Folksonomy vs. Taxonomy at the Communications Division of Community Services at the City of Edmonton

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Contents

Abstract

The communications division at the City of Edmonton had been saving its digital artifacts in an ad hoc manner for many years. Staff members named their digital documents whatever they chose and saved them in any manner they wanted. New staff had extremely hard time finding information and this was hindering them professionally - essentially effective knowledge management had been stunted. Much of the work in this division was very time dependent, and staff needed to find information quickly in order to respond to urgent media and client requests. I volunteered to help design a new archiving strategy with a colleague and together we created a taxonomy that was eventually implemented in our division.

The research questions grew out of this experience; I was interested if the new taxonomic structure we created was ideal for our division. I also wondered whether another approach may have been more effective, such as a folksonomy. I used a qualitative research design and had four staff from the City of Edmonton fill out questionnaires to learn if the new structure was preferred, if people's jobs had become easier, if the City currently had an archiving strategy in place and if they had any plans in the future for a different archiving strategy. After reviewing the literature and data from the questionnaires, it appears as though a taxonomy is the most viable archiving option for the City of Edmonton at this time.

CHAPTER 1: Introduction

My study focused on the classification method that is currently being used in the communications division of Community Services at the City of Edmonton and whether this current method is the most effective way of archiving digital assets. My study compared the new classification method with an alternative method to find out which one is more useful in this division and why. The two classifications methods I focused on were folksonomy and taxonomy. Taxonomy, is more traditional approach to classifying information, "familiar taxonomies include the Linnaean system of classifying living things, the Dewy Decimal classification system for libraries and computer file systems for organizing electronic files. In such systems, each animal, book, file and so on, is in one unambiguous category which is in turn within a yet more general one (Golder and Huberman, 2006, pg.199). In this method, staff was required to name and categorize digital information according to a pre-determined structure. In contrast to taxonomy, "folksonomies are found is social bookmarks managers such as Delicious and Flickr, which allow users to add sites they like to their personal collections of links, to organize and categorize these sites by adding their own terms, or tags and to share this collection with other people with the same interests…In a folksonomy the set of terms is a flat namespace; there are no clearly

defined relations between and among the terms in the vocabulary, unlike formal taxonomies and classification schemes, where there are a multiple kinds of explicit relationships (eg. Broader, narrower, and related terms) between and among terms. Folksonomies are simply the set of terms that a group of users tagged content with; they are not a predetermined set of classification terms or labels" (Spiteri, 2006, p. 7).

My research question focused on whether a taxonomic classification system or a folksonomic classification was best suited for the communications division of Community Services at the City of Edmonton. I have chosen these two methods because a taxonomic structure was recently created and replaced the previous ad hoc manner staff had previously been using as a way to archive their digital artifacts. Folksonomy was evaluated as a possible alternative classification and archival method.

My research question grew out of an innate interest in the organization and tracking of information. In my past place of employment, as well as my recent place of employment, The City of Edmonton ("City"), I have worked with newly revamped digital archiving systems. In both organizations, when coming in as a new employee, a great deal of my work depended on my ability to retrieve digital documents to both learn from and work with. Being in the field of communications, much of the work is outward facing; for example, news releases speeches, media releases and web information. A lot of the time this work is expanded from pieces that have been already been created. Therefore it is very important to be able to find previous work

that already exists, to have a point of reference. Much of the expertise of communicators rests on their ability to take large amounts of often complex information and restructure it a way that is palatable to their identified audience(s). Communicators work in a variety of subject areas such as medicine, law, health, entertainment, politics, economics, etc; and are not usually experts in the fields they work in. Therefore, in order to write about these areas, easy access to documents is required so they can work with what has already been created. It is also important to note the importance of timeliness in this profession. Communications works with extremely tight deadlines, responding to issues in the media, preparing for events, managing unforeseen "bad press", so being able to retrieve information very quickly is often critical to effective communication.

In order for effective knowledge management to occur in my particular profession, digital documents need to be found easily and quickly. It can also be incredibly frustrating and limiting when wading through huge archiving systems that are chaotic and unorganized. In my own experience I found it affected my work as well as my capabilities as a professional. In my former place of employment, people in my division were naming and categorising documents in ways that made the most sense to each individual. The problems with this soon became evident when a new employee started and he or she could not find the documents they were looking for. Someone who had a great deal of experience in archiving was invited to come in and re-organize our archiving system. The new system was a taxonomic approach-someone had come in and

given us guidelines and rules and outlined a new system with which to name and categorize digital files. Although initially we may all have resented thinking in a different way and organizing our documents in a manner that did not seem natural to each of us, after a while it became easier. I especially noticed a difference when I tried to look for documents my colleagues were working on and was able to retrieve the information more easily.

When I first started at the City, the digital archiving system was totally ad hoc; people were naming and saving their files in an unstructured, desultory manner. The particular division I work in has a very large team of communicators, and staff turnover has been an issue, so the digital archiving system is very large. The quick and easy access of information was again proving challenging. The immense quantity of the information was overwhelming, as well as the individualistic manner by which staff had chosen to archive their documents. During a meeting, my director mentioned she would like to re-do our digital archiving system. I volunteered to help be part of this project. I felt my personal interest coupled with my former experience would make a good fit and enable me to make a solid contribution. My colleague and I moved the system from a folksonomic approach to a taxonomic approach; we created guidelines as to how to categorize and label documents.

From this experience, I became interested in selecting the best method of classifying digital documents. From my personal experience, digital archiving in organizations appears to have not been well thought out. I have seen my colleagues struggle when they are unable to find

information they need quickly due to an archiving system that was carried out in an ad hoc manner. My research stemmed from my desire to further understand how the new taxonomic system worked for my colleagues post-implementation. I was uncertain if it has been the best approach for the needs, structure and type of work we produce. While the taxonomic system may have worked in my former organization, it does not necessarily mean it can work well in a totally new organization. I was also interested in how the new taxonomy would affect knowledge management in my division. I had been introduced to knowledge management as part of my MACT course work and learned that information retrieval was an important part of knowledge creation. I understood that not being able to find information quickly was hindering knowledge creation in my division. I was interested in evaluating if the new archiving system facilitated knowledge creation and if my colleagues found it easier to work with.

When I first started at the City of Edmonton the lack of easy information retrieval hindered me from developing tacit knowledge and from doing my job to my full potential. I would spend inappropriate amounts of time searching for knowledge and become increasingly frustrated when I could not find the relevant information. Staff named digital documents in individualistic terms that were meaningful to them with no thought as to what would resonate with their colleagues or new staff. It made sense to them, but it was difficult for others to come in and attempt to mind read what their colleagues were thinking. In the former naming conventions at the City, finding archived material was an issue; people were naming documents

on different hierarchical levels. For example, a news release by one person would be named news release and then the name of the event (newsrelease_2010annual report), while other people would title a news release just by the event (2010annual report_newsrelease), while others would simply name the document by the event (2010annual report). People were naming their documents by what they determined was the most relevant information; for example, to some the type of communication medium (News Release, Media Advisory, Public Service Announcement) was the most important information, while to others it was the subject of the communications medium that was higher in the hierarchy (in this case the 2010 annual report), and yet to others the communication medium was not even mentioned and it was solely the subject that was mentioned. Different people had different ideas of the order of the hierarchy, which also caused a great deal of confusion in trying to find documents. Having people using an ad hoc approach to archiving did not work well in our organizational setting. It was so cumbersome and inefficient we had to have the entire system redefined.

Without a suitable digital archiving system in place, employees are at great risk of not being able to work to their full potential. Employees need to be able to effectively retrieve information in order to do their jobs well, and if this is not possible the conversion of explicit to tacit knowledge cannot occur. Having a digital archiving system that is suited for the needs of employees can do make a great difference in the creation of knowledge management.

Some of this paper was based on my personal experiences as a communications advisor who worked with archiving system as well as one of the employees who helped restructure this system. I was able to extend my research to include four other employees at the City of Edmonton including two participants I work closely with and who have used both the former ad hoc way of archiving material as well as the current taxonomy that has been put into place. My research question developed for the practical reasons of being in close proximity, both literally and figuratively, to the subject matter as well as hopes of being able to contribute in a meaningful way to my organization.

