 1999) and "constituencies" (Fligstein, 1997; Hoffman, 1999) is essential for organizational survival and success (Deephouse & Suchman, 2008). Many of the studies that point attention to the critical role of legitimating processes look at fields that are relatively stable. When analysing fields that are disrupted and in turmoil, however, scholars typically focus on those actors that seek to disrupt the status quo (challengers) and those actors that resist change (incumbents). When incumbents accept change they become "adopters"; this label emphasizes their role as agents of diffusion (Strang & Meyer, 1993).

Notably, the role of third-party actors is often confined to one of "endorsers" (Greenwood et al., 2002; Smets et al., 2012). In other words, the endorsement of legitimacy-granting organizations is not required for the practical implementation of the change, but it is highly desired to minimize or avoid the disapproval and social sanctions that deviations from the status quo typically attract. In the case under examination, referee actors played a much more active role. They were responsible for the failure of the top-down deinstitutionalization attempt because of their refusal to endorse the new template. Additionally, through institutional arbitration, referee actors shaped the recomposition of the field around novel arrangements. Thus, the

study sheds light on the variegated implications that the "strategic interaction" between challengers and different types of incumbents have for field-level change (de Bakker et al., 2013; Fligstein & McAdam, 2012; Zietsma & McKnight, 2009).

Giving attention to referee actors also offers insight on the conditions under which these third-party actors become the *target* of theorization. Even though theorization is an established concept in the institutional literature and its role in enabling diffusion is well-known (Strang & Meyer, 1993), there has been little discussion about (i) why some actors and not others become the target of theorization and (ii) in what circumstances theorization is used in change processes. This study suggests that challengers become "theorizers" when their attempt to precipitate change from the bottom-up is halted by failure. In response, they seek to engage referee actors that may precipitate change from the top-down. Because referee actors are not involved in the conflict, their sensitivity to grievances and frames may be limited. Thus, theorization is used as a mechanism of engagement of actors who are not proximate to challengers but who can play an important mediating role in implementing radical change.

Why does Institutional Accommodation Occur? Failed Institutional Displacement as Antecedent of Accommodation

As noted earlier, a relatively small group of studies on institutional change acknowledges that attempts to precipitate radical change may result in convergent change. To wit, challengers might succeed in changing the field but the outcome is relatively incremental and accommodation occurs (Lounsbury, 2005; van Wijk et al., 2013; Zietsma & Lawrence, 2010). Despite growing interest in incremental change as

the result of accommodation processes, not much is known about the conditions that make accommodation more likely to occur in the first place.

Some authors indicate that the necessity to "get the work done" is a primary motivation for field-level actors to engage in collaborative activities despite their conflicting positions on an issue (Reay & Hinings, 2009; Reay & Hinings, 2005); other scholars consider collaborative relationships as a natural outcome of processes of cultural and relational structuration during which relationships between challengers and incumbents become more entrenched and naturally converge (van Wijk et al., 2013). My study confirms the important role that collaborative behaviors play in altering the governance structure of a mature field (i.e. institutional arbitration) and in facilitating the diffusion of a new organizational form (i.e. institutional anchoring) (Reay & Hinings, 2009; van Wijk et al., 2013; Zietsma & Lawrence, 2010). While these mechanisms have been linked to convergent change before, I believe my research provides a better understanding of why institutional accommodation prevails over other possible paths of change.

More precisely, I found that failure of deinstitutionalization attempts is, in my case, an important *antecedent* of institutional accommodation. The willingness of challengers and incumbents to engage in institutional collaboration was driven by the interest of proponents of a new organizational form to more strongly position the new ventures in the publishing landscape. Institutional collaboration was needed in order to anchor the innovative organizational form in the field because the template failed to receive top-down endorsement by referee actors. Thus, I suggest that institutional accommodation is likely to follow failed attempts to deinstitutionalize dominant logics, practices and organizational forms.

Where/When does Institutional Accommodation Occur? The "Ossification" of Institutional Fields

A final question emerging from this study is whether there is a relationship between the emergence of institutional accommodation and the characteristics of the field under examination (Battilana et al., 2009; Greenwood et al., 2011; Wooten & Hoffman, 2008). For example, one might wonder whether institutional accommodation is more likely to be observed in mature fields, such as scholarly publishing, where precipitating dynamics lead to struggles between actors with pluralistic competing interests (Fligstein & McAdam, 2012; Hoffman, 1999). This study cannot shed direct light on the relationship between accommodation and the features of an institutional field. To do so would require a comparative research design and not a single case. However, the case of Open Access suggests that institutional accommodation might not be a mechanism of institutional change prevalent in mature fields but in fields that are *ossified*, a characteristic that is related to maturity but it does not completely overlap with it. I explain my argument below.

A mature field is a field where structures and practices have become formalized and stabilized over time. Greenwood et al. (2011: 335) suggest that the main difference drawn between mature and emerging fields is "the presence of regularized inter-organizational relationships – i.e. identifiable patterns of interaction among organizations in the field – combined with an articulated institutional infrastructure." Hence, mature fields are expected to be governed by a dominant logic or, when multiple logics are at play, institutional complexity is expected to be settled. The notion of "constellation of logics" proposed by Goodrick and Reay (2011) brilliantly convey the idea that different logics may simultaneously inform practices and behaviors, as long as the jurisdiction of each logic is bounded and those boundaries

are collectively understood and accepted by field members (Garud, Gehman, & Karunakaran, 2014; Zietsma & Lawrence, 2010).

I acknowledge that radical institutional change is reasonably more difficult to achieve in mature fields; likewise, institutional accommodation is reasonably expected to occur in fields with high degree of maturity. However, I suggest that it may not be the maturity of a field per se to make institutional accommodation more likely but the extent to which maturity also entails *ossification*. Ossification occurs when the practices that determine actors' status and position in the social hierarchy are the same practices that provide critical resources to the dominant organizational form in the field. When a field is ossified, the interlocking nature of dominant practices and dominant organizational forms represents a strong force that prevents radical change. Specifically, attempts to disrupt the status quo from the bottom-up and the top-down are *both* likely to fail.

These mechanisms can be better understood by looking at accounts of institutional change in other fields that are regarded as mature. For example, the case described by Smets and colleagues (2012) on the institutional change in the German legal sector offers an account of a mature field that is *not* ossified. Bottom-up changes in practices emerged within an elite firm and were formalized in the creation of a hybrid organization. As the authors note, transformational change (i.e. a shift in logic) was possible because the interests of elite law firms and the German professional association were not interlocked. The centrality and high status of the elite law firm buffered the organization and made its interests less dependent from the approval of other field-level constituencies (e.g. the German professional association). Hence, organizational change was able to diffuse from the bottom-up to

field level. In the case of Open Access, the field of scholarly publishing is not only mature but also ossified. In my case, bottom-up deinstitutionalization of dominant practices failed as incentive systems prevented the majority of scientists from translating their moral support into action. Likewise, the interlock of interests of governments and large industry players contributed to referee actors' decision to refuse endorsement for the new form of organizing proposed by challengers. Hence, the failure of top-down deinstitutionalization.

Along the same lines, consider the mature field of health care in Alberta described by Reay and Hinings (2009, 2005). This is also a mature field where the Government coercively imposed on professions a shift from the professional to the business logic. In other words, a top-down radical institutional change was initiated by a powerful actor willing to take leadership. In scholarly publishing, instead, those actors (i.e. the state and its funding agencies) who could coercively impose change on organizations and thus trigger a radical systemic change were not willing to become champions of change and assume leadership of the process. My case suggests that the interlocking interests between field-level actors played a key role in the decision of the Government to maintain relative neutrality and settle for a selective implementation of change.

I extend my argument even further by suggesting that even emerging fields may be ossified; hence, we might see institutional accommodation to be a key mechanism of change in these fields as well. For instance, the study in the emerging field of Dutch sustainable tourism offered by van Wijk and colleagues (2013: 381) suggests that "the movement's need for collaboration to achieve its goal increased because external support was unavailable". As the authors note, there was no willingness or

ability of state and market actors to act as third-party enforcers. Similarly, market-demand for environmental-friendly innovations was relatively weak. In consequence, accommodation emerged as a key process. In other words, institutional accommodation is seemingly more likely to prevail as a change mechanism in fields where there is weak push for change from the bottom-up and weak push for change from the top-down. The notion of ossified fields seems to capture this characteristic better than the idea of mature fields. As a counterexample, we can think about the radical change advocated by the car-service company UBER. The field is not ossified because the interests and incentives of consumers are not linked to the ones of local governments or taxi companies. If the bottom-up mobilization of consumers will continue to be as successful as it has been so far, a transformation in the field might not be far away without the need of accommodation. Although I believe ossification is a promising concept, more research is required to assess whether this idea deserves merit and how it can be fruitfully disentangled from other established features of field (e.g. fragmentation, formalization, concentration).

Limitations and Directions for Future Research

The thesis provides an in-depth examination of a case of institutional change in a specific context. While processes and mechanisms proposed in this study are theoretically generalizable beyond the specific case, I acknowledge the scope conditions in which these theoretical insights are expected to be relevant. Such conditions are limitations that indicate promising areas of future research. As in all cases of field-level institutional change, scope conditions derive from the identification of meaningful boundaries to the study and the management of the

trade-off between depth and breadth of the analysis. In this case, four scope conditions are particularly relevant.

First, the reported study focuses on the emergence and development of Open Access in a particular country (i.e. the United States) but Open Access is indeed a global phenomenon. The debate about public access to knowledge has been equally intense in other countries (e.g. the United Kingdom or Germany or Brazil in Latin America) and it is reasonable to expect that the trajectory of institutional change, the actors involved and the mechanisms underpinning change will vary contingent on national priorities and country-level differences. Theoretical generalization to other countries, therefore, should be attentive to national differences that are only partially accounted for in this study. Additionally, given the supranational nature of the issue, the events that shaped the evolutionary trajectory of Open Access in the United States are likely to have been influenced by the responses of – and initiatives taken by – other countries. Although I am confident that the country level is an appropriate unit of analysis, I addressed this limitation by remaining sensitive to other countries' responses and external influences.

Along the same lines, theoretical generalization should be sensitive to the differences between scientific communities nested within the field of scholarly publishing. Scientific communities share some common principles but are substantially different and autonomous social spaces. Indeed, this idea is entrenched in academic thinking and the mantra that "one size does not fit all". While I examined the trajectory of development of Open Access at a relatively aggregate level (i.e. the field of scholarly publishing), it is relevant to investigate important dissimilarities of responses at the community level.

The third limitation derives from the need to capture meaningful interactions between numerous actors (i.e. challengers, referee actors, incumbents). In consequence, potential variation in responses within each category may have been downplayed. For example, I focused the spotlight on the challengers and identified their evolution throughout the change process; instead, I have been unable to capture variations of responses between commercial publishers. Although I am confident that the behavioral patterns identified in the study are overall indicative of the responses of publishers as a category, understanding sources and effects of heterogeneity is interesting and theoretically relevant.

The last scope condition takes into account the general characteristics of the field under investigation (i.e. maturity and ossification). Specifically, the field of scholarly publishing is a very mature field characterized by a clearly defined "constellation of logics". Different tasks in the field are assigned to specific organizations that instantiate a specific governing logic. Additionally, I discussed how the concept of ossification may be particularly relevant to explain the findings. Given these premises, I expect the processes and mechanisms theorized in this dissertation to be generalizable to other fields with similar characteristics. That is, mature fields where the "settled" institutional complexity is disrupted and where ossification prevents radical field-level change.

The limitations of the study offer promising directions for future research. Three areas are particularly intriguing: (i) the comparative study of institutional accommodation across countries and scientific disciplines and comparative study of variation in responses to Open Access of publishing organizations, (ii) in-depth case

study of the role of referee actors; and (iii) extension of the model to other fields and other units of analysis (i.e. within organizations).

First, there is the opportunity to design comparative studies that illuminate differences in pathways of change and explain institutional sources of variation in responses to Open Access. For example, the comparison of the regulatory trajectory of Open Access in the United States and the United Kingdom would enable a deeper understanding of how the State mediates institutional change. Indeed, compared to the United States, the government and funding agencies in the United Kingdom have more strongly supported Open Access publishing as a superior business model, with much criticism. Such comparison would extend knowledge on the role of referee actors and, more broadly, the political mediation model in the social movement literature (Amenta et al., 2005; Amenta et al., 1992).