Research Methods

The aim of my research project is to explore the effectiveness of the newly implemented taxonomy in the City of Edmonton's Community Service Communication Division's digital archiving system. My research question will explore the most effective way the communications division of Community Services at the City of Edmonton can organize its digital information. As the former, ad hoc approach was not appropriate, is the new taxonomic structure more effective, or would a folksonomic classification method be a viable option?

I employed a qualitative research design, conducted a content analysis of related information from web-based articles, journal articles and books and a thematic analysis of

interview data taken from four questionnaires that were completed by four employees at the City of Edmonton and have made my own observations in the role of a participant-observer.

A qualitative research design was most appropriate to my particular study as it typically involves data that are collected in the participants' setting, data analysis that emerges from general themes and the researcher making interpretation of the meaning of the data (Creswell, pg.4). Also, with qualitative research, "the researcher is the instrument or the tool for designing, collecting, and analyzing research. Qualitative research, in contrast to quantitative research, generally does not translate aspects of the world into numbers to be analyzed mathematically. Instead, it analyzes the world through the lenses the researcher brings to bear on the data," (President & Fellows Harvard University, 2008). This aligned with my approach to research as I collected data from my participant's professional setting, my data analysis identified themes that arose from the questionnaires given to my participants and I interpreted that data to provide answers to my research question. I was also the instrument to collect my data and I did not translate that data into numerical information.

I also employed content analysis as part of my research design. Content analysis "may be briefly described as the systematic, objective, quantitative analysis of message characteristics. It includes the careful examination of human interactions; the analysis of character portrayals in TV commercials, films, novels; the computer-driven investigation of word usage in news releases and political speeches; and so much more" (Neuendorf, 2002, p.1). I reviewed in detail

a number of online and scholarly articles on folksonomy, taxonomy, advantages and disadvantages of both of these classification methods, folksonomy in public library cataloguing, collaborative tagging systems, knowledge management, organizational knowledge creation, knowledge management in enterprise, knowledge management and technology. I focused quite a bit on the content from Clay Shirky's article "Ontology is Overrated: Categories, Links and Tags. I also evaluated David Winberger's paperback, "Everything is Miscellaneous."

I sent questionnaires to four employees from the City of Edmonton and conducted a thematic analysis on the collected data. Thematic analysis is "a process for encoding qualitative information. The encoding requires an explicit "code". This may be a list of themes; a complex model with themes, indicators, and qualifications that are causally related; or something in between these two forms." (Boyatzis, 1998, p.4). Two of my participants were colleagues I worked closely with and who have worked with the former and present archiving system, and I was interested to discover if the new taxonomic structure was an improvement. I was also interested in whether the new system was making it easier for them to do their jobs, or more specifically if they could find information more easily. This information would help me understand if the current structure is ideal in this setting. Questionnaires were sent to employees in different divisions to enrich my research and to find more information about what the organization was doing on corporate-wide level. I wanted to know if there were any guidelines/standards in place that employees had to follow to archive digital documents, and if

we were moving to any new archiving systems or adopting new technology to make these changes.

Part of this paper will be experiential, based on a firsthand account of my experience as a City of Edmonton employee, specifically my work helping manage my division's digital archiving system. As I am also a full time employee in the communications division used in my study, it is important to mention I was a participant observer in this study, and in my case I had complete membership in this group. Complete membership is when "the researcher and the insiders relate to each other as status equals, dedicated to sharing in a coming set of experiences, feelings and goals. There is no need for the researcher to assume a covert role." (Baker, 2006, p.178). I was fully immersed in the setting from which I drew much of my data and observations. I collected data from colleagues that were on the same hierarchical level in the organization as I was and who worked in the same profession.

My project will be framed as a knowledge management issue and part of my research will explore the importance of knowledge management in enterprise and how certain systems can either advance or hinder knowledge. As people work in organizations to achieve certain goals, they constantly need to acquire new knowledge. Much of this knowledge is obtained through documents created by others. Knowing where these documents can be found is often challenging (Schirmer, 2003, p. 519). Employees need to be able to effectively retrieve information in order to do their jobs well, and if this is not possible, the conversion of explicit to

tacit knowledge cannot occur. Having a digital archiving system that is suited for the needs of an organization can do great things for the creation of knowledge management. In Marwick`s article, “Knowledge Management Technology”, (2001) he argues that for employees to create new tacit knowledge, comprehensive information retrieval is necessary and a system that generates metadata may support rapid information retrieval (p.822). A major objective in many organizations is the need to improve management of information and that one of the key obstacles to success of this management is when digital objects are difficult to find. People creating metadata for other users is cumbersome as it is often difficult for the users to understand its overall structure and meaning. Research shows that when author- generated metadata is used, people differ in their use of terminology to a large degree (Grudin, 2006, p.2). That is an important factor to consider when organizations create or change their digital archiving system to a taxonomic approach - people will have learn or unlearn what may be intuitive them when choosing a way to name and categorize their digital documents. The issue at the City is more than improving a digital archiving system; it is about improving knowledge management effectiveness for employees.

For the purposes of this study, it is key to distinguish between folksonomy and the ad hoc manner employees were using to archive their digital assets. Folksonomy, also known as social bookmarking/social tagging/collaborative tagging refers to the practice of people applying

metadata (they created) to digital assets and is " the practice of allowing people to freely attach keywords or tags to (online) content……A number of now prominent web sites feature collaborative tagging. Typically, such sites allow users to publicly tag and share content, so that they can not only categorize information for themselves, they can also browse the information categorized by others" (Golder & Huberman, 2005). Examples of popular sites that use social tagging are Flickr and Delicious. Delicious allows users to save URLs of websites they find interesting, useful, etc. Users can tag the URLs with as many or few keywords as they like. Delicious is considered a social tagging site because users can view their own tagged websites and also browse websites tagged by other Delicious users. Tags created by users are able to be "shared" with other users through the use of tags. The classification system at the communications division of Community Services at the City was not a folksonomy, (although staff were able to name documents whatever they wanted and save them wherever they wanted), it was more of an ad hoc approach. A difference between these two approaches is that a folksonomy allows people to name or tag documents a number of different names, depending on what individually resonates with them, it also allows people to share these tag, enabling it to be collaborative.

Structure

My literature review in Chapter 2 predominantly examines scholarly and online articles as well as a number of books. This section reviewed knowledge management in organizations,

the importance of digital preservation, the pros and cons of folksonomy and examples of the folksonomic site Delicious. This section concluded with a summary of the two positions of folksonomy. The biggest gap I have been able to identify from the research conducted for my literature review was the lack of information about how folksonomy could work in enterprise. I could not find a good example of an actual organization that adopted a folksonomic or collaborative tagging approach.

Chapter three examines the methodological approach I used to gather my data. I used a qualitative method for my research design and questionnaires were sent to four participants-all employees of the City of Edmonton. My position as participant-observer, more specifically a person with complete membership, provided a unique position and allowed me access to my participants (although I still faced certain challenges getting the full amount of information I desired). Finally this chapter ends with the interview questions and my experience gathering these data.

The final chapter entitled `Findings and Discussion` describes the findings of the questionnaires in depth, identifies emerging themes from the data collected and relates it to the research question. The themes I focused on were consistency, ease of retrieval, naming conventions, records management, and the Google Cloud platform.

CHAPTER 2: Literature Review

This chapter covers a number of topics to gain further understanding of the importance of digital documents, how the preservation of digital documents aids in the creation of knowledge and finally some of the principles the two different classification systems under review; folksonomy and taxonomy. The general topic areas from which I drew literature were knowledge management creation, knowledge management in organizations, knowledge management technology, folksonomy and taxonomy and some of the philosophical limitations of traditional categorization strategies and the benefits of social collaborative systems such as Delicious. My sources included scholarly journal articles and online articles as well as David Weinberger`s book titled ``Everything is Miscellaneous: the power of the new digital disorder.”

My online searches using Google and Google scholar used keywords `folksonomy``, `definition of folksonomy`, `definition of taxonomy`, `folksonomy in enterprise`, `folksonomy and knowledge management`, `Clay Shirky``, `Clay Shirky and folksonomy`, `folksonomy vs. taxonomy`, `folksonomy vs. taxonomy in enterprise`` `folksonomy in organizations`, `folksonomy vs. taxonomy in organizations’ and ``taxofolk`. I was especially interested to see if there was anything from my Google search such as blogs from experts that could provide some information and concrete examples of organizations that had adopted a folkosonomy to archive digital documents. From the Google search there were a number of articles and expert blogs that discussed if organizations *could* adopt a folknosomy, this structure`s potential benefits and

downfalls as well as descriptions of Delicious and Flickr. The Google searches of ``folksonomy in enterprise` and ``folksonomy vs. taxonomy in enterprise` resulted in many of the same postings as did `folksonomy in organizations` and `folksonomy vs. taxonomy in organizations`.

My Google searches did however yield valuable information on folksonomies and the advantages and disadvantages in articles such as `` Beneath the Metadata: Some Philosophical Problems with Folksonomy“ as well as ``Folksonomies: Power to the People”.

Using the University of Alberta’s library database EBSCO and SCORPUS, the key words I used for my search included `folksonomy in enterprise`, ’Clay Shirky`, `folksonomy vs. taxonomy in organizations‘, `taxofolk` and ’folksonomy`. Though there were useful articles in about folksonomies in general, such as Golder, S.A., Huberman, B.A.
“Usage patterns of collaborative tagging systems” by Golder and Huberman,”Beneath the Metadata: Some philosophical Problems with Folksonomy” by Elaine Peterson and “The Use of Folksonomies in Public Library Catalogs” by Louise Spiteri, for example, there was still little information about organizations that had actually adopted a folksonomic classification method.

From my searches that used `Clay Shirky` as key words, his article titled `` Ontology is Overrated” was the most useful article from this search and provided the most appropriate information to support my research. His arguments about how the web has reshaped traditional

categorization strategies and that much of what we know about categorizing is wrong, has been helpful in describing some of the advantages of folksonomy (Shirky, pg1).

I had a number of very useful scholarly articles about knowledge management and knowledge management in enterprise and knowledge management and technology from my previous COMM 507: Knowledge Management and Communications Technologies core course. Though there was a quite a bit of information on folksonomies, taxonomies, their pros and cons as well as knowledge management, I was unable to find any relevant organizations where employees had adopted a folksonomic classification method.

Knowledge Management

It is important to stress the significance of digital artifacts. Digital documents may completely replace our books and all other information preserved on paper one day. It is our world's new intellectual capital. Levy (1998) presents the philosophical concept- "document heroism" and argues that documents are like heroes and as heroes perform the important function of preserving people; documents preserve facts, ideas and stories. He then continues to argue that to talk about preservation is to talk about decay and therefore to talk about death (p54). By arguing how documents are heroic, Levy supported my paper's focus of the importance of maintaining and easily retrieving digital documents, and the effectiveness this preservation has

on the knowledge management of an organization. His concept of documents being like heroes may be a bit of a stretch, but it does underscore the importance of preserving digital documents. Documents preserve our world's facts, stories and work, and should be treated as something precious. An organization's digital artifacts are one of its most important assets and, other than actual employees, contain an organization's intellectual capital. In Marwick (2001) he furthers Levy`s arguments of the importance of documents by discussing the significance of technology to support knowledge creation. He argues that for employees to create new tacit knowledge, comprehensive information retrieval is necessary and a system that generates metadata may support rapid information retrieval (p.822).

An appropriate archiving system helps facilitate effective knowledge management in an organization. Since my project will be framed as a knowledge management problem, it is important to explore the importance of knowledge management in enterprise and how certain systems can either encourage or hinder it. For example, Nonaka's model explains organizational knowledge management and how knowledge is created through a series of conversions (Nonaka, 1994, pg.19). Using Nonaka's model of organizational knowledge creation as the framework, Marwick (2001) discusses certain technologies that can be applied to the creation of knowledge management (p. 815). Nonaka formulated a theory that organizational knowledge can be created by the conversion of knowledge between tacit and explicit forms. Organizational knowledge occurs as people engage in this conversion as their knowledge is shared, articulated and available

to other people (2001, p.814). To form new tacit knowledge, technology in organizations needs to be able to facilitate information retrieval. If tacit knowledge can be more easily formed by information retrieval, the information itself is more valuable. Grudin (2006) also discusses how explicit knowledge is turned to tacit knowledge when information can be effectively retrieved points out that a major objective in many organizations is the need to improve management of information and *that one of the key obstacles to success of knowledge management is when digital objects are difficult to find*. People creating metadata for other users is cumbersome as it is often difficult for them to understand its overall structure and meaning (p.2).

Being able to access digital archives quickly and easily is directly related to facilitating effective knowledge management. Having an effective digital archiving structure can help facilitate the conversion of explicit knowledge to tacit knowledge. In plain language, tacit knowledge is "what the knower knows which is derived from experience and embodies beliefs and values. Tacit knowledge is actionable knowledge, and therefore the most valuable" (Marwick, 2001, p.814). While explicit knowledge is "represented by some artefact, such as a document or a video, which has typically been created with the goal of communicating with another person" (p. 814). The answer to knowledge creation, is the conversion of tacit knowledge to explicit knowledge. In order for that conversion to occur, people must be able to access the artifacts that contain the information that can be converted into tacit knowledge. Organizational knowledge is created through a number of processes experienced by individuals that occur between tacit and explicit knowledge. Marwick (2001) describes four processes

people experience when knowledge is transformed. The first is called socialization (tacit to tacit) and this occurs when people are collaborating. An example of this is the sharing of experiences in a team meeting. The next process is externalization (tacit to explicit), this process is more difficult, and can be achieved through conceptualization and articulation with other people and some amount of a person's tacit knowledge may be captured in explicit form. Combination (explicit to explicit) is the type of knowledge that can be shared through documents or emails. An example of this would be Google documents, where a number of people have the ability to make additions and changes to a single document simultaneously. The final process is internalization (explicit to tacit) knowledge which occurs when individuals understand and then internalize information which then leads them to create their own tacit knowledge. People can do this by reading documents, reports, novels, etc. It is when a person looks at knowledge that has been captured in an artifact and then transforms it into internal knowledge, so it becomes their own (p. 815). The more easily it is to access digital artifacts, the more seamless the process of knowledge creation.

Taxonomy

A significant amount of research about taxonomic systems focuses on the Dewy Decimal System, which is one of the best known, universal categorization systems. Though the Dewy

Decimal System did introduce some semblance of organization, it too had major limitations. This system was created in the 17th century and many of the categories used at that time are not appropriate in today's world. According to Shirky, the problem with categorization systems like the Dewy Decimal System is that it forces the categorizer to be a mind reader and a fortune teller by anticipating how people would name and categorize documents as well as what categorization is relevant. (p. 11). Traditional archiving systems, such as libraries, have usually had a professional in charge of categorizing and naming materials for others to use in order to find materials. The fundamental problem with this system is that someone is put in the position of deciding how others think; for example, do I assign names to the information based on the author's (in the case of a library) intent or what I believe would resonate with the people who are looking for the information? Shirky also believes libraries have the best-known categorization scheme and it is a good way to manage physical objects (p.3). A book, has to, absolutely has to, remain in one place, because it is a physical object and cannot be in another place. In this sense a book must be about one thing to be able to be categorized and placed somewhere. A book which could equally be about two different subjects can obviously not be physically split in two, so it must be declared about one subject so it can "live" in one place (p.5). In the digital world, there is not this issue of something that has to live on a shelf, there is absolutely no physical restraint. Libraries have historically used the Dewy Decimal system to archive their materials, where books are categorized into subject areas and then assigned numbers. Weinberger (2007) states that 96% of the public school libraries in the US and 200,000 libraries worldwide use this system

(p.47). Subjects such as religion, geography, technology, have undergone great changes over the years and their categorization hierarchy would have changed as well. Dewy would have categorized according to his perception of the world, i.e. 19th century Europe. As Weinberger states, (2007), ”The Dewy Decimal Classification system can’t be fixed because knowledge itself is unfixed. Knowledge is diverse, changing, imbued with the cultural values of the moment”(p.56). Dewy attempted to map knowledge, much as we are trying to do that at the City, and the problem is that knowledge cannot be mapped because it does not have a shape, or a top-down view (p.63).

Pros of Folksonomy

.Folksonomies can add value to public library catalogues by allowing users to organize personal information space, create metadata and create online communities with other people who have the same interest (Peterson, 2006, p.76). Traditionally in libraries the vocabulary used to organize content is usually based on the designers of the information retrieval system, not on the user, a folksonomy has allowed the user, as opposed to a professional, name the information and allowed users to create a community of people with similar interests and the opportunity to share relevant information.