Second, the observed variation between Biomedical Sciences and other disciplines provides an excellent starting point for a large scale examination across scientific communities. This future study can build on – and extend – the research design elaborated in the thesis in order to understand how Open Access has been variously accommodated within different scientific communities. Specifically, a rich dataset of primary and secondary data can be collected and then analysed using both qualitative and quantitative techniques. In order to conduct quantitative analyses, the study can expand the databases I started. The first one contains information about the founding of Open Access journals (~10,000 in 2014). Event history analysis can be used to analyze how the creation of Open Access journals varies across different disciplines. Network-level measures can be derived by collecting bibliometric network data across scientific communities. Specific hypotheses can also be tested

regarding the mechanisms of encroachment of Open Access journals in the Journal Citation Report.

A third type of comparative case study can balance the current focus of the thesis on the challengers rather than incumbent publishing organizations. Specifically, there is evidence that commercial publishers have reacted differently to the emergence of the movement and their demands. Some publishing companies have been relatively proactive in their strategic responses to Open Access and seemed to believe early on in the potentialities of the new business model (e.g. Springer, Sage); other publishing companies have been much more reactive, with responses that vary from resistance (e.g. Elsevier), to rejection (i.e. American Chemical Society) to cautious experimentation (e.g. Taylor & Francis). A comparative case study of publishers would shed light on the motivations behind these different responses and, critically, their changes over time. This study would nicely contribute to the emerging literature on responses to institutional complexity by offering a dynamic theory of responses to complexity (Raaijmakers et al., 2015).

A second direction of fruitful research is the in-depth examination of a single case study that would enable a deeper examination of field-level constituencies that have the potential to play referee roles. In this case, the scientific community of Physics offers an ideal setting. Specifically, in the High Energy Physics community, the organization CERN (European Organization for Nuclear Research) has played a pivotal role in supporting the conversion of ten primary journals in this research domain to an Open Access format through the project SCOAP3. SCOAP3 is a one-of-its-kind partnership of thousands of libraries, key funding agencies and research centers in more than 40 countries. Notably, key journals in the field of High-Energy

Physics have been converted to Open Access at no cost for authors (http://scoap3.org/what-is-scoap3). This case study offers an opportunity to further our understanding of incentives and obstacles to collaboration between movements and incumbents.

Finally, it would be very interesting to examine further whether the dynamics that emerged in this field-level study are linked to the characteristics of the institutional field (i.e. maturity and ossification). In other words, future research is necessary in order to examine the link between the processes and mechanisms of institutional change and the distinctive properties of the field itself. Comparative cases studies of institutional change in different fields would be ideal. Another interesting extension of this study could be the examination of the cross-level generalizability of accommodation mechanisms. Would these dynamics be seen in radical change efforts initiated at the organizational level? The study of social movement within organizations is well-established, but it still remains a relatively less explored area of research compared to collective action at the field-level and societal-level (Morrill, Zald, & Rao, 2003). This direction is promising to 'test' the generalizability of "institutional" field-level mechanisms at the organizational level.

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Appendix A

The Review Approach

Institutional change is an umbrella term that refers to a wide variety of social processes by which institutional frameworks emerge or vanish, expand or contract, diffuse or concentrate, are transformed or slightly altered. Institutions are a nested system of society, field, organizational, and individual levels (Barley & Tolbert, 1997; Friedland & Alford, 1991; Scott, Ruef, Mendel, & Caronna, 2000), constitutive of both material and symbolic elements (Scott, 2014; Thornton, Ocasio, & Lounsbury, 2012). A relatively comprehensive analysis of changes in "institutions" needs, therefore, to be informed by accounts that embrace both symbolic and material representations of culture, structure and process occurring at the macro (i.e. societal, population, field), meso (i.e. organizational), and micro (i.e. intra-organizational and practice) levels of analysis.

To conduct my review, I searched several electronic databases (i.e. JSTOR, Web of Science, Google Scholar) using as keywords "institutional change" and its variants (e.g., "institutional transformation", "radical change", "exogenous shocks", "incremental change", "endogenous contradictions", "institutional entrepreneurship"), as well as in the unit of analysis of change (e.g., "field change", "field evolution", "organizational field change", "practice-level change"). I included additional papers by cross-checking references and relying on my knowledge of the institutional literature. I then progressively refined the search by selecting (i) empirical papers that (ii) are published in recognized management and sociology journals (i.e. *Academy of Management Journal, Administrative Science Quarterly, American*

Journal of Sociology, American Sociological Review, Journal of Management Studies, Organization Science, Organization Studies, and Strategic Management Journal) and (iii) explicitly focus on institutional change and/or discuss the 'institutional' implications of the study.

Ninety-seven articles were coded for the pace and the scope of change. I followed two sequential steps of coding. First, I looked for the description of the causes that precipitated change provided by the authors (e.g. the introduction of a regulation) and the content of the change (e.g. changes in the ecology of organizations in the field after the implementation of the regulatory change). In the second round of coding, I read carefully each empirical account in order to understand how the institutional change process actually unfolded. This examination enabled me to contrast and compare my classification (shown in Table 1 and Table 2) with the empirical account and then code each article according to its pace and scope.

Papers on Institutional Change Selected for Analysis

TITLE	AUTHOR(S)	YEAR	JOURNAL	SUMMARY	CODING	PATHWAY
Organizational form, population dynamics, and institutional change: The founding patterns of voluntary organizations	Tucker, Singh & Meinhard	1990	Academy of Management Journal	Major changes in institutional environments alter ecological dynamics. The study investigates the relationship between founding, population dynamics, and institutional change in a population of voluntary social service organizations	DRIVER: change in attitude of the government towards social problems switch emphasis from social to economic factors = *revolutionary pace* OUTCOME: founding and disbanding of a population of organizations = *radical scope*	Institutional displacement
Environmental jolts and industry revolutions: Organizational responses to discontinuous change	Meyer, Brooks & Goes	1990	Strategic Management Journal	This paper focuses on discontinuous change occurring at the industry level. A perspective on this type of change is developed, and applied in a historical analysis of the hospital industry. Data from a longitudinal field study are used to illustrate various organizational responses to discontinuities	DRIVER: a combination of regulatory actions aided by competence-destroying technologies = *revolutionary pace* OUTCOME: redefinition of competitive boundaries, metamorphic changes in organizations, redraw of networks = *radical scope*	Institutional displacement
An institutional model of organizational practice: Financial reporting at the Fortune 200	Mezias	1990	Administrative Science Quarterly	This study argues that changes in the institutional environment drive changes in the financial reporting practices used by large for-profit enterprises. Particular emphasis is placed on the question of how institutional environments change over time	DRIVER: proposal by a peripheral actor of a mandate for a professional practice = *evolutionary pace* OUTCOME: negotiations among institutional actors select a different practice, that eventually diffuses = *convergent scope*	Institutional alignment
Converting to for-profit status: Corporate responsiveness to radical change	Ginsberg & Buchholtz	1990	Academy of Management Journal	This study examines organizational adaptation to a radical environmental shift--a dramatic change in federal policies toward health maintenance organizations (HMOs) that removed key advantages of non-profit status	DRIVER: dramatic changes in the federal government's policies and in consumers' expectations = *revolutionary pace* OUTCOME: transformation in the organizational population, conversion from non-profit to for-profit status = *radical scope*	Institutional displacement
Institutional change and the transformation of interorganizational fields: An organizational history of the U.S. radio broadcasting industry	Leblebici, Salancik, Copay & King	1991	Administrative Science Quarterly	The study explores how institutional practices change over time in an interorganizational field, in the historical context of the U.S. radio broadcasting industry	DRIVER: conventions are introduced into the broadcasting field by fringe players to deal with shifting coordination problems and competitive pressures =	Institutional accretion

					evolutionary pace OUTCOME: conventions transform the field by changing the basis of transactions and reorganizing the pattern of transactions away from its central institutions = *radical scope*	
Legal ambiguity and symbolic structures: Organizational mediation of Civil Rights law	Edelman	1992	American Journal of Sociology	The author uses data from a nationwide survey of 346 organizations to develop models of the creation and institutionalization of organizationally constructed symbols of compliance following the 1964 Civil Rights Act.	DRIVER: ambiguous regulations = *evolutionary pace* OUTCOME: organizational changes to show compliance and field-level changes = *convergent scope*	Institutional alignment
A diametric forces model of strategic change: Assessing the antecedents and consequences of restructuring in the higher education industry	Zajac & Kraatz	1993	Strategic Management Journal	This study examines the environmental and organizational forces, counter-forces, and performance consequences of strategic restructuring in the higher education industry as a successful adaptive response	DRIVER: major shifts in the preferences of students and labour market conditions = *revolutionary pace* OUTCOME: survival-enhancing strategic restructuring, i.e. introduction of business, graduate and female programs = *radical scope*	Institutional displacement
Organizational transformation as punctuated equilibrium - an empirical test	Romanelli & Tushman	1994	Academy of Management Journal	This paper tests basic arguments of the punctuated equilibrium model using data on US minicomputer producers. Supportive results showed that organizational transformations were accomplished via rapid and discontinuous change over most or all domains of organizational activity	DRIVER: shift in competitive dynamics - founding and funding, market concentration = *revolutionary pace* OUTCOME: changes in strategies, structures, and power distributions in the population of US minicomputer producers = *radical scope*	Institutional displacement
The decline and fall of the conglomerate firm in the 1980s - The deinstitutionalization of an organizational form	Davis, Diekmann, & Tinsley	1994	American Sociological Review	Using comprehensive time-series data from the 1980s on a population of the largest industrial firms in the United States, this paper demonstrates how business rhetoric tracked the shift in the dominant corporate form and the change in the ontological status of the corporation and prevalent organizational practices	DRIVER: shift in logics, i.e. regulatory changes and changes in the conceptualization of the corporation = *revolutionary pace* OUTCOME: deinstitutionalization and replacement of dominant organizational form = *radical scope*	Institutional displacement
Tales of change: Public administration reform and narrative mode	Sköldberg	1994	Organization Science	The empirical basis is a series of case studies of change in Swedish local authorities. Faced with conflicting signals from the	DRIVER: contradictions and conflicting signals from the environment = *evolutionary pace*	Institutional alignment

				outside, and lacking an internal, dominating center, the organizations showed similar patterns of inconsistencies and decoupling	OUTCOME: reorganization as a synthesis of narratives = *convergent scope*	
Transforming former state enterprises in the Czech-republic	Clark & Soulsby	1995	Journal of Management Studies	The evidence presented in this paper, drawn from a study of organizational transformation in the Czech Republic, shows how the values, motives and actions of the key enterprise managers are essential factors in explaining both the process of transformation in state enterprises, and the role of institutional factors in that process.	DRIVER: the move from a centrally planned, command economy to a free market economy = *revolutionary pace* OUTCOME: breakdown of current institutional practices and social processes of institutional reproduction in enterprises = *radical scope*	Institutional displacement
Employer involvement in eldercare: An organizational adaptation perspective	Goodstein	1995	Academy of Management Journal	This paper elaborates a number of organizational and environmental determinants that influence the recognition and interpretation of eldercare issues and relate these considerations to the level of employer involvement in the care of elderly dependents	DRIVER: demographic changes in the workforce = *evolutionary pace* OUTCOME: responsiveness to eldercare concerns and other work-family issues in terms of benefits provided = *convergent scope*	Institutional alignment
The dynamics of institutionalization: Transformation processes in Norwegian fisheries	Holm	1995	Administrative Science Quarterly	This article considers how actors change institutions if their actions, intentions, and rationality are all conditioned by the very institution they wish to change. This is demonstrated in an analysis of institutional change processes affecting the rise and fall of a specific institutional form, the mandated sales organization (MSO), in Norwegian fisheries	DRIVER: major market crisis, external pressures and ideological changes = *revolutionary pace* OUTCOME: deinstitutionalization of the MSO organizational form, shift in underlying power structures = *radical scope*	Institutional displacement
Sedimentation and transformation in organizational change: The case of Canadian law firms	Cooper, Hinings, Greenwood, Brown	1996	Organization Studies	This paper identifies two archetypes in large Canadian law firms to show how ideas of professionalism and partnership are changing, due in part to shifts in discourse in the wider institutional context. These changes in discourse themselves alter the interpretation of organizational structures and systems	DRIVER: change in discourse in the wider institutional context = *evolutionary pace* OUTCOME: change in the interpretation of organizational structures and systems. Persistence of values, ideas and practices = *convergent scope*	Institutional alignment
Institutional constraints on economic reform: The case of investment decisions in China	Child & Yuan	1996	Organization Science	The paper examines the process of investment decision making in six Chinese state enterprises during the economic reform which combined moves towards a market system with a continuing role for the state in industrial governance.	DRIVER: economic reform program aimed at slowly decentralizing decision making to enterprises = *evolutionary pace* OUTCOME: change in investment decision making in terms of resource providers,	Institutional alignment

					persistence of state institutional control = *convergent scope*	
The organizational transformation process: The micropolitics of dissonance reduction and the alignment of logics of action	Bacharach, Bamberger & Sonnenstuhl	1996	Administrative Science Quarterly	This paper examines how, in the face of a massive environmental shift, changes at the institutional level were transformed into changes at the core level. The model is generated from an analysis of qualitative data on the impact of deregulation on labor and management's approach to employee emotional well-being in the airline industry	DRIVER: environmental shift in the form of deregulation = *revolutionary pace* OUTCOME: transformation in labor-management relations in the aftermath of deregulation = *radical scope*	Institutional displacement
Organizations in changing environments: The case of East German symphony orchestras	Allmendinger & Hackman	1996	Administrative Science Quarterly	Historical, qualitative, and survey data from a longitudinal comparative study of 78 orchestras show that the contexts of East German orchestras changed significantly when the socialist regime took power after World War II, and then again in 1990 when that regime fell. The collapse of socialism in 1990 provoked differentiation among orchestras--some adapted successfully to the new political-economic context, but others floundered	DRIVER: radical changes in sociopolitical regimes = *revolutionary pace* OUTCOME: ecological dynamics of orchestras and changes in their structures = *radical scope*	Institutional displacement
Structuring a theory of moral sentiments: Institutional and organizational coevolution in the early thrift industry	Haveman & Rao	1997	American Journal of Sociology	The authors investigate the coevolution of organizations and institutions-they study how institutional definitions, rules, and expectations unfold in tandem with the organizational structures and processes that embody those institutions. The research site is the early thrift industry	DRIVER: modernization—the rise of a transient population and the expansion of the Progressive movement = *revolutionary pace* OUTCOME: selection of organizational forms = *radical scope*	Institutional displacement
The strength of a weak state: The rights revolution and the rise of human resources management divisions	Dobbin & Sutton	1998	American Journal of Sociology	In event-history analyses of data from 279 organizations, this research finds that legal changes stimulated organizations to create personnel, antidiscrimination, safety, and benefits departments to manage compliance	DRIVER: weak regulatory pressure for compliance = *evolutionary pace* OUTCOME: adoption of organizational practices and structures = *convergent scope*	Institutional alignment
Institutional transformation and enterprise change in an emergent capitalist economy: The case of Hungary	Whitley & Czaban	1998	Organization Studies	This study of 27 Hungarian enterprises in the early 1990s shows that the collapse of state socialism in Eastern Europe has transformed many of the institutions governing state enterprises. However, the highly fluid institutional environment limited the commitment to, and capacity for, major strategic changes in most substantial Hungarian enterprises.	DRIVER: radical political and economic changes, collapse of financial institutions = *revolutionary pace* OUTCOME: no change in response to the trigger	No-fit

Organizational adaptation to institutional change: A comparative study of first-order change in prospector and defender banks	Fox-Wolfgramm, Boal & Hunt	1998	Administrative Science Quarterly	Using grounded theory, we examined a "defender" and a "prospector" bank's strategic adaptation to the Community Redevelopment Act across seven years during which they were under increasing regulatory pressure to comply. We observed both incremental and punctuated equilibrium change modes, though only incremental change was sustained	DRIVER: non-coercive regulatory pressure = *evolutionary pace* OUTCOME: incremental change in the form of strategic adaption = *convergent scope*	Institutional alignment
Normative and resource flow consequences of local regulations in the American brewing industry, 1845-1918	Wade, Swaminathan & Scott Saxon	1998	Administrative Science Quarterly	This study investigates the impact of state-level prohibitions on the founding and mortality rates of breweries in prohibition-free states	DRIVER: major environmental reversal, a change in the prohibition status of an adjacent state = *revolutionary pace* OUTCOME: increase in the mortality rate of breweries = *radical scope*	Institutional displacement
A multidimensional model of organizational legitimacy: Hospital survival in changing institutional environments	Ruef & Scott	1998	Administrative Science Quarterly	Using data on 143 hospital organizations, this article examines the antecedents and effects of two forms of organizational legitimacy over a 46-year period. Results show that both the managerial and technical forms provide notable improvements in organizational survival chances but that the strength of each effect varies over time depending on the nature of the institutional environment.	DRIVER: shifts in institutional logics in health care = *revolutionary pace* OUTCOME: survival of population of hospitals = *radical scope*	Institutional displacement
Institutional logics and the historical contingency of power in organizations: Executive succession in the higher education publishing industry, 1958-1990	Thornton & Ocasio	1999	American Journal of Sociology	This article examines the historical contingency of executive power and succession in the higher education publishing industry. We combine interview data with historical analysis to identify how institutional logics changed from an editorial to a market focus.	DRIVER: shift in institutional logics = *revolutionary pace* OUTCOME: changes in organizational structures, practices and power distribution in a population of organizations = *radical pace*	Institutional displacement
Institutional evolution and change: Environmentalism and the U.S. chemical industry	Hoffman	1999	Academy of Management Journal	This study measured changes in the constituency of an organizational field centered on the issue of corporate environmentalism in the period 1960-93, correlating those changes with the institutions adopted by the U.S. chemical industry to interpret the issue.	DRIVER: shift in discourse and increase in attention over environmental issues = *evolutionary pace* OUTCOME: change in field constituencies and redefinition of corporate environmental practices in chemical industry = *convergent scope*	Institutional alignment
The coevolution of new organizational forms in the fashion industry: A	Djelic & Ainamo	1999	Organization Science	This paper explores the connection between environmental challenges and organizational transformations with a	DRIVER: challenges due to globalization, acute competition, information	Institutional alignment

historical and comparative study of France, Italy, and the United States				historical and comparative perspective. The empirical base of evidence is the change in luxury fashion industry in three countries.	technology advancements and increasing customer sophistication = *evolutionary pace* OUTCOME: adaptation in organizational structures and strategies = *convergent scope*	
Incremental organizational change in a transforming society: Managing turbulence in Hungary in the 1990s	Czaban & Whitley	2000	Journal of Management Studies	The rapid liberalization of the former state socialist economics of Eastern Europe coupled with privatization are shown to not have led to major shifts in enterprise structure and strategy.	DRIVER: rapid changes in state macro- and micro-economic policies = *revolutionary pace* OUTCOME: no change in response to the trigger	No-fit
Presenting structural innovation in an institutional environment: Hospitals' use of impression management	Arndt & Bigelow	2000	Administrative Science Quarterly	This research examines how the first organizations to abandon an institutionalized, taken-for-granted structure and adopt a radically different form presented the innovation to important stakeholders	DRIVER: stimuli to improve performance = *evolutionary pace* OUTCOME: adoption of a market-oriented organizational structure for hospitals = *convergent scope*	Institutional alignment
The role of institutional and market forces in divergent organizational change	D'Aunno, Succi & Alexander	2000	Administrative Science Quarterly	This paper focuses on a radical change, in which organizations abandon an institutionalized template for arranging their core activities. The role of market forces and heterogeneous institutional elements is explored in U.S. rural hospitals from 1984 to 1991	DRIVER: institutional pressures and shifts in focus on controlling costs = *revolutionary pace* OUTCOME: transformation in organizational goals, widely held beliefs and norms, and core activities = *radical scope*	Institutional displacement
Personal versus market logics of control: A historically contingent theory of the risk of acquisition	Thornton	2001	Organization Science	This paper develops and tests a theory of the historical contingency of the risk of acquisition using data from the higher education publishing market from 1958-1990. Two forms of capitalism-personal and market are identified. Hazard-rate models are used to test for differences in the effects of these two logics on the organization and market determinants of acquisition.	DRIVER: shift in the dominant institutional logic in an industry, from the logic of personal capitalism to the logic of market capitalism = *revolutionary pace* OUTCOME: transformation in the control of the firm and in the determinants of the risk of acquisition = *radical scope*	Institutional displacement
Not all events are attended equally: Toward a middle-range theory of industry attention to external events	Hoffman & Ocasio	2001	Organization Science	This paper builds on prior theory and research on attention and identity to examine whether and how industries publicly attend to external events. Events are critical triggers of institutional transformation and industry evolution. However. they must first become the focus of public attention to have this effect	DRIVER: possibly irritating event = unclear nature OUTCOME: possible transformation = unclear scope	No-fit

When innovations meet institutions: Edison and the design of the electric light	Hargadon & Douglas	2001	Administrative Science Quarterly	This paper considers the role of design, as the emergent arrangement of concrete details that embodies a new idea, in mediating between innovations and established institutional fields as entrepreneurs attempt to introduce change. Analysis of Thomas Edison's system of electric lighting offers insights into how the grounded details of an innovation's design shape its acceptance and ultimate impact.	DRIVER: subtle introduction of a technological innovation = *evolutionary pace* OUTCOME: innovation that displaces the existing institutions of the gas industry = *radical scope*	Institutional accretion
Organizational and industrial response to market liberalization: The interaction of pace, incentive and capacity to change	White & Linden	2002	Organization Studies	This paper draws on prior research on organizational change to link the pace of macroeconomic reforms in a transition economy to the ability of domestic firms and industries to face new foreign competition. A comparison of the Polish and Chinese television manufacturing industries grounds the model.	DRIVER: market liberalization as a policy-induced environmental shock = *revolutionary pace* OUTCOME: change in strategies of a population of organizations = *radical scope*	Institutional displacement
How does institutional change affect heterogeneity among firms?	Walker, Madsen & Carini	2002	Strategic Management Journal	Drawing on theories of industry evolution, this paper examines the variation in performance of incumbents and entrants following the deregulation of prices and entry in the airline industry.	DRIVER : deregulation of entry and prices = *revolutionary pace* OUTCOME: change in industry-level strategies and change in competitive dynamics = *radical scope*	Institutional displacement
Institutional effects of interorganizational collaboration: The emergence of proto-institutions	Lawrence, Hardy & Phillips	2002	Academy of Management Journal	This paper argues that collaboration can act as a source of change in institutional fields through the generation of "proto-institutions": new practices, rules, and technologies that transcend a particular collaborative relationship and may become new institutions if they diffuse sufficiently	DRIVER: emergence of new practices, technologies, and rules within collaboration = *evolutionary pace* OUTCOME: diffusion of proto-institutions = *convergent scope*	Institutional alignment
Institutional transformation and status mobility: The professionalization of the field of finance	Lounsbury	2002	Academy of Management Journal	Drawing on a historical analysis of the field of finance in the United States, this work reports on a study that investigated how the transformation of institutional logics-the tearing down of old logics and the construction of new ones-opens up possibilities for actors to make new kinds of status claims.	DRIVER: transformation in logics in the field of finance = *revolutionary pace* OUTCOME: change in status position through founding of professional associations = *radical scope*	Institutional displacement
Institutionalizing identity: Symbolic isomorphism and organizational names	Glynn & Abzug	2002	Academy of Management Journal	This paper reviews historical naming patterns and present two studies that examine the antecedents and outcomes of name conformity to demonstrate how institutional conformity shapes an organization's identity, symbolized by its corporate name	DRIVER: evolution in consumer values and industry dynamics = *evolutionary pace* OUTCOME: change patterns in organizational names as reflections of alignment of identities with the institutional	Institutional alignment

					environment = *convergent scope*	
The role of competing rationalities in institutional change	Townley	2002	Academy of Management Journal	Reporting on a longitudinal case study of the introduction of business planning and performance measures in cultural organizations, this article illustrates how conflict that accompanies change coalesces around different dimensions of rationality.	DRIVER: introduction of business planning and performance measures = *evolutionary pace* OUTCOME: change in organization members' understandings of organizational and professional identity and management practices = *convergent scope*	Institutional alignment
When accreditation standards change: Factors affecting differential responsiveness of public and private organizations	Casile & Davis-Blake	2002	Academy of Management Journal	This paper examines how technical and institutional factors affect the responsiveness of public and private organizations to a change in accreditation standards	DRIVER: changes in the accreditation standards = *evolutionary pace* OUTCOME: organizational change initiated to adhere to requirements = *convergent scope*	Institutional alignment
Institutional Entrepreneurship in the Sponsorship of Common Technological Standards: The Case of Sun Microsystems and Java	Garud, Jain & Kumaraswamy	2002	Academy of Management Journal	Drawing upon the exploration of Sun Microsystems's sponsorship of its Java technology, this paper illuminates how the process that leads to the creation of a standard is beset by several challenges	DRIVER: introduction of a new technological advancement = *evolutionary pace* OUTCOME: strategic embedding of the new technology to make it an industry-wide standard = *convergent scope*	Institutional alignment
Institutional change in large law firms: A resource dependency and institutional perspective	Sherer & Lee	2002	Academy of Management Journal	This paper integrates resource dependency and institutional theory to argue that resource scarcity drives, and legitimacy enables, institutional change. Building on a historical account, the authors examine the sources and timing of innovation departing from standard human resource practices in 200 principal offices of large law firms.	DRIVER: resource scarcity, stimuli from the competitive environment = *evolutionary pace* OUTCOME: diffusion of a new HR practice across the population of law firms = *convergent scope*	Institutional alignment
Mimicry and the market: Adoption of a new organizational form	Lee & Pennings	2002	Academy of Management Journal	This article examines the diffusion of a novel governance structure, the so-called partner-associate structure, among a population of Dutch professional services firms during the period 1925-90. An institutional change emerged out of an interaction between selection at the level of sector and imitative adoption at the firm level.	DRIVER: competitive pressures and market feedback signalling preferences = *evolutionary pace* OUTCOME: adoption of a new organizational form in a population of professional organizations = *convergent scope*	Institutional alignment