Research shows that when author-generated metadata is used, people differ in their use of terminology to a large degree. This approach would be what Clay Shirky refers to as reading

people's minds and predicting the future. Shirky compares categorizing artifacts in advance to both mind reading and fortune telling. He makes a significant point when he says the assumption is that we can and should read people`s minds when we create categories (p.11). He believes the position of categorizing underestimates the vast options of where people think certain artifacts should live. Shirky states that any classification system that is stable puts the person who is determining the categories in the position as a fortune teller. For example, animals become extinct, technology changes, and countries change borders. If there was a category titled USSR that would obviously not apply in today's world (p. 13).

Shirky continues this argument and uses Yahoo as an example. When Yahoo was first launched, they hired a professional to establish ontology and organize subjects in a number of categories and subcategories. By doing this, Shirky believes Yahoo is stating, "we understand better than you how the world is organized, because we are trained professional`" (p. 6). By establishing these categories and subcategories Yahoo has added the shelf back. Yahoo obviously thought what they were doing was of value to their users, but they were also determining the view of the user using their system. Yahoo was creating a taxonomy for its users. Taxonomies usually require expert cataloguers and an authoritative source; they are quite rigid. On the other side of the spectrum Google, which according to Shirky, works so well because of the absence of a 'shelf`' or filing system. Google decides what to put together after the user has entered their search, as opposed to predicting in advance. With Google no one is telling you in advance what it is you need (p.9). Shirky states that an ontology does not work

well when there is a large body of work one is dealing with, when there are no formal categories and when participants are uncoordinated users, amateur users, naïve cataloguers or have no authority (p.11). Wienburger (2007) has an interesting take on information that is similar. He believes that once the world was miscellaneous, but now we are a world obsessed with putting things in their place (p.9). Weinberger (2007) states that we process information as we do bringing new arrivals into our home, "we go through new arrivals and then we put them away, we will keep it, delete it, file it in a folder or save it to our hard drive. When we save our emails to our hard drive we must assign metadata to it and essentially it seems the solution to the overabundance of information is more information" (p. 11). He continues to argue that the abundance of information is completely overwhelming and we do create extremely complex systems in attempts to organize it. We spend hours and hours trying to file information in ways that we will hope we will remember where exactly it is for later retrieval. This is a virtual impossibility; we are constantly inundated with more and more information and it becomes increasingly difficult remember what is kept where.

With this vast amount of information people have to deal with on a daily basis, there have been some solutions to try to keep it somewhat under control. For example, a way people can organize online information is through a program called Delicious. Shirky uses the example of Delicious to exemplify what he believes as an 'explosion in free-forming labelling of links, followed by all sorts of ways of grabbing value from those labels' (p. 15). With Delicious, any

word, number, or symbol, can be used to name urls; anything that makes sense to the user. Delicious allows users to save bookmarks, in this case URLs of websites users find interesting, useful, or worth returning to for whatever reason. Users can choose to tag bookmarks with as many or few keywords as they would like. Delicious is social because users can see their own their own bookmarks as well as everyone else's. They can browse websites of others users and gauge a sense of what they find interesting. Delicious grew out of a very personal need for its founder Joshua Schachter when he noticed his web lists had grown to 20, 000 and he wanted to share them with his friends (p. 92). His two major insights are that tags help people remember and find the information they were looking for and the power of making people's lists public (p.93). It is logical to think that people tagging their own information would help people retrieve information. With the digital archives system at the City, we often ask each other where information lives in the different categories we each maintain, because of course, it makes the most sense to us and we are the ones creating metadata for the information. Weinberger (2007) says Delicious would look like a forest floor in autumn with thousand of leaves scattered on the ground as opposed to a traditional archiving system that would look like a tree (p.94). This metaphor works well because the leaves are all on the same level (the ground) as opposed to leaves on different levels of branches or hierarchies. The leaves on the ground is similar to the non-hierarchical or flat structure of Delicious while an archiving system like the one at the City is multi-levelled; a hierarchy. There is absolutely no hierarchy with Delicious, tagged

information lives next to each other as opposed to the more hierarchical structure of the archive system at the City.

To further this concept of tagging, Golder and Huberman (2006) argue in their article that tagging is fundamentally about sense making; a process in which information is labelled through critical thought and from there meaning emerges (p. 200). When people interact with the outside world they make sense of things they encounter by categorizing and assigning meaning to them. Sense making is also determined by social factors and different opinions and perspectives. Spiteri (2006) states that tags in themselves can reveal a great deal of information by identifying what the subject is and who owns it (p.81). He says "What makes the tagging phenomenon utterly fascination is that there is a collective action component to it. We love to see how people will come to common consensus on relevant terms" (pg. 80). Furthermore, tags can refine categories, identify characteristics (e.g. tasty, boring, etc), and help organize information (p. 81). One of the powers of tagging is the function of aggregating information and its sharing capabilities. Tags are often inclusive and reflect how a population thinks and views a subject, furthermore they have the capability of capturing the real needs of people, not their perceived needs (Grudin, 1998, p.3). Tagging is non hierarchical and can identify a document as being about a number of subjects simultaneously as opposed to a limiting the subject of a document to one or two words. Quinatelli (2005) describes tagging in this way, " In a bottom-up distributed and collaborative grassroots approach, tagging or folksonomy is a manifestation of people

moving away from hierarchical authoritative schemes. Rather than learning yet another imposed external scheme to classify items and to restrict, to some extent, the user's thinking, people started to associate their own tags to the items they wanted to collect and share. In a social distributed environment, sharing one's own tags makes for innovative ways to map meaning and let relationships naturally emerge."

Disadvantages of Folksonomy

Tagging, however, does have its disadvantages as well, Grudin (2006) points out with tagging issues such as polysemy, synonymy, plurals, parts of speech and spelling can occur (p.3). Golder and Huberman (2005) argue that a problem with user tagging is that different people consider different words appropriate for different levels of specificity or hierarchy. An example is when people tag a picture of a cheetah, they may use the words to categorize cheetahs such as a cat, cheetah and or animal (p.199). They also state that tagging creates uncontrolled vocabulary which causes ambiguity. There are no guidelines, and different words can mean different things to different people. Tagging can lack sophistication, is messy, casual and not fact based (p.4). Tagging is also subject to people's interpretation and false information can co-exist with true information (p.4).

Peterson's (2006) article points out a number of disadvantages with folksonomies that mostly centre on language problems. She explains this democratic approach to web cataloguing

contributes to a great deal of irrelevant and inaccurate information referred to as `meta noise` (pg.4).

Inaccurate information is often abundant in a folksonomy. For example, if there is a picture of a horse and I name it `black horse` another person names it `white horse`, they are both right because of the varied nature of folksonomies. The horse was named based on two people`s perspectives. Every user of a folksonomy brings with them a different set of priorities, often coloured by different linguistic and cultural backgrounds. So often a folksonomy can have both true and false statements (Peterson, 2006, pg.4). Peterson (2006) states,"Because tags are relativized, personal, idiosyncratic views can coexist and thrive in the form of tags, in spite of their inconsistencies `` (pg. 4).

Summary

The shape of knowledge is rapidly changing and with the constant growing volumes of information people must deal with on a daily basis, we have to adapt quickly. My research provides insight to some of the advantages and disadvantages of taxonomy and folksonomy. The heart of the matter is that taxonomy is more rigid, dictatorial and hierarchical while folksonomy is inclusive and grassroots. The literature I have reviewed stresses the importance of effective document retrieval to facilitate knowledge management, so supports my belief that my study of digital archiving is relevant. My research informed my study by presenting the pros and cons of

folksonomy. Some of the pros of folksonomy are that it is non hierarchical, inclusive, it encourages collective action and collaboration and is grassroots. The cons of folksonomy are that is can be inconsistent, inaccurate, create meta noise, encourage false information, misspelling and cause polysemy and synonymy.

My literature review focused on a number of important themes that will help guide my research. One of the keys to successfully creating organizational management is being able to retrieve digital documents easily. According to Shirky (op cit), a taxonomic archiving system, such as the Dewy Decimal System, poses problems because it causes the creator of the structure to be both a mind reader and fortune teller. The creator has to anticipate how people would name and categorize documents. The disadvantage here is that someone is put in the position of deciding how others think, which can cause a number of problems (p.11).