Adoption of an organizational practice by subsidiaries of multinational corporations: institutional and relational effects	Kostova & Roth	2002	Academy of Management Journal	This paper examines the adoption of an organizational practice by subsidiaries of a multinational corporation (MNC) under conditions of "institutional duality." Drawing on institutional theory, the authors identify two factors influencing the adoption of a practice: the institutional profile of the host country and the relational context within the MNC.	DRIVER: pressures on subsidiaries to align their practices to the ones of the parent company = *evolutionary pace* OUTCOME: adoption of organizational practice by subsidiaries = *convergent scope*	Institutional alignment
Executive migration and institutional change	Kraatz & Moore	2002	Academy of Management Journal	This paper examines how the immigration of leaders possessing different skills, understandings, assumptions, and values can promote change within institutionalized organizations and fields.	DRIVER: major shifts in the preferences of students and labor market conditions = *revolutionary pace* OUTCOME: survival-enhancing strategic restructuring, i.e. introduction of business, graduate and female programs = *radical scope*	Institutional displacement
Theorizing change: The role of professional associations in the transformation of institutionalized fields	Greenwood, Suddaby & Hinings	2002	Academy of Management Journal	This study examines the role of professional associations in a changing, highly institutionalized organizational field and suggests that they play a significant role in legitimating change.	DRIVER: perceived opportunities in the environment, declining revenues = *evolutionary pace* OUTCOME: adoption of a new organizational form, redefinition of the role of accountant and professional jurisdiction = *convergent scope*	Institutional alignment
Institutionalization as an interplay between actions, meanings, and actors: The case of a rape crisis center in Israel	Zilber	2002	Academy of Management Journal	Drawing on ethnographic data of a rape crisis center in Israel, this article presents an analysis of institutionalization as an interplay between three interrelated yet separate components-actors, actions, and meanings.	DRIVER: change in members' orientation from a feminist ideology to a therapeutic ideology = *evolutionary* OUTCOME: changes in structure, practices and associated meanings = *elaborative*	Institutional alignment
The rise of the corporation in a craft industry: Conflict and conformity in institutional logics	Thornton	2002	Academy of Management Journal	This study tests a theory of how a craft- and profession-based industry adopted multidivisional organization, examining higher education publishing from 1958 through 1990. The paper explains the rate at which firms divisionalized as a consequence of their strategic and structural conformity with the prevailing institutional logic.	DRIVER: shift in field-level institutional logics = *revolutionary pace* OUTCOME: adoption of the multidivisional form by a population of organizations = *radical scope*	Institutional displacement

Examining institutional change: evidence from the founding dynamics of U.S. health care interest associations	Galvin	2002	Academy of Management Journal	This study examines institutional change in the founding patterns of "interest associations" in U.S. health care during an era of redefinition of this organizational field. When this domain's major governance structure and ideology eroded, key actors fragmented, and alternative logics emerged.	DRIVER: shifts in institutional logics = *revolutionary pace* OUTCOME: emergence of a new population of identity-based associations = *radical scope*	Institutional displacement
Mobilizing the logic of managerialism in professional fields: The case of academic health centre mergers	Kitchener	2002	Organization Studies	This paper presents a qualitative inductive analysis of attempts to re-order the bases of legitimacy in fields of professional organizations. Findings from a study of US academic health centre mergers illustrate why the intended outcomes of this innovation emerge rarely when it is 'sedimented' uncritically upon enduring aspects of the logic and structures of professionalism.	DRIVER: strong pressure to change the basis of legitimacy = *revolutionary pace* OUTCOME: failure of attempt to change in response to trigger	No-fit
Clothes make the person? The tailoring of legitimating accounts and the social construction of identity	Creed, Scully & Austin	2002	Organization Science	This paper empirically explore the legitimating accounts for and against policies precluding workplace discrimination against gay, lesbian, bisexual, and transgender people, focusing on how agents working at both the national level and within organizations use broader cultural accounts in building their legitimating accounts in local settings.	DRIVER: intra-organizational pressures from peripheral actors = *evolutionary pace* OUTCOME: construction of legitimating accounts to adopt antidiscrimination practices = *convergent scope*	Institutional alignment
The dialectics of institutional development in emerging and turbulent fields: The history of pricing conventions in the on-line database industry	Farjoun	2002	Academy of Management Journal	Through an analysis of an entire institutional history of pricing conventions in the on-line database field during 1971-94, this study documents and explains institutional development in emerging and turbulent fields.	DRIVER: technological advances, maturity of the market = *evolutionary pace* OUTCOME: deinstitutionalization of a market practice and rise of a new practice = *convergent scope*	Institutional alignment
Adapting to radical change: Strategy and environment in piece-rate adoption during China's transition	Keister	2002	Organization Studies	This paper takes advantage of change during China's economic reform to study the relative importance of organizational and environmental factors in producing innovative managerial response.	DRIVER: gradual transition from a socialist to a market economy in China = *evolutionary pace* OUTCOME: adoption of a market-based practice by Chinese firms = *convergent scope*	Institutional alignment
Social movement organizations: A metaphor for strategic actors in institutional fields	Hensmans	2003	Organization Studies	Using the social movement metaphor to describe institutional change, this study shows incumbents and challengers as potentially antagonistic social movement organizations (SMOs) that strive to	DRIVER: change in societal level discourses = *evolutionary pace* OUTCOME: strategic interactions between	Institutional alignment

				hegemonize entrepreneurship in fields. An evolutionary model linking institutional change to the strategy-formation process is presented and illustrated with the case of emerging Internet challengers in the music industry.	challengers and incumbents that lead to collaboration = *convergent scope*	
Institutional change in Toque Ville: Nouvelle cuisine as an identity movement in French gastronomy	Rao, Monin, & Durand	2003	American Journal of Sociology	This study of how the nouvelle cuisine movement in France led elite chefs to abandon classical cuisine during the period starting from 1970 and ending in 1997 shows that an identity movement striving to expand individual autonomy is a key motors of institutional change.	DRIVER: broad cultural protest in France and spin-off movement in gastronomy = *revolutionary pace* OUTCOME: shift in institutional logics, e.g. primarily identities = *radical scope*	Institutional displacement
How organizations change: The role of institutional support mechanisms in the incorporation of higher education visibility strategies, 1874-1995	Washington & Ventresca	2004	Organization Science	This paper develops the argument that institutional mechanisms support changes in organizational strategies in ways that contrast with the standard interpretation of institutional "iron cages" that pressure organizations to conform. These claims are tested with longitudinal data on the emerging strategies in early U.S. intercollegiate athletics.	DRIVER: identities and resource challenges, increasing competition for prestige = *evolutionary pace* OUTCOME: visibility strategies in the form of incorporation of intercollegiate athletics = *convergent scope*	Institutional alignment
Field approaches to institutional change: The evolution of the National Collegiate Athletic Association 1906-1995	Washington	2004	Organization Studies	This article uses qualitative and quantitative data to examine how a major interest association emerged and transformed itself in order to maintain control over field structuration.	DRIVER: increasing competition from a competing organization and the fear to lose position and members = *evolutionary pace* OUTCOME: change in the membership criteria to reach to lower status schools = *convergent scope*	Institutional alignment
From press to E-media? The transformation of an organizational field	Mazza, & Pedersen	2004	Organization Studies	Drawing on the new institutional theory of organization, field transformation dynamics is examined. The impact of and interplay between four change factors is investigated within the business press field in Denmark and Italy over the last four decades.	DRIVER: political and economic shocks = *revolutionary pace* OUTCOME: changing relationship between business organizations and the press, redraw of boundaries, increasing social influence of the press = *radical scope*	Institutional displacement

Institutional entrepreneurship in emerging fields: HIV/AIDS treatment advocacy in Canada	Maguire, Hardy & Lawrence	2004	Academy of Management Journal	In a qualitative study of the emerging field of HIV/AIDS treatment advocacy in Canada, this study found that institutional entrepreneurship involved three sets of critical activities: (1) the occupation of "subject positions", (2) the theorization of new practices, and (3) the institutionalization of these new practices.	DRIVER: mobilization of peripheral actors advocate for HIV/AIDS treatment = *evolutionary pace* OUTCOME: development of new practices of consultation and information exchange among community organizations and pharmaceutical companies = *convergent scope*	Institutional alignment
Rhetorical strategies of legitimacy	Suddaby & Greenwood	2005	Administrative Science Quarterly	This paper describes the role of rhetoric in legitimating profound institutional change. In 1997, a Big Five accounting firm purchased a law firm, triggering a jurisdictional struggle within accounting and law over a new organizational form, multidisciplinary partnerships. The paper analyzes the discursive struggle that ensued between proponents and opponents of the new organizational form.	DRIVER: mobilization of central actors in response to environmental challenges = *evolutionary pace* OUTCOME: adoption of a new organizational form = *convergent scope*	Institutional alignment
The social construction of events: A study of institutional change in the photographic field	Munir	2005	Organization Studies	This paper examines the institutional change from photography to digital imaging. Analysis suggests that attributing institutional change to a single event or 'jolt' leads to a flawed understanding of institutional change processes.	DRIVER: technological advancements in photography = *evolutionary pace* OUTCOME: development of new artifacts and the enrolment of new stakeholders in the field = *convergent scope*	Institutional alignment
The birth of the 'Kodak moment': Institutional entrepreneurship and the adoption of new technologies	Munir &Phillips	2005	Organization Studies	This paper adopts a discourse analytic methodology to explore the role of institutional entrepreneurs in the process of institutional change that coincides with, the adoption of a radically new technology.	DRIVER: technological advancements in photography = *evolutionary pace* OUTCOME: embedding of photography into existing institutional arrangements = *convergent scope*	Institutional alignment
The recomposition of an organizational field: Health care in Alberta	Reay & Hinings	2005	Organization Studies	This paper develops a theoretical model that helps to understand change in mature organizational fields by emphasizing the role of competing institutional logics as part of a radical change process.	DRIVER: shift in institutional logics due to large-scale, government-led reform initiative = *revolutionary pace* OUTCOME: radical structural change of relationships among actors = *radical scope*	Institutional displacement

From the critics' corner: Logic blending, discursive change and authenticity in a cultural production system	Glynn & Lounsbury	2005	Journal of Management Studies	Drawing on an analysis of critics' reviews of Atlanta Symphony Orchestra (ASO) performances, this paper investigate how broader shifts in institutional logics shape the discourse of critics and their judgment of performances.	DRIVER: conflicting pressures over resources = *revolutionary pace* OUTCOME: logics' blending as echoed in judgments of critics = *radical scope*	Institutional displacement
Legitimating agencies in the face of selection: The case of AACSB	Durand & McGuire	2005	Organization Studies	This article proposes that legitimating agencies such as accreditation organizations face selection pressures to both maintain their legitimacy among their constituents, but also to expand the domain of their activities.	DRIVER: pressures over legitimacy = *evolutionary pace* OUTCOME: expansion of domain and conscious efforts to respond to or anticipate changes = *convergent scope*	Institutional alignment
Institutional entrepreneurship in mature fields: The big five accounting firms	Greenwood & Suddaby	2006	Academy of Management Journal	This study examines change initiated from the center of mature organizational fields. As such, it addresses the paradox of embedded agency. The change examined is the introduction of a new organizational form.	DRIVER: actions of central actors in response to environmental stimuli = *revolutionary pace* OUTCOME: failed introduction of a new organizational form	No-fit
The work of the symbolic in institutional processes: Translations of rational myths in Israeli high tech	Zilber	2006	Academy of Management Journal	Using the discourse of high tech in Israel around the millennium as a case study, this paper explores institutionalization as translation. Whereas the meanings attached to high tech were derived from broad cultural frameworks, they were reconstructed in the context of high tech.	DRIVER: evolution of broader societal discourses = *evolutionary pace* OUTCOME: change in organizational discourse and meanings around high-tech = *convergent scope*	Institutional alignment
The impact of socialist imprinting and search on resource change: A study of firms in Lithuania	Kriauciunas & Kale	2006	Strategic Management Journal	Firms in transition economies experienced a large exogenous shock in their external business environment in the late 1980s when these economies moved from a socialist-oriented economic environment to a more market-oriented economic environment. This paper examines some factors that influence transition economy firms to successfully change their operating know-how to reflect the demands of their new environment.	DRIVER: socio-political upheavals = *revolutionary pace* OUTCOME: changes in organizational structures, practices and resource bases = *radical scope*	Institutional displacement
Legitimizing a new role: Small wins and microprocesses of change	Reay, Golden-Biddle & Germann	2006	Academy of Management Journal	This theoretical model shows how actors legitimize new practices by accomplishing three interdependent, recursive, situated "microprocesses": (1) cultivating opportunities for change, (2) fitting a new role into prevailing systems, and (3) proving the value of the new role.	DRIVER: environmental opportunities, e.g. evolving needs, labour shortage = *evolutionary pace* OUTCOME: legitimation of a new work role = *convergent scope*	Institutional alignment

Institutional reform and the reorganization of family support services	Blackler & Regan	2006	Organization Studies	This paper looks at a project that was intended to pioneer a new, integrated approach to child and family support services in England to understand how entrenched practices are challenged and the difficulty participants had in externalizing new approaches into new practices.	DRIVER: reformist government's attempts to modernize public services and to empower local social welfare initiatives = *evolutionary pace* OUTCOME: change in discourse and establishment of new ideas in practice = *convergent scope*	Institutional alignment
New practice creation: An institutional perspective on innovation	Lounsbury & Crumley	2007	Organization Studies	This paper examines the case of the creation of active money management practice in the US mutual fund industry to develop a process model of new practice creation that redirects attention toward the multiplicity of actors that interactively produce change.	DRIVER: experiments leading to creation of active money management practice = *evolutionary pace* OUTCOME: re-theorization of the mutual fund money management field = *radical scope*	Institutional accretion
A tale of two Cities: Competing logics and practice variation in the professionalizing of mutual funds	Lounsbury	2007	Academy of Management Journal	This article examines practice diffusion in an environment where competing logics exist, specifically investigating how trustee and performance logics that were rooted in different locations (Boston and New York) led to variation in how mutual funds established contracts with independent professional money management firms.	DRIVER: segregation of co-existing institutional logics = *evolutionary pace* OUTCOME: diffusion of money management practices = *convergent scope*	Institutional alignment
Inside the iron cage: Organizational political dynamics and institutional changes in presidential selection systems in Korean universities, 1985-2002	Kim, Shin, Oh & Jeong	2007	Administrative Science Quarterly	A longitudinal study of changes in the presidential selection systems of Korean universities illustrates how organizational political dynamics between incumbents and challengers shaped the process of replacing the conventional appointment system with a new system of direct voting during the period 1985 to 2002.	DRIVER: shift from an authoritarian regime to political democratization = *revolutionary pace* OUTCOME: replacement of appointment system as a result of the confrontation between those who promoted democratization and those who advocated the traditional authoritarian social system = *radical scope*	Institutional displacement
Vive La Résistance: Competing logics and the consolidation of U.S. community banking	Marquis & Lounsbury	2007	Academy of Management Journal	This paper investigate how competing logics facilitate resistance to institutional change, focusing on banking professionals' resistance to large, national banks' acquisitions of smaller, local banks.	DRIVER: threat of acquisition by large banks = *revolutionary pace* OUTCOME: growth in number of local banks	No-fit

Corporate governance reform as institutional innovation: The case of Japan	Yoshikawa, Tsui-Auch & McGuire	2007	Organization Science	To address the convergence-divergence debate in corporate governance, we conduct a multiple-case, multiple-level study to analyze the diffusion of governance innovation in Japan. We illustrate the creation of hybrid corporate governance systems and the nonlinear evolution of such systems as a result of interactions across multiple levels.	DRIVER: corporate governance reform in Japan = *evolutionary pace* OUTCOME: creation of a hybrid system, neither convergent nor divergent = *convergent scope*	Institutional alignment
Interlevel influences on the reconstruction of professional role identity	Chreim, Williams, & Hinings	2007	Academy of Management Journal	This paper traces institutional influences on professional role identity reconstruction and extend theory by building bridges across institutional, organizational, and individual levels of analysis.	DRIVER: change initiated by central actors, i.e. the clinic physicians = *evolutionary pace* OUTCOME: reconstruction of professional role identity = *convergent scope*	Institutional alignment
Human agents, contexts, and institutional change: The decline of family in the leadership of business groups	Chung & Luo	2008	Organization Science	Using the empirical example of family presence in the leadership of Taiwanese business groups, this study examines the interaction between change-minded human agents and environmental and organizational contingencies to understand contested change in highly institutionalized practices.	DRIVER: intensification of competitive pressures due to the introduction of a divergent institutional logic through deregulation = *evolutionary pace* OUTCOME: decrease in salience of the practice of family business leadership = *convergent scope*	Institutional alignment
Interlopers and field change: The entry of US News into the field of legal education	Sauder	2008	Administrative Science Quarterly	Drawing on 137 in-depth interviews with U. S. law school administrators and faculty, this article analyzes a process by which established organizational fields change through the incorporation of new field-level actors.	DRIVER: incorporation of a new field actor = *evolutionary pace* OUTCOME: radical alteration of organizational practices, relationships and power dynamics in the field = *radical scope*	Institutional accretion
Discourse and deinstitutionalization: The decline of DDT	Maguire & Hardy	2009	Academy of Management Journal	Drawing on institutional theory emphasizing translation and discourse, this paper explores outsider-driven deinstitutionalization through a case study of the abandonment of widespread, taken-for-granted practices of DDT use between 1962 and 1972	DRIVER: outsider-driven mobilization leads to shift in discourses = *revolutionary pace* OUTCOME: deinstitutionalization of widespread, taken-for-granted practices = *convergent scope*	Institutional assimilation
Managing the rivalry of competing institutional logics	Reay & Hinings	2009	Organization Studies	This paper investigates an organizational field where competing institutional logics existed for a lengthy period of time. The authors identified four mechanisms for managing the rivalry of competing logics that facilitated and strengthened the	DRIVER: competition between co-existing logics = *evolutionary pace* OUTCOME: adjustment of practices to manage the uneasy truce = *convergent scope*	Institutional alignment

				separate identities of key actors		
Conflicting logics, mechanisms of diffusion, and multilevel dynamics in emerging institutional fields	Purdy & Gray	2009	Academy of Management Journal	This study examines the evolution of a new population of organizations (state offices of dispute resolution) in an emerging institutional field, focusing on how actions at multiple levels interact recursively to enable multiple logics to diffuse	DRIVER: resurface of suppressed contradictions and field-level failings = *revolutionary pace* OUTCOME: segregation of logics and diffusion of two populations of organizations = *radical scope*	Institutional displacement
When experience meets national institutional environmental change: Foreign entry attempts of U.S. Firms in the central and eastern European region	Xia, Boal & Delios	2009	Strategic Management Journal	Using data on the entries of 215 U.S. public firms made into 11 Central and Eastern European transition economies during the period of 1990–2003, this paper develops an institutional change perspective to examine the tension between evolving external environmental influences and internal organizational influences on foreign entry attempts	DRIVER: change in the values, norms, assumptions, and beliefs of local firms in transition economies = *revolutionary pace* OUTCOME: changes in foreign entry strategies = *radical scope*	Institutional displacement
Operating room: Relational spaces and microinstitutional change in surgery	Kellogg	2009	American Journal of Sociology	This 15-month ethnographic study of two hospitals responding to new regulation demonstrates that that even when top managers in organizations provide support for change in response to new regulation, the employees whom new programs are designed to benefit often do not use them.	DRIVER: implementation of new safety regulation = *evolutionary pace* OUTCOME: change in institutionalized work practices = *convergent scope*	Institutional alignment
From Pabst to Pepsi: The deinstitutionalization of social practices and the creation of entrepreneurial opportunities	Hiatt, Sine & Tolbert	2009	Administrative Science Quarterly	This paper investigates the impact of a variety of tactics employed by the leading organizational representative of the American temperance movement, on two sets of organizations: breweries and soft drink producers. The WCTU contributed to brewery failures. These social changes, in turn, created opportunities for entrepreneurs to found organizations producing new kinds of beverages.	DRIVER: disruptive movement = *revolutionary pace* OUTCOME: failure of breweries, emergence of new industry = *radical scope*	Institutional displacement
Florence Nightingale endures: Legitimizing a new professional role identity	Goodrick & Reay	2010	Journal of Management Studies	This paper examines the discursive processes through which a new professional role identity for registered nurses was legitimized by analysing introductory textbooks over time	DRIVER: environmental opportunities, e.g. evolving needs, labour shortage = *evolutionary pace* OUTCOME: legitimation of a new work role = *convergent scope*	Institutional alignment

Institutional logics and institutional pluralism: The Contestation of care and science logics in medical education, 1967–2005	Dunn & Jones	2010	Administrative Science Quarterly	Using archival sources from 1910 to 2005, this paper explains how care and science - two logics central to the medical profession - persisted over time. The study reveals that plural logics are supported by distinct groups and interests, fluctuate over time, and create dynamic tensions in professional education.	DRIVER: increasing competition for resources and salience between rival logics = *evolutionary pace* OUTCOME: shifting salience of logics and associated forms and practices = *convergent scope*	Institutional alignment
Institutional change as an interactive process: The case of the modernization of the French cancer centers	Castel & Friedberg	2010	Organization Science	The reported case of the successful modernization of the French cancer centers and their reinstatement as the leaders in their field contributes to a better understanding of the role of leadership in institutional change because it demonstrates a positional approach to institutional leadership.	DRIVER: actions of interstitial actors to maintain their central position = *evolutionary pace* OUTCOME: successful modernization of the French cancer centers and their reinstatement as the leaders in their field = *convergent scope*	Institutional alignment
Institutional work in the transformation of an organizational field: The interplay of boundary work and practice work	Zietsma & Lawrence	2010	Administrative Science Quarterly	This study draws on an in-depth longitudinal analysis of conflict over harvesting practices and decision authority in the British Columbia coastal forest industry to understand the role of institutional work in the transformation of organizational fields.	DRIVER: contestation by peripheral actors of a practice = *revolutionary pace* OUTCOME: significant reduction in the use of the practice, regulation sanctioning a renewed agreement = *convergent scope*	Institutional assimilation
Event Attention, environmental sensemaking, and change in institutional logics: An inductive analysis of the effects of public attention to Clinton's health care reform initiative	Nigam & Ocasio	2010	Organization Science	This paper explores attention to Clinton's health care reform proposal, ongoing debates, and its political demise to develop theory that explains how events create opportunities for cognitive realignment and transformation in institutional logics.	DRIVER: intensification of internal contradictions between professional, community, market, state, and bureaucratic logics = *evolutionary pace* OUTCOME: change in logic, expansion of the managed care logic = *radical scope*	Institutional accretion
When policy meets practice: colliding logics and the challenges of 'Mode 2' initiatives in the translation of academic knowledge	Swan, Bresnen, Robertson, Newell, & Dopson,	2010	Organization Studies	This paper examines the dialectical process whereby different constituent communities within an organizational field promote competing institutional logics by drawing upon a longitudinal study of a policy intervention in the UK aimed at promoting a logic of knowledge production in genetics science.	DRIVER: explicit attempts by Government to promote, organize and manage the co-production of knowledge = *evolutionary pace* OUTCOME: dialectical tensions are reconciled but in a way that preserves established, taken-for-granted practices = *convergent scope*	Institutional alignment
The oncomouse that roared: Hybrid exchange strategies	Murray	2010	American Journal of	This study provides an analysis of a critical moment at the academic-commercial	DRIVER: enforcement of commercial logics and	Institutional assimilation