Folksonomies on the other hand are non hierarchical and can identify a document as being about a number of subjects simultaneously. It is also collaborative and rather than people needing to learn another complicated archiving scheme that another person created, it allows people to name or tag information in ways that are meaningful to them (Quintarelli, 2005).
It has also been argued that tagging is about sense making; a process in which information is labelled through critical thought and from there meaning emerges (Golder and Huberman, 2006, p. 200). Folksonomies are inclusive and reflect how a population thinks and views a subject.

They have the capability of capturing the real needs of people, not their perceived needs (Grudin, 1998 p.3).

The literature has helped shape my interviews as I was interested in learning if the current taxonomic structure was inhibiting my colleagues. For example, as the literature revealed, it is sometimes difficult for people to adapt to a taxonomic structure because they must follow the `rules` that have been created by another person. I was curious to see if the structure I helped create was limiting at all to my colleagues. I had put myself in the position of a mind reader and a fortune teller in that I helped create a taxonomy for my other colleagues to use.

CHAPTER 3: Methodology

In this chapter I explain the reason for choosing a qualitative research design as well as my unique position as a participant-observer with compete membership. My data were collected from four questionnaires from City of Edmonton employees; two of these participants have worked with the new taxonomy and the older ad hoc method of archiving in the communications division. I was interested in learning if the new taxonomy was assisting them professionally and if they preferred archiving their documents in such a rigid structure. The other two participants

enriched my research by providing information on records management and other methods of managing information at the City.

My data were collected from four questionnaires given to two Public Information Officers, a member of the City`s IT team and a staff member who works in records management. The two Public Information Officers (colleagues I work very closely with) have worked for the City for over approximately two years and worked with the former and current archiving systems. My questions focused on learning which archiving method my colleagues prefer using and why, also if they found it easier or more difficult to do their jobs with the new structure. Questions for participant 3, (who works in IT) focused on if or how the City's recent move to Google docs will affect our archiving practices (The City of Edmonton was recently the first municipality in Canada to move to the Google Cloud). Finally, questions for participant 4, focused on what records management system was the most effective for employees at the City of Edmonton on a corporate-wide level.

My study adopted a qualitative research method design to support my research problem. I believed conducting qualitative research would give me a more effective way of exploring the appropriate data needed to support my research question. Silverman (2010) suggested that "if you are concerned about exploring people's life histories or everyday behaviour, then qualitative methods may be favored" (p.10). I wanted to know "how" as opposed to "how many" (p. 11) and to learn more about my colleagues' personal experiences with digital archiving, their

everyday experiences in our workplace and how our digital archiving system helped or hindered them with their work. I was also interested in hearing about my colleagues' experiences with the new digital archiving system, if it was more or less effective, if they were able to find information more quickly, and whether it was time consuming to name documents according to the guidelines. Also, because I worked with this system every day, I felt a certain affinity to this subject and I was curious if my experiences were similar to my colleagues'. In Creswell's article, "Research Design" he argues the type of beliefs, or certain world views, held by individual researchers will often lead him or her to embrace either a qualitative or quantitative approach to their research (pg. 6). One of the world views he discusses is the social constructivist, which is typically seen as an approach to qualitative research (pg. 8). He says, "social constructivists hold assumptions that individuals seek understanding of the world in which they live and work. Individuals develop subjective meanings of their experiences - meanings directed toward certain objects or things. ……researchers recognize that their own backgrounds shape their interpretation, and they position themselves in the research to acknowledge how their interpretation flows from their personal, cultural, and historical experiences" (pg.8). My research and my role as a researcher aligned with Creswell's descriptions. I collected much of my data (in the form of a questionnaire) from my professional setting, my data analysis focused on emerging themes, made certain interpretations of the meaning of the data. For these reasons a qualitative approach was the most appropriate for my particular research project.

Part of this paper was also experiential, based on a firsthand account of my experience as a City of Edmonton employee, specifically my work helping manage my division's digital archiving system. My own experiences were a relevant part of this research; I have worked in two separate professional environments that have discouraged the practice of ad hoc archiving methods and moved to a more controlled, structured manner of naming and classifying data. I also had first-hand knowledge of working with the new archiving system being discussed in this paper on a daily basis, so I am extremely familiar with it. It is important that I acknowledged my role as a researcher as well as an employee at the communications division of Community Services at the City of Edmonton. My research is based on material I worked with closely and frequently. Having had this level of access to the information that is central to my research was quite advantageous. My situation was similar to the role of a researcher who had "complete membership" in a particular setting. I did not have to gain access or present myself to the field as I was already fully immersed as a full time employee at the City. Complete membership allows researchers to "supplement the data they gather with the greatest degree of their own subjective insight" (Singleton, Royce and Straits Bruce, Approaches to Social Research, pg. 379) I felt fortunate to be able to work so intimately with the data I was studying. Being in this position I was able to provide insight that would enrich my research and I considered myself in a strong position to be able to describe the strengths and weaknesses of our current and past digital archiving systems as well as how it was hindering or improving knowledge management.

Interview Questions

My data was collected from four questionnaires given to two Public Information Officers, a member of the City's IT team and a staff member who worked in records management. The two Public Information Officers (colleagues I work very closely with) both worked for the City over approximately two years and worked with the former and current archiving systems. I chose to interview these two women because they worked with both the previous and present digital archiving system and it would be interesting and useful to discover which system they preferred and why. These interviews were structured. In a structured interview, "all questions are written beforehand and asked in the same order for all respondents, and the interviewer is highly restricted in such matters as the use of introductory and closing remarked, transitions, or "bridges" from topic to topic, and supplementary questions to gain a more complete response" (Singleton & Straits, 2009, p.267). I presented these questions in a questionnaire format sent via email. Conducting structured interviews with my colleagues was more conducive to discovering their honest opinions regarding the new archive structure. If I conducted a more casual interview or a face to face interview, I may possibly have influenced their answers, or they may not have been as comfortable answering the questions as honestly. Also, because I knew them both quite well, an unstructured interview may not be taken as seriously. Some advantages of

questionnaires according to Singleton & Straits (2009) is that “respondents are free to select a convenient time to respond and to spend sufficient time to think about each answer. The absence of an interviewer also assures privacy, which may explain why respondents are less willing to reveal illegal or socially undesirable behaviours or other sensitive information than in a self-administered questionnaire.” (p. 287). I was one of the leads on the project, and I wanted my colleagues to be able to feel as though they could criticize the new system (if that is how they honestly felt) whereas they may have been less forthcoming in a face to face interview. As well, I wanted to introduce a level of formality to this project with them as we did know each other quite well on a professional level. I was one of the people who implemented aspects of this new archiving structure and I did not want my colleagues to feel as though they could not point out limitations or disadvantages of this system. Some of the questions would focus on the advantages and disadvantages of both archiving systems as well as which system they preferred working with. I was interested to see which specific elements of each system work and do not work. Also, I wanted to learn if they thought a collaborative tagging structure would be beneficial as a way to archive digital documents.

Questions for Participant 1 and Participant 2 included (see Appendix A and Appendix B):

> Which archiving structure do you prefer working with (the former structure where you were able to name documents whatever you wanted, of the current structure), and why
>
> What do you understand the goals of the new structure to be?
>
> Do you think it fulfils those goals?

Did it take you awhile to adapt to the new naming conventions? Did they make sense to you?

Is it easier finding documents now?

If so, how?

Do you think the new system will make it easier for new staff coming in to find the materials they need?

Did the older structure hinder you from doing your work in any way? If so, how

Do you find it easier to do your job with the new system? If so, how?

What kind of archiving system do you think would be the most ideal for the particular organization you work in?

Participant 3, worked on the City of Edmonton's project to migrate its email and applications to Google Inc.'s cloud. The City of Edmonton is Canada's first municipality to migrate to the Google cloud. In an interview with ComputerWorld about this migration, a City employee stated "Functions are different, and you need to think about things like, you know, when I go to my Google Docs, I don't have to necessarily be concerned about where I store things because I can use the power of Google search to find things. So, it isn't so much the technical difference—and this is where we're focusing a lot of our energy—it's on the people side, and the change management" (Bloom, 2012). I wanted to know more about this migration as well as the effects it will have on the City's digital archiving system, especially its ability to

retrieve, search and name digital documents. An interview with Participant 3 provided some insight to this new system and how it may affect the City's archiving system.

Questions to Participant 3 included (see Appendix C):

> Will employees be able to share their documents with other City staff with the new move to Google docs?
>
> Was one for the reasons the City moved to Google docs to streamline or improve archiving (of documents by staff) processes?
>
> Will employees be able to retrieve their documents more easily and quickly?
>
> What will be achieved by implementing this new system?
>
> Was it considered whether the move to Google docs improve knowledge management for employees?

Finally, Participant 4, has worked with records management with the City of Edmonton and provided insight as to how the City has managed their records over the years, what structure, if any, they have followed and how well it has worked. I was interested in how the City responded to new archiving techniques and technology, as well as his reasoning for choosing the particular system he is working with. Questions focused on what records management system is the most effective for employees at the City of Edmonton. I was also curious to learn whether Participant 4 knew how other organizations that shared similarities to the City (for example, number of employees, municipal government) archived their digital artifacts and if there was any technology that would allow employees to tag and share digital documents. As an expert in

records management I was curious to see what Participant 4 believed are the characteristics of an effective archiving systems.

Questions for Participant 4 included (see Appendix D)

How important is a records management system in facilitating effective knowledge management?

What do you think would be the most effective digital archiving system for employees at the City of Edmonton; folksonomy, taxonomy or a combination of both?

Does the City of Edmonton currently have the technology in place to explore different ways to archive their digital documents?

What archiving structures for digital assets are most common in organizations similar to the City of Edmonton? (Are we to assume all large organization have a similar archiving system as the City of Edmonton?)

Are you aware of any other organizations that use social tagging as a way for employees to name and “share” their documents?

Do you think the current archiving system is meeting the particular needs of the City of Edmonton? If yes, how? If no, what could be improved?

Are there are future changes to the City’s current records management system planned? If yes, what are they and how would they change the current system? Is it being implemented with the goal to make it easier for employees to find documents?

What are the goals of an effective records management system?

What do you think are the characteristics of an effective records management system?

In your opinion, what is the importance of an effective records management system in organizations?

I was able to identify who to interview outside of my division after approaching the head of IT for the Communities Services Division at the City of Edmonton. I have a professional relationship with this person and felt comfortable talking to him about where to start. Initially, I thought I might need to interview him to learn about the technical side of things. For example, more in-depth questions about the technology the City currently has in place to support a more technically advanced digital archiving system. I was pointed the direction of Participants 3 and 4 because Participant 4 was working on a new taxonomic system for archiving digital artifacts at the City, and is an expert on records management and Participant 3 headed the new Google cloud project.

Originally my data collection strategy was to conduct face to face interviews with participants 3 and 4 so I could receive information from questions that arose organically; questions I would not have be able to anticipate about both of their particular subject areas. These participants worked in a field I do not know a great deal about and I thought that if they referred to something I did not understand, I could ask for clarification. I also thought it would have been a good way to build a rapport in case I had any follow up questions or needed extensive clarification. After incorporating this approach in my HERO application, I felt satisfied in my decision and was ready to proceed.

After a great deal of thought, I made a significant change to my method of gathering data and decided to send questionnaires to Participants 3 and 4 as opposed to conducting face to face

interviews. I came to the conclusion that having these two participants provide their answers to me on paper would engender more integrity to the responses. I also thought it would be more "formal" if they were sent questionnaires - I believed this formality would lead to more authentic answers.

There are disadvantages to using questionnaires. One of the most significant is that the interview bias is eliminated as are the advantages of an interviewer. There is no opportunity to clarify questions or probe for different answers (Singleton & Straits, 2009, p.288). I considered the pros and cons of conducting a face to face interview. On the plus side, for example, I would not have the opportunity to ask for clarification on a subject area I knew little about or have the opportunity to ask my participants to expand on their answers if I needed more information. On the other hand, I also believed that my presence could also influence my participants and I wanted to be able to obtain the most authentic answers possible. All my participants received a consent form as well as a letter of information outlining how the data would be used as well as informing the participants they had the right to withdraw from the study at any time.

After I received the questionnaires from my participants, I examined the responses and conducted a thematic analysis of the data. A thematic analysis is carried out when researchers review their data, make notes and sort it into groups. It is a data analytic strategy that helps

researchers move their analysis from a broad reading of the data towards discovering patterns and common themes (President & Fellows Harvard University, 2008).

A common theme I was interested in recognizing with Participant 1 and 2 was whether they preferred the former ad hoc manner of archiving digital documents to the new taxonomy that had been implemented. I wanted to learn if there were similarities in what they believed the goals of the new structure to be. Ideally they would give similar answers such as to save time when looking for digital documents and to be able to find other people's work more easily.

I hoped to discover whether the new archiving structure was facilitating knowledge management. For example, I asked if they found it easier to do their jobs with this new structure and if so how; if the new structure would make it easier for new staff coming in and why. I also asked if the older structure hindered them in any way from doing their jobs. If there were recurring answers to these questions I would be able to identify certain themes and would then be able to determine if knowledge management was being improved as well as which system was more suitable to the people actually using it. These pointed questions would help me determine which archiving structure was most appropriate for this particular environment. If knowledge management was being facilitated (it was easier and faster to find information, new staff could find information more efficiently), I would then be able to understand which structure was most suitable to the communications division at the City of Edmonton. The questions for Participants 3 and 4 were asked to discover if there was certain technology in place at the City, as well as to

learn aspects of the corporate culture. Certain recurring themes would help me determine if the City had a corporate culture that is open to adopting new technology as well as a culture of information sharing and knowledge management. “It is the culture of the organization that supports or impedes knowledge creation and transference both internally and to its customers. Therefore, rather than just encouraging or mandating knowledge sharing, fostering the motivation to share knowledge must precede it” (H. Benbya et al., 2004, p. 217-218). Through thematic analysis I hoped to be able to determine if the City has the capability as well as the willingness to adopt new technology to further its archiving practices.

Chapter 4: Findings and Discussion

This chapter focuses on the findings from the four participants and identifies the themes that arose from the data. After analyzing the data from Participant 1 and 2 it was surprising to see the number of similarities in their answers. Both participants said the new structure created more consistency and it enabled documents to be found faster. Both understood the goals of the program. The other two questionnaires shed light on some of the organization’s broader records management strategies as well as recent technology the City has adopted that may have an impact on certain aspects of document sharing.

Consistency

The questionnaires revealed that both participants prefer the current archiving structure-the taxonomy. Both participants mentioned that one of the primary goals of the new system was to create consistency. Participant 2 stated, “It’s important to remember that the system that works for one person may not make sense to another. With staff turnover, it’s important that archives are clear and understandable, and that documents are easy to find” (see Appendix B). Participant 1 referred to the issues of high staff turnover in our division and how the new taxonomic structure helped with consistency. When asked what Participant 1 understood the goals of the new structure are she stated, “I believe it is to keep records that are easy to find and determine what they are, as we have a high staff turnover in our field. When one person leaves, it can be time consuming and difficult to find projects there were working on because of their personal record keeping. If everyone on the team is using the same procedures, we can easily maintain files without confusion” (see Appendix A). Both participants agreed the new systems helped to create consistency, which avoided the potential ambiguity that may have arisen from different people assigning metadata of their own choosing.

One of the disadvantages of folksonomies is the problem that comes along with all uncontrolled vocabulary-polysemy, synonymy and possible vagueness. Folksonomies provide no guidelines for punctuation or word order (Spiteri, 2006, p. 79). Both participants agreed the new

naming structure is effective because it identifies what type of document is being saved (the new naming - date_type of document_subject of the document). As Participant 2 stated “PSA’s (Public Service Announcements) are clearly labelled PSAs, news releases are clearly labelled and so on. There’s no confusion as to what the document is, and it saves time because you don’t have to open each and every document - the very intent of the system is to be able to scroll through a list and see what documents are what” (see Appendix B). Since all our work is somewhat similar and the templates we used all the same, it was easy to identify the type of document we are working with and/or trying to retrieve.