as a source of distinction at the boundary of overlapping institutions			Sociology	boundary: the enforcement of patents to a key technology on academic geneticists. In their reaction to commercial encroachment, skilled actors (scientists) took the resources of the commercial logic and transformed their meaning to establish hybrid strategies that preserved the distinctive institutions.	practices in academia, i.e. patents = *revolutionary pace* OUTCOME: adoption of the practice and retention of meanings consistent with logic of academia = *convergent scope*	
Agency, institutional change, and continuity: The case of the Finnish civil war	Lamberg & Pajunen	2010	Journal of Management Studies	The purpose of this paper is to study the role of individual agency in the process of institutional change. The authors conducted a historical study to explore the motivations and activities of two prominent individuals in business and politics before, during, and after the Finnish Civil War.	DRIVER: Civil war = *revolutionary pace* OUTCOME: new political and economic institution; e.g. legally enforced cartel system, rising political power of the business elite, changes in how companies interpret markets, internationalization = *radical scope*	Institutional displacement
Text Me! New consumer practices and change in organizational fields	Ansari & Phillips	2011	Organization Science	In this article, the authors draw on a case of the introduction of text messaging in the United Kingdom to explore the role of consumers in catalyzing change in organizational fields.	DRIVER: changes in micro-level practices of consumers exert pressures on the field = *evolutionary pace* OUTCOME: diffusion of a novel practice, change in field boundaries and ecology of organizations = *radical scope*	Institutional accretion
Explaining stability and change: The Rise and fall of logics in pluralistic fields	van Gestel & Hillebrand	2011	Organization Studies	Based on an in-depth, longitudinal case study involving the public employment services in the Netherlands, this paper provides a novel conceptual imagery of how pluralistic fields may evolve over time.	DRIVER: increasing pressures due to rising unemployment = *evolutionary pace* OUTCOME: alternation in institutional logics due to rise to power of different actors = *convergent scope*	Institutional alignment
Institutional continuity and the Dutch construction industry fiddle	Sminia	2011	Organization Studies	The article presents an analysis of the continuation of the institution of pre-consultation in the Dutch construction industry over a period of nine years, after this was declared illegal as a consequence of European Union regulations. The analysis utilizes a structuration-based practice approach to institutionalization.	DRIVER: change in regulation makes a widespread practice illegal = *evolutionary pace* OUTCOME: repair or concealing of contradictions prevents change = *convergent scope*	Institutional alignment
Adoption and coverage of performance-related pay during institutional change: An integration of	Kang &Yoshio	2011	Journal of Management Studies	The aim of this paper is to identify the distinct effects of economic, social, and political factors on the adoption of performance-related pay practices and their	DRIVER: East Asian financial crisis = *revolutionary pace* OUTCOME: deinstitutionalization of	Institutional displacement

institutional and agency theories				coverage (i.e. the proportion of employees covered by the practices) by integrating institutional and agency theories.	principles underpinning seniority-based pay practice and widespread adoption of performance-related pay practices = *radical scope*	
From practice to field: A multilevel model of practice-driven institutional change	Smets, Morris, & Greenwood	2012	Academy of Management Journal	This article develops a model of practice-driven institutional change or change that originates in the everyday work of individuals but results in a shift in field-level logic.	DRIVER: collision of local practices = *evolutionary pace* OUTCOME: shift in field-level logics = *radical scope*	Institutional accretion
Activists and incumbents structuring change: The interplay of agency, culture, and networks in field evolution	van Wijk, Stam, Elfring, Zietsma & den Hond	2012	Academy of Management Journal	This article examines organizational field change instigated by activists. The collaboration between challengers and field incumbents accelerates the pace but dilutes the radicalness of institutional innovation, ensuring ongoing, incremental field change	DRIVER: social movement mobilization = *revolutionary pace* OUTCOME: incremental institutional innovation = *convergent scope*	Institutional accommodation
Wielding the willow: Processes of institutional change in English county cricket	Wright & Zammuto	2013	Academy of Management Journal	This paper examines institutional change processes through a longitudinal archival study of First-Class County Cricket in England. Results show that when society-level evolutionary change created organization-level resource pressures, actors bring the societal, field, and organizational levels back into alignment.	DRIVER: evolution in societal ideologies and pressures from peripheral advocates = *evolutionary pace* OUTCOME: changes in emphasis of logics, rules, roles and practices = *convergent scope*	Institutional alignment
Seizing opportunity in emerging fields: How institutional entrepreneurs legitimated the professional form of management consulting	David, Sine, & Haveman	2013	Organization Science	This study draws on the early history of the management consulting field to build theory about how institutional entrepreneurs legitimate new kinds of organizations in emerging fields.	DRIVER: introduction of a new organizational form in an emerging field = *evolutionary pace* OUTCOME: legitimation and diffusion of the new organizational form = *convergent scope*	Institutional alignment
When institutional work backfires: Organizational control of professional work in the pharmaceutical industry	Singh & Jayanti	2013	Journal of Management Studies	Integrating institutional and role theories, this paper develops a Logics-Roles-Action (LRA) framework for understanding how for-profit organizations structure institutional work to managerially control the work of professionals they employ.	DRIVER: organizational efforts to structure and control the work of professionals = *evolutionary pace* OUTCOME: changes in professional role interpretation as a result of increasing social knowledge = *convergent scope*	Institutional alignment

Appendix B

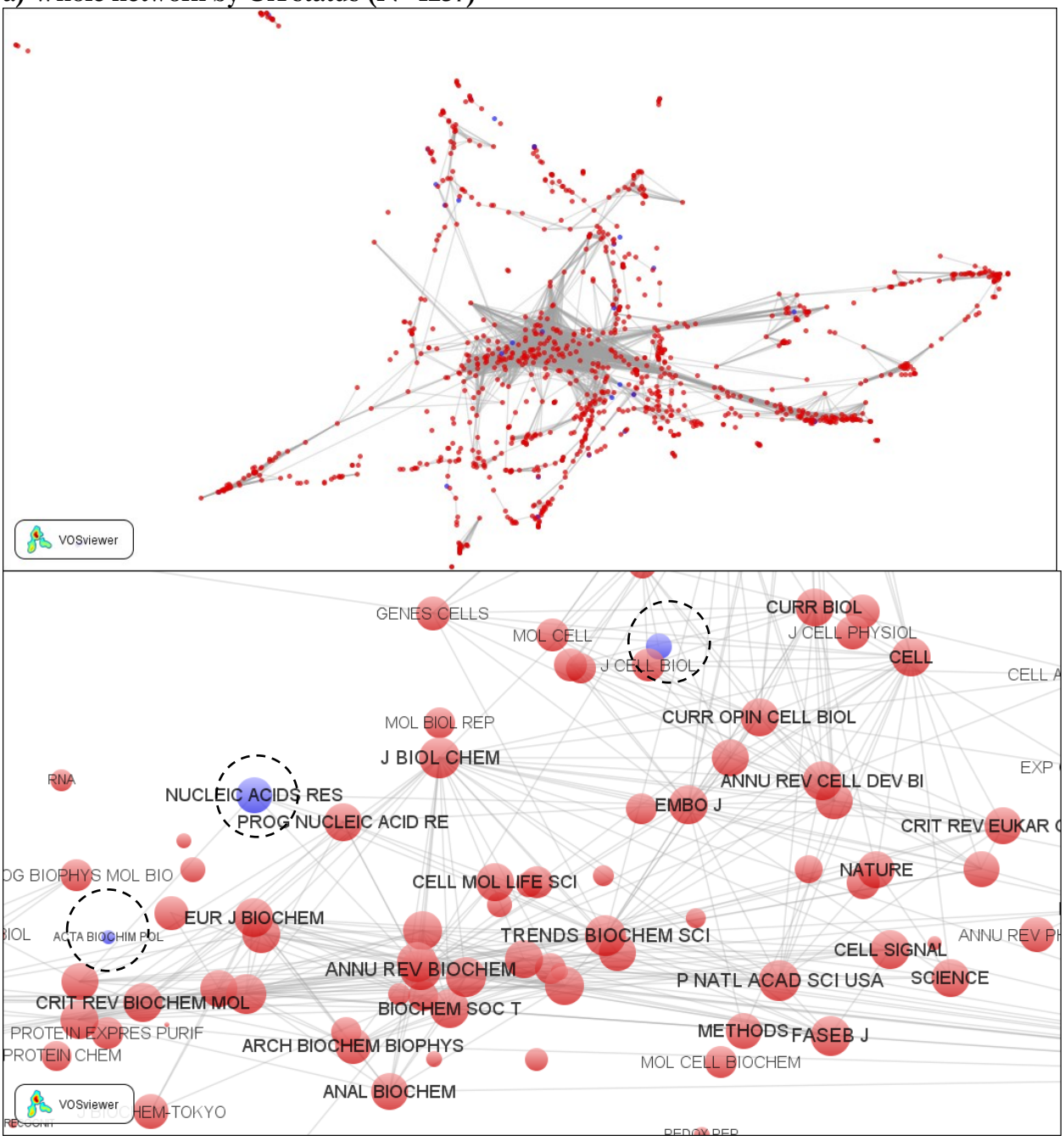
Detailed Illustration of Bibliometric Networks

Figure 11, 12 and 13 shows the composition of the population of journals with Impact Factor in the Biomedical Science for the years 1999, 2005 and 2011. The networks represent the population of journals that are selected and included in the Journal Citation Report. A journal's impact is assessed based on the Impact Factor and other indicators based on their track of citations. Thompson Reuters claims itself to be "the recognized authority for evaluating journals" (JCR website, 2015). These are the "elite" journals, and those measures typically inform publication and funding decisions. The position of journals in the networks reveals their centrality in the system of knowledge creation. Journals in central position are heavily cited by scholars in the discipline. They are the reference journals on which knowledge is primarily draw upon. Further, journals that are close to each other in the network have a high degree of "similarity" in their citation vectors. That is, journal A and B are more similar if articles that are published in journal A and journal B cite a similar number of times articles published in the same of journals.

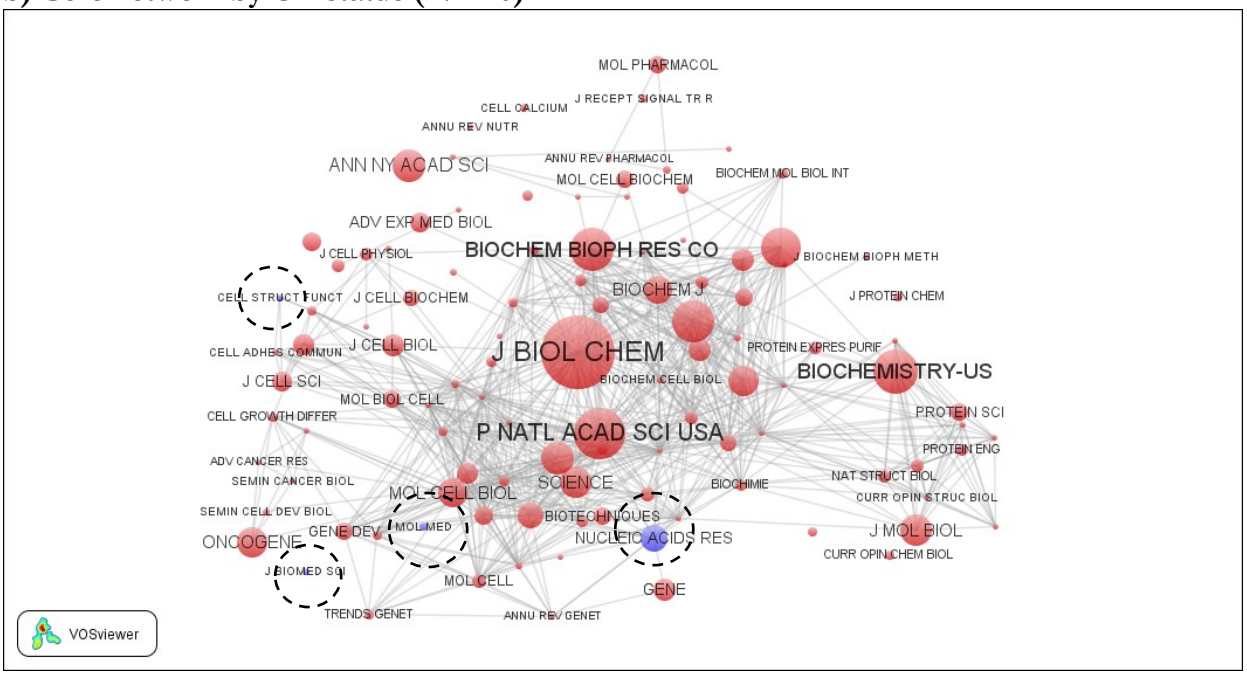
Visual inspection. In 1999, 1257 journals were listed in the categories Biomedical Sciences in the JCR. At the time, only 55 of those journals were Open Access (blue nodes in Figure 11a). These journals were not newly-founded, but existing journals that "converted" to an Open Access model and acted as pioneers by making their articles available for free on the Internet. Figure 11b shows that only four Open Access journals (*Nucleic Acids Research*, *Molecular Medicine, Cell Structure and Function, Journal of Biomedical Science*) belonged to the "core".