Ease of retrieval

Another emerging theme was that documents were easier and faster to find. Participants 1 and 2 both had a clear idea of what the goals of the new structure were; Participant 1 mentioned how time consuming and difficult it can be for new staff coming in because of other staff’s personal record keeping (see Appendix A). Both participants identified that it is now faster and easier to find digital artifacts with the new naming conventions. There was a time element identified by both participants- both said the new system saved them time. This is important in our profession specifically because much of what we do is time sensitive. For example, when we receive calls from media, we have to be able to find information to respond to them in a short amount of time. If we are not able to find information quickly it reflects on the professionalism

of the entire organization .The other element that is important to consider for our specific division is the rate of high of turnover, constantly having new staff needing to access information means digital artifacts must be easily recognizable and accessible.

Improving management of information and knowledge has been a major objective for many organizations, including the City of Edmonton. In Participant 4's questionnaire he stated that one of the characteristics of an effective records management system is that it be searchable and retrievable. When asked how important a records management system was to facilitating effective knowledge management he answered, "effective records management is the foundation to building an effective information management strategy. This allows for data-mining for ad hoc reporting and knowledge management" (See Appendix D). This aligns with Grudin's (2006) claim that "knowledge management includes acquiring or creating certain knowledge, transforming it not a reusable form, retaining it, and finding and reusing it" (p.1). An effective archiving system in an organization is an integral part of effective knowledge management, which is directly linked to the success of an organization. Staff must be able to find the information they need to conduct their jobs effectively and in a timely manner. Both Participants 1 and 2 refer to how the new taxonomic system helped them find their work more quickly and easily. When asked if the older, ad hoc way of classifying information hindered Participant 1 from doing work in anyway, she answered, "Yes. If I was asked to help out a colleague that was sick trying to sort through their folders to find what I needed for the client could be extremely difficult. A lot of time spent sorting through files and folders could have been used to be working

on materials that were needed at that time" (See Appendix A). Again, this aligns with Grudin's claim that a key obstacle to successful knowledge management in enterprise is when digital objects are difficult to find (p. 2). In the previous archiving system my colleagues and I used to work with, digital artifacts were difficult to locate and an large amount of time was spent trying to figure out how other people thought when they were creating metadata. Creation of metadata often requires that people put in the effort to add metadata for the potential benefit of others who generally remain unseen (p.2). One of the key messages I used when working with my colleagues on the new archiving system was that they must think about how the new structure would benefit the future staff in our area, and even though it may have been difficult wrapping their minds around the new naming conventions, it would have great benefits for their present and future colleagues. Both Participants 1 and 2 thought the new naming conventions were easily adaptable. Participant 2 stated, "it was easy for me to adapt to it (the new naming conventions), but it's my nature to like an organized structure. The old way of archiving used to drive me crazy because everyone was doing something different, and it was almost impossible to look back in previous files and find what you were looking for" (see Appendix B).

Naming conventions

Neither Participant 1 nor Participant 2 had a difficult time adapting to the new naming conventions of the taxonomy. I did experience a bit of resistance from some of the other people in my division. Having naming conventions created by someone else for one's own work did not feel natural to some of my other colleagues; in the past they had created their own, unique way of naming their work. They used certain intuitive terms and saved their documents in a particular structure that had made the most sense to them. This obviously made saving and retrieving information easy for the particular individual who was working with this information, but for another colleague or new staff member coming in, they would have to predict another person's way of thinking. This was obviously a barrier to fast, efficient data retrieval as well as explicit to tacit knowledge conversion. Every person working with our division brings with them their own specific background and experiences, therefore the way we each name or tag a document depends on our own worldview, which naturally varies from person to person.

To provide an example, Participant 1 supportive role required her to access information that across a number of portfolios. Rather than having Participant 1 manage her own specific portfolio, this person provided support to a number of portfolios that are managed each by different people, therefore the digital documents this person needed to find were named by other people. It is important Participant 1 worked within a consistent naming system. "Being in an entry level position, I am constantly working across the board for everyone on the team. Digging

through personalized folders and trying to find and figure out each naming system can be time consuming and confusing when trying to find one document" (see Appendix A). The naming structure helped Participant 1 do her job more successfully, and form explicit to explicit knowledge as well as explicit to tacit knowledge more easily. Documents are now being named date_type of document_subject of document. The type of document refers to whether it is a PSA (public service announcement), NR (news release), CP (communication plan), KM (key messages), AD (advertisement), etc, etc. The subject of the document is usually the division/recreation centre/ neighbourhood/event in which the work is being produced, for example, Forestry, Great Neighbourhoods, Community Recreation, Commonwealth Recreation Centre, Alberta Ave. When asked why Participant 2 thought the new structure was easier, she said, for example something labelled "John Janzen (a City of Edmonton nature attraction) means nothing; however, 03 17 PSA JohnJanzenSt.Patrick'sDay is quite easy to understand (see Appendix B). The date is indicated by month and year (03 17), followed by the type of document - PSA (Public Services Announcement) and finally the naming convention ends with a description of what kind of PSA it is, in this case the activities happening at John Janzen Nature Centre on St. Patricks Day. Participant 1 also referred to particulars of the new naming convention when asked what structure she preferred and why, "I prefer the current structure. The naming structure allows me to find the most up to date file and type (PSA-Public Service Announcement, NR-News Release, MA-Media Advisory) a lot faster than before. Especially

when searching in out of office colleagues' folders. I can find documents for their clients easily because we are all using the same naming conventions for our files (see Appendix A). Finally, both participants stated the ideal archiving system in the particular organizational structure they work in would be taxonomic. Both participants give the reason that it creates more consistency and time efficiency when trying to find other people's work.

There were many similarities and reoccurring themes revealed in the answers given by these two participants. Both participants preferred the current structure, understood one of the goals to be creation of a system that will be beneficial to new staff, and both think it is now less cumbersome to find documents. Most importantly, they both agree that a taxonomic system is the most ideal archiving system for the particular organizational structure in which they currently work. It appears both participants believe their job has become easier with this new structure. It would appear that knowledge management has been somewhat improved and document retrieval has been streamlined and become more user friendly. The easier it is to retrieve information, the more efficient it will be for users to convert explicit to tacit knowledge. Information is thus made more valuable when it is easier to form new tacit knowledge from it (Marwick, 2001, p.825).

Records management at the City

As part of my research, I was interested in how the City of Edmonton, on a organization-wide level, was archiving digital artifacts; if a certain structure was in place and the reasoning

behind the structure in use. I wanted an expert's input as to what, how and why a digital archiving structure was created and implemented at the City of Edmonton on a corporate wide level. I knew, obviously, there was no structure in my division and when my colleague and I implemented the new structure and naming conventions we did not have to follow any standards or ask anyone's permission, advise, input, etc. We created what we felt was appropriate for our particular needs. From the questionnaire given to Participant 4, I learned there was currently no digital archiving system in place, but that one is being implemented. It will be a function-based taxonomy (See Appendix D). Participant 4 believed the goals of an effective archiving system were "to have a records environment that ensures the authenticity of the record, that is secure based on legislative requirement, is searchable, retrievable, that can share records based on access and roles, and manages the records through their life cycle based on established business roles and retention schedule" (See Appendix D). He also explained that the characteristics of a successful records management system are that it be searchable, retrievable and that "effective records management is the foundation to building an effective information management strategy "(See Appendix D). Participant 4 confirmed that a solid archiving structure must make information retrievable and that it is the foundation to help facilitate knowledge management. When asked if the current archiving system is meeting the particular needs of The City of Edmonton Participant 4 confirmed the lack of a standardized archiving system by stating "the current system is left up to the individual to decide how they store, delete, share, and set their

structures. This is why we are moving towards a standardized corporate records management methodology to minimize risk associated with poor records management" (See Appendix D). His answer was also similar to that of Participant 1 and 2 when asked what he thinks would be the most effective digital archiving system for employees at the City, "we have chosen to use a taxonomy approach to establish a standardized approach to records management. We need to move over 11, 000 employees into a standardized methodology that is prescribed due to time constraints and resource limitations" (See Appendix D).

Although a taxonomic approach may seem somewhat antiquated, it is surprisingly the route the City of Edmonton decided to take to archive all of its digital artifacts on a corporate-wide scale. Before, as we have learned, there was absolutely no archiving standard in place and anyone could archive their digital documents in whatever way they chose. I have learned through my research that my colleagues found this haphazard approach disorganized, difficult to navigate and time consuming. If there are other, more contemporary ways to archive documents, such as tagging, Participant 4 does not appear to be aware of these options. When asked what archiving structures are most common in organizations similar to the City of Edmonton, Participant 4 answered that he did not know, and when specifically asked if he was aware of any other organizations that use social tagging as a way for employees to archive documents, he said no (See Appendix D). This is interesting, and aligns with a gap in research I identified earlier in my paper. I have previously stated that I was not able to find any research regarding organizations that have adopted social tagging as a way to archive their digital artifacts. Before

conducting in-depth research, I felt certain that I would be able to find a wealth of information about organizations that have the implemented a structure similar to Delicious as way of tagging and sharing digital documents. Judging from the lack of evidence that such a system is in place in other organizations, coupled with Participant 4's statement that he did not know of any of other organizations that have adopted social tagging as a way of archiving, leads me to believe this just may not yet be a viable option for enterprise.

Google Cloud platform

At the beginning of May the City of Edmonton moved their email from Microsoft Outlook to Gmail, this affected all 12, 000 employees in the organization. The City of Edmonton was the first municipality in Canada to move its applications to the Google cloud. The purpose of interviewing Participant 3 was to learn if the City's move to the Google cloud platform would have any effect on its archiving structure. I did not learn from the questionnaire whether the City's new move to the Google platform will directly affect the City's archiving structure, nor if employees will be able to name or tag their documents whatever they choose. However Participant 3 did state that employees will be able to share documents with each other in a new way and retrieve certain documents more easily and quickly (see Appendix C). When asked what will be achieved with the new system, Participant 3 responded that it "provides email and ecity (to note, ecity is the City of Edmonton's intranet system) access to all City employees,

provides a platform for collaboration and co-creation, allows the City to expand usage while not increasing costs, and provides a platform that assists in attracting and retaining talent" (see Appendix C). My own experience with this new system helped immensely in understanding how it works and how it can help with collaboration, tagging and sharing. In Gmail I am able to create as many folders as I like, for example I personally created folders named "kudos", "resources", "jill"; there is no limit to the number of folders that can be created. Emails can then be tagged or named and the tags must coincide with the names of the folders I created), these emails can then "live" simultaneously in a number of folders. Shirky discussed the concept that in the digital world there is no shelf and no physical constraint that keeps a document in one place, unlike the physical world. He explained, "it is the book itself, the physical fact of the bound object, that has to be in one place, and if it's one place, it can't also be in another place. And in turn that means a book has to be declared to be about some specific thing. A book which is equally about two things breaks the "be in one place" requirement, so each book needs to be declared to about one thing more than others, regardless of its actual contents" (p.5). Before with Microsoft Office, I was only able to store my emails in one folder at a time, now I am able to "file" my emails in as many folders as I deem appropriate using the tags or names that resonate and have meaning for me. In this way the City employees are now able to tag their emails using language that is meaningful to them and this email can "live" in a number of folders simultaneously.

Next I wanted to learn whether the former ad hoc approach or the present taxonomic structure was more effective in the Communications Division of Community Service. Both my participants preferred the present taxonomic system and agreed that information is easier and faster to find with the new naming conventions. From what I have heard less formally, and as a participant-observer who has complete membership, other staff members also prefer the new system as it makes finding documents easier. Although there was a slight learning curve for the naming conventions and taxonomy, (a taxonomy that had been imposed on them by the creators, essentially me and Participant 2), it was still an improvement overall. A taxonomic structure may suit the particular issues of our division - issues such as high staff turnover, support staff that must access documents created by other staff members and tight timelines. Both participants found the former, ad hoc manner of saving digital documents disorganized and difficult to manoeuvre. It did not suit the needs of our division well.

Chapter 5: Conclusion

My study focused on whether the classification method that is being used to archive digital documents in the communications division of Community Services at the City of Edmonton is the most effective classification method. Previously this division saved digital documents in an ad hoc manner; people assigned these documents names according to personal

preference and saved them in whatever place (i.e. folders of their own creation) they felt was appropriate.

My research question asked whether the recently introduced taxonomy was the best solution for this division or whether a folksonomy would be a viable option. The difference between folkonomy and the ad hoc manner in which communications division employees were naming their digital artifacts is that a folksonomy allows people to freely attach as many keywords or tags to online content, as well as browse the information tagged by others (Golder & Huberman, 2005). In our division people did not have the technical capacity to tag their documents with as many names as they wished, or share with these tags with others.

One of the best known taxonomies is the Dewy Decimal System, which too has its major limitations. According to Shirky, the main problem with this taxonomy, and others like it, is that it forces the categorizer to be both a mind reader and a fortune teller by anticipating how people will name and categorize documents (pg.11). This reveals a major flaw in taxonomy, because it puts someone (or a group of people) in the position of deciding how others think or will think in the future by dictating what a subject is about and where it should "live". Another reason this system is limiting is because, as opposed the digital world, a book is a physical object and has to remain in one place. Even if a book is equally about two or more subjects, it cannot be sub-divided, so it must be categorized about only one subject (Shirky, p. 5). This is extremely limiting because the person dictating the taxonomy is the person deciding the subject of the book

based on his or her education, personal beliefs and cultural background. This may not make any sense to another person looking for the information, but the system allows for no flexibility.

Golder and Huberman (2006) argue that document tagging is about sense making. When people interact with the outside world they make sense of thing by assigning personal meaning to them (pg. 200). Assigning tags to information can also refine categories, indentify certain characteristics and organize information (Spiteri, 2006, p. 81). Tagging is inclusive, non-hierarchical and most importantly captures the needs of people, as opposed to their perceived pre-determined needs (Grudin, 1998, p. 3).

There are disadvantages of tagging such as polysemy, synonymy and mis-spelling (Grudin, 2006 pg.3). Tagging can also create uncontrolled vocabulary which can cause confusion. Tagging can also be messy, lack sophistication and not be fact based (p. 4). Because of its democratic approach, folksonomies can often become overabundant with irrelevant terms or misinformation and can create meta noise (Peterson, 2006, p.4).

Although I was able to find discussions on folksonomy and taxonomy in literature, I could not find real world examples of organizations that have implemented social tagging as a way of classifying and archiving their digital information. Despite abundant available information on social tagging sites such as Delicious and Flick, a thorough literature and online

review unearthed no examples of large governmental or corporate bodies that have adopted folksonomy as a pan-organization classification system.

Data from the questionnaires revealed that both my communications division colleagues prefer the new taxonomy because it creates more consistency and it is easy and faster to find information. The questionnaire given to the Participant 4 revealed that historically the City did not have a formal classification system in place for staff to follow. However, a functions based taxonomy will be implemented in the near future. This participant, believes taxonomy is the best option for the City and in the future will oversee the move of 11, 000 employees to a new structure (see Appendix D).

Participant 3, indicated that the City's recent move to Google documents will enable employees to share and retrieve documents in a new way (see Appendix C). I was not able to learn from the questionnaire whether the City's new move to the Google platform will affect the City's archiving structure. I did learn from personally using Gmail that I am able to create as many folders as I like and emails can then be tagged to coincide with the folders. The emails can live simultaneously in as many folders as I deem appropriate. This ability to tag emails has not been widely adopted by other employees, encouraged as a best practice or coordinated in any way to our current archiving methods.

It is difficult to predict whether a folksonomic classification system would be a viable option for the City of Edmonton. While conducting the literature review, I was not able to find

any examples of organizations using folksonomy as a way to archive their digital artifacts, or even literature discussing the possibility of organizations adopting this method. There may be a number of reasons for this – some organizations may in fact have a folksonomic system in place but there has been no literature written about it or, more simply, that formal workplaces in governments and corporations have yet to catch up to developments (such as tagging) finding wide acceptance in the online world.

A folksonomic approach does not appear to be an option as a classification system for the City of Edmonton at this time for a number of reasons. Firstly, Participant 4 has taken the decision to implement a function-based taxonomy for the City's 11, 000 employees to use. Implementing a change of this magnitude will take a great deal of financial and human resources, planning and cooperation. Training will need to be offered, staff will need to be informed and have well developed support services, including online and hard copy manuals. If a change this large is underway, and is being lead by an expert committed to the introduction of a certain system, it becomes the only archiving option *by default*. Participant 4 also stated in his questionnaire that he believed taxonomy was the best archiving approach for the City. He was also unaware of any other organizations that used folksonomy/social tagging as a way to archive