FIGURE 11
Visualization of Citation Networks in 1999

a) Whole network by OA status (N=1257)



b) Core network by OA status (N=110)



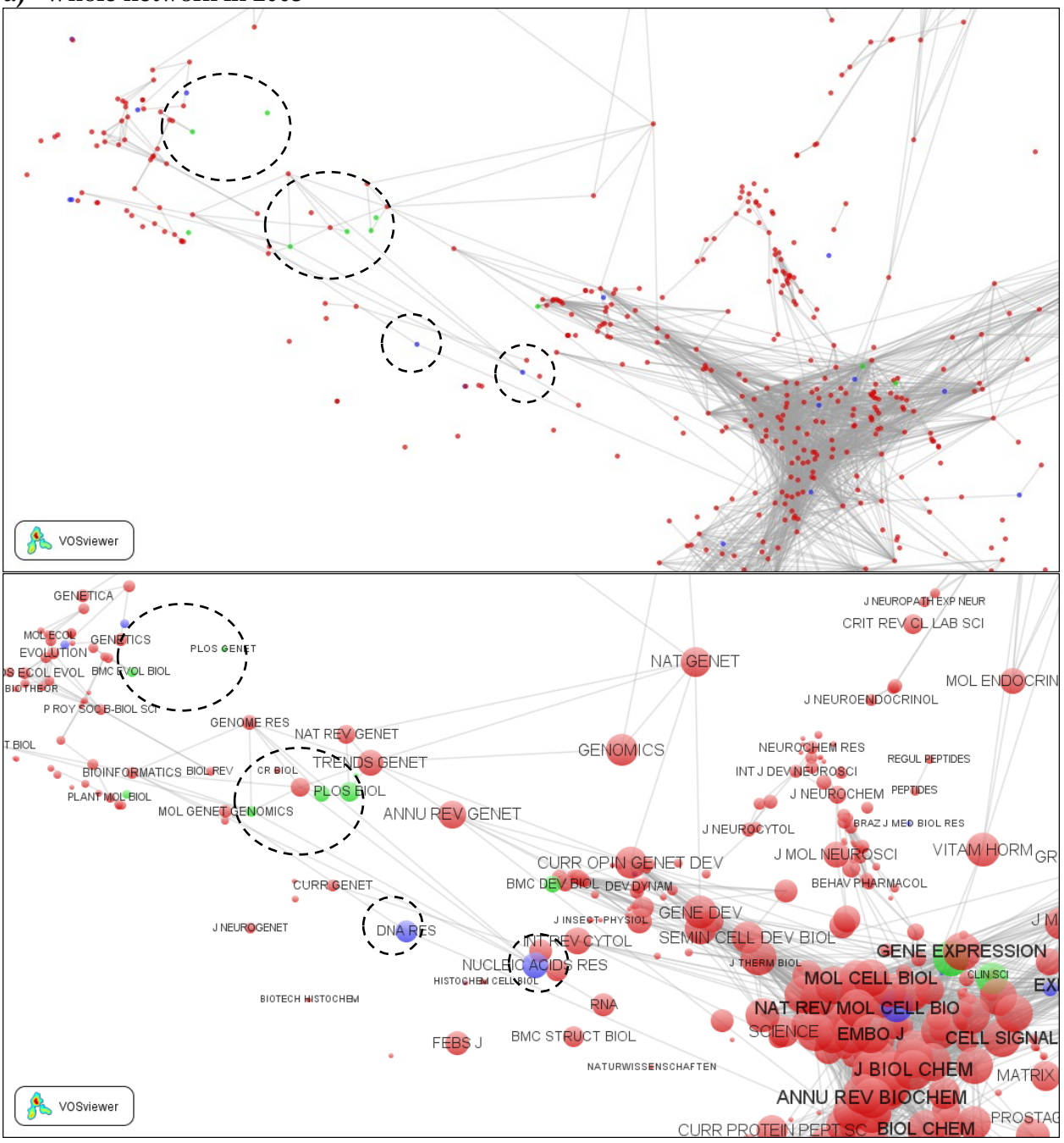
Note: The size of nodes reflects the number of articles published in the year

Figure 12a reports the visualization of the whole network in 2005. Of the 1321 journals listed in the categories Biomedical Sciences, 56 were classified as converted to Open Access. This number was the result of 8 exits and 9 new conversions. 19 new journals had been founded (9 were published by Biomed Central and 3 by Public Library of Science). The figure shows that Open Access born journals (green nodes) were initially disconnected from the central cluster of biomedical journals. In fact, only 3 Open Access journals entered the core (Figure 12b): two journals launched by Biomed Central (*BMC Cell Biology* and *BMC Molecular Biology*) and one converted journal (*Cell Structure and Function*). Importantly, the peripheral position of journals in the networks typically reflects differences in scope of journals and focus on more or less developed sub-disciplines (i.e. biochemistry vs toxicology). In this case, however, OA born journals were funded as generalist journals with the same disciplinary focus as journals clustered at the center. Thus, the peripheral position

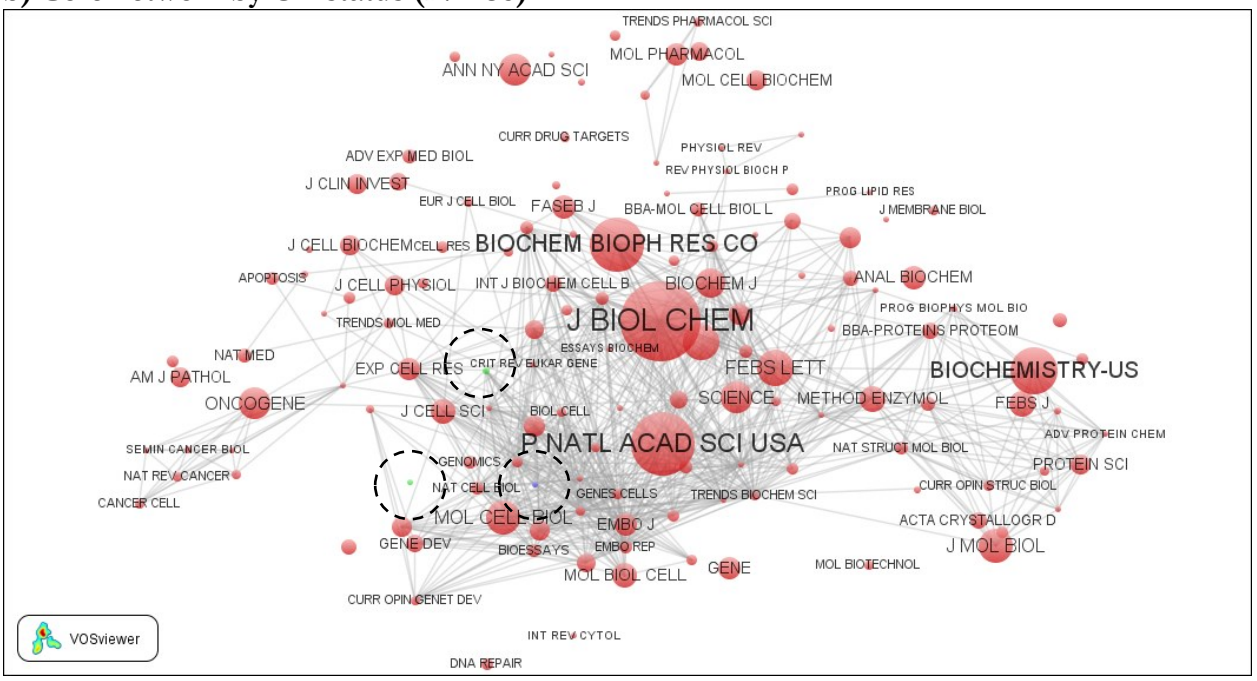
correctly indicates less recognition as outlets for publication and lower centrality in the network.

FIGURE 12
Visualization of Citation Networks in 2005

a) Whole network in 2005



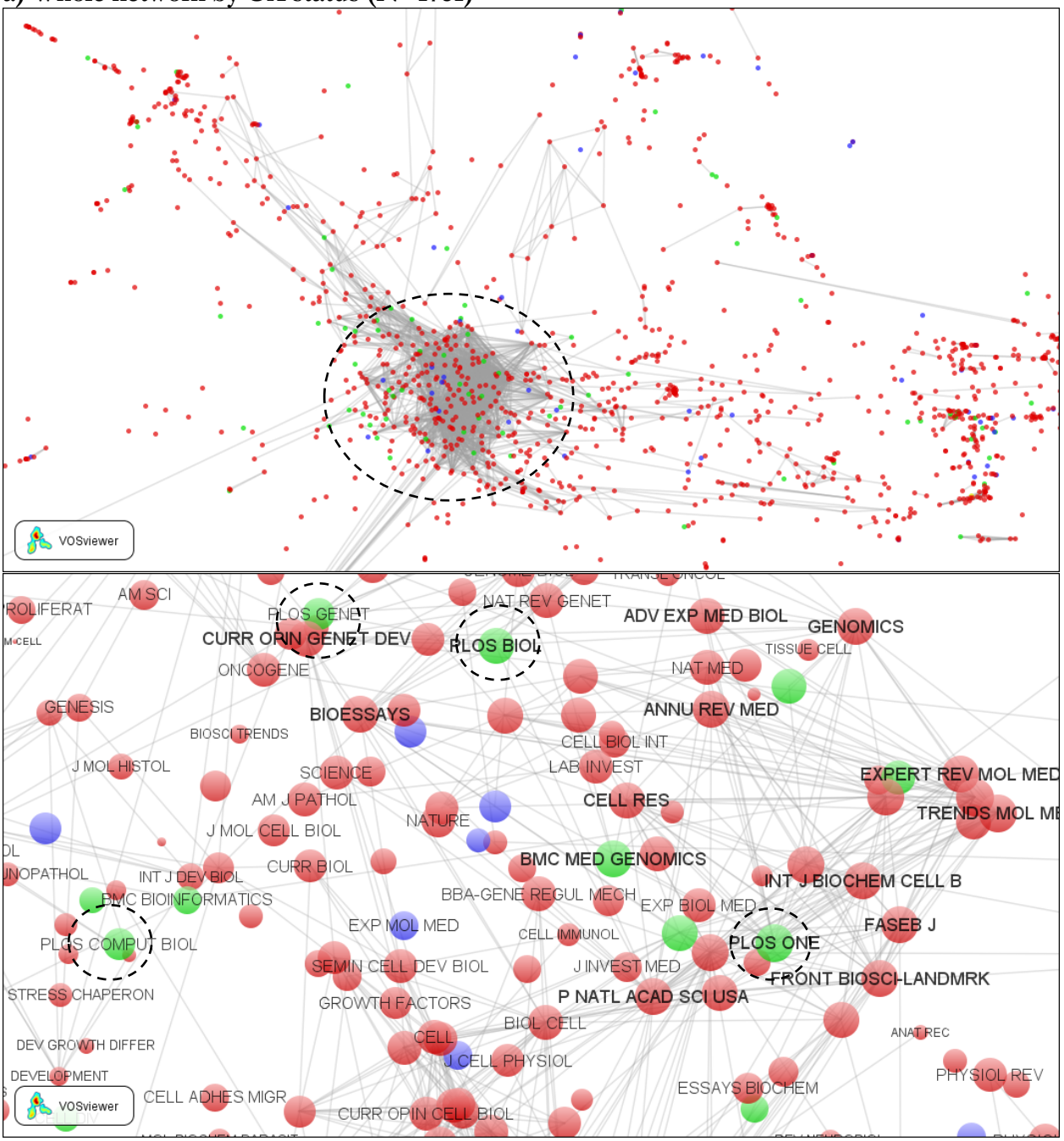
b) Core network by OA status (N=138)



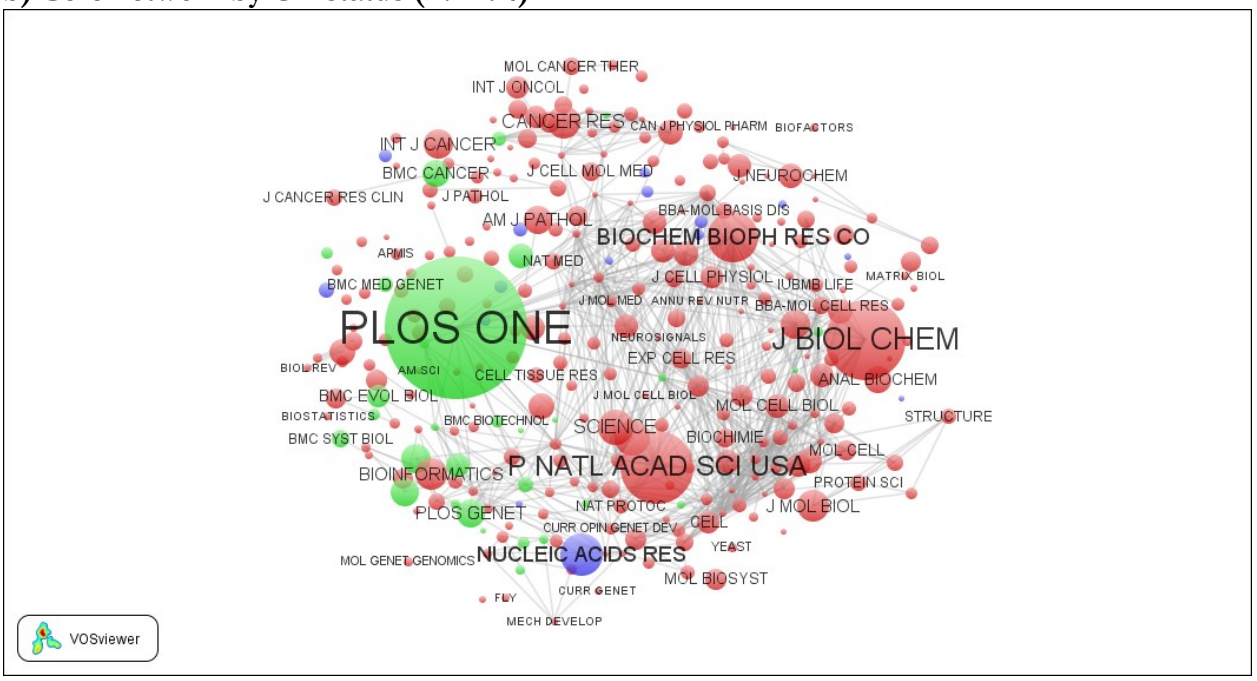
Finally, Figure 13a shows the visualization of the citation networks of JCR for the biomedical science in 2011. Of the 1781 journals listed in the categories Biomedical Sciences in the JCR, 104 were converted to Open Access and 100 were newly-founded OA journals. Since 2005, there had been 52 new conversions, 5 exits and 1 re-entry among converted OA journals. Among the OA born journals, 81new journals had been funded (17 published by Biomed Central and 4 by Public Library of Science). The increase in the number of both converted and newly-founded journals is explained by the increasing use of the author-pay model, which allowed publishers to experiment in a relatively less risky way with the Open Access template. As Figure 13a shows, Open Access journals have become increasingly central in the Journal Citation Report (JCR) rankings. Figure 13b offers a closer look at the 294 core journals. Of the 88 Open Access journals in the whole network, 45 are represented in the core (15 are OA converted and 30 are OA born).

FIGURE 13
Visualization of Citation Networks in 2011

a) Whole network by OA status (N=1781)



b) Core network by OA status (N=294)



Descriptive statistics. Tables 12 reports descriptive statistics for the citation networks, including networks size and density. The table shows the number of journals that in that year were not Open Access (red nodes), those who converted to an Open Access model (blue nodes), and those that were newly founded with an Open Access model (green nodes) and quantifies the growth in the number of Open Access journals. Of particular interest for this analysis is the evaluation of the composition of the population of journals that are positioned at the center of the networks. These journals represent the "core" of the network; that is, journals that are centrally located and characterized by particularly strong citation links between them. In other words, these are the journals on which scientists primarily draw their knowledge from, as indicated by the citation pattern. Table 13 reports descriptive statistics and ranking for journals in the core networks.

TABLE 12
Descriptive Data of Citation Networks in Biomedical Sciences

		1999	2005	2011
Whole network	**# Journals (nodes)**	N = 1257	N = 1321	N = 1781
	# Journals by OA status	Non-OA = 1202 OA converted = 55 OA born = 0	Non-OA = 1246 OA converted = 56 OA born = 19	Non-OA = 1577 OA converted = 104 OA born = 100
	Cohesion measures	Density = 0.021 Connectedness = 0.721 Fragmentation = 0.279 Breadth = 0.794 Compactness = 0.206	Density = 0.027 Connectedness = 0.77 Fragmentation = 0.230 Breadth = 0.764 Compactness = 0.236	Density = 0.057 Connectedness = 0.751 Fragmentation = 0.249 Breadth = 0.705 Compactness = 0.295
Connected network	**# Connected journals**	N = 1067	N = 1159	N = 1543
	# Connected journals by OA status	Non-OA = 1036 OA converted = 31 OA born = 0	Non-OA = 1112 OA converted = 31 OA born = 16	Non-OA = 1390 OA converted = 65 OA born = 88
	Cohesion measures	Density = 0.026 Connectedness = 0.922 Fragmentation = 0.078 Breadth = 0.736 Compactness = 0.264	Density = 0.033 Connectedness = 0.947 Fragmentation = 0.053 Breadth = 0.710 Compactness = 0.290	Density = 0.071 Connectedness = 0.942 Fragmentation = 0.058 Breadth = 0.630 Compactness = 0.37
Core-periphery whole network	**# Journals by Core-Periphery status**	Core = 110 Periphery = 1147	Core = 138 Periphery = 1183	Core = 294 Periphery = 1487
	Density by core- periphery status	1 2 1 0.486 0.013 2 0.013 0.005	1 2 1 0.478 0.017 2 0.017 0.006	1 2 1 0.505 0.032 2 0.032 0.005
Core network	**# Journals by OA status**	Non-OA = 106 OA converted = 4 OA born = 0	Non-OA = 135 OA converted = 1 OA born = 2	Non-OA = 249 OA converted = 15 OA born = 30
	Cohesion measures	Density = 0.905 Connectedness = 1 Fragmentation = 0 Breadth = 0.048 Compactness = 0.952	Density = 0.899 Connectedness = 1 Fragmentation = 0 Breadth = 0.051 Compactness = 0.949	Density = 0.976 Connectedness = 1 Fragmentation = 0 Breadth = 0.012 Compactness = 0.988

TABLE 13
Descriptive Data of Core Networks in Biomedical Sciences

1999				2005				2011			
[Ranking] Name Journal	**Centrality measures**			**[Ranking] Name Journal**	**Centrality measures**			**[Ranking] Name Journal**	**Centrality measures**		
Top 5 journals	**Total link strength**	**Bonacich Power (norm)**	**OA status**	**Top 5 journals**	**Total link strength**	**Bonacich Power (norm)**	**OA status**	**Top 5 journals**	**Total link strength**	**Bonacich Power (norm)**	**OA status**
[1] ANNUAL REV BIOCHEM	74.82	1.364	Non OA	[1] J BIOL CHEM	92.60	1.362	Non OA	[1] TRENDS MOL MED	200.18	1.328	Non OA
[2] TRENDS BIOCHEM SCI	74.76	1.364	Non OA	[2] ANNUAL REV BIOCHEM	91.88	1.351	Non OA	[2] CELL MOL LIFE SCI	197.97	1.317	Non OA
[3] J BIOL CHEM	73.66	1.344	Non OA	[3] TRENDS BIOCHEM SCI	91.08	1.339	Non OA	[3] CURR MOL MED	196.38	1.302	Non OA
[4] P NATL ACAD SCI USA	71.74	1.307	Non OA	[4] EMBO J	89.48	1.322	Non OA	[4] J MOL MED	195.74	1.300	Non OA
[5] EMBO J	70.70	1.292	Non OA	[5] FEBS LETT	89.04	1.307	Non OA	[5] INT J BIOCHEM CELL B	194.72	1.293	Non OA
OA journals				**OA journals**				**Top 10 OA journals**			
[37] NUCLEIC ACIDS RES	60.36	1.105	OA conv	[36] BMC CELL BIOL	79.57	1.174	OA born	[6] PLOS ONE	193.75	1.281	OA born
[94] MOL MED	39.74	0.748	OA conv	[56] CELL STRUCT FUNCT	71.71	1.065	OA conv	[14] BMC CELL BIOL	191.67	1.274	OA born
[101] CELL STRUCT FUNCT	36.96	0.706	OA conv	[79] BMC MOL BIOL	62.93	0.940	OA born	[20] PLOS BIOL	186.09	1.233	OA born
[106] J BIOMED SCI	32.93	0.642	OA conv					[30] BMC MED GENOMICS	181.61	1.199	OA born
								[34] BMC MOL BIOL	180.48	1.198	OA born
								[49] BMC BIOL	176.92	1.170	OA born
								[65] BMC BIOCHEM	171.48	1.144	OA born
								[82] BIOL PROCED ONLINE	168.10	1.114	OA born
								[93] MOL CANCER	165.70	1.095	OA born
								[108] MOL MED	160.47	1.064	OA conv

Measures of centrality reported in Table 13 reveal the relative less central positioning of Open Access journals compared to others. For example, in 1999, three of the four Open Access journals were at the bottom of the rankings based on centrality, respectively 94th, 101st and 106th out of 110 core journals. The situation was relatively unchanged in 2005, while the table shows that by 2011, Open Access journals had become more prominent in the rankings. In terms of measures of centrality, traditional non-OA journal are still dominant in 2011; however it is noticeable how the positioning of OA journals has significantly improved. For example, *PLOS ONE* is ranked at number 6 in terms of total link strength, *BMC Cell Biology* at number 14 and *PLOS Biology* at number 20. The network graph in Figure 12b suggests that newly-funded Open Access journals (categorized as OA born and visualized with green nodes) maybe be "closer" to one another more than they are to non-OA journals (red nodes). Such closeness may indicate a "community effect" or "homophily" effect, wherein scholars who publish in one category of journals (e.g. non OA journals) would primarily draw on knowledge from journals in the same category.

To explore this possibility, I identified for each category of journals (OA born, OA converted and non OA) what percentage of the total strength of ties is absorbed by connections to other journals in the same category. Table 14 reports the results. First, I found confirmation that the position of non-OA journals has yet to be seriously threatened by the "invasion" of Open Access journals. In addition to the sheer numerical majority of non-OA journals in the core network, non-OA journals provide 84.84% of the total strength of ties in the networks, while OA born journals provide 10.42% and OA converted journals 4.74%. Importantly, there is evidence of

a homophily effect for non-OA journals, since 85% of the total strength of ties of non-OA journals is absorbed by connections with other non-OA journals. In contrast, both OA converted and OA born journals are more strongly connected to non-OA journals (~85%) and for OA born journals only 10.77% of their ties is absorbed by connections with other OA born journals.

TABLE 14
Strength of Ties by Open Access Status of Core Journals (N=294)

Strength of ties by OA status	Non-OA (N=249)	OA converted (N=15)	OA born (N=30)	Total strength of ties
Non-OA	31323.52 (85%)	1754.21 (85%)	3825.17 (84.43%)	**36902.9**
OA converted	1754.21 (4.75%)	91.52 (4.44%)	217.45 (4.80%)	**2063.18**
OA born	3825.17 (10.37%)	217.45 (10.54%)	487.88 (10.77%)	**4530.5**
% of total strength by OA status	**84.84%**	**4.74%**	**10.42%**	**43496.580 (100%)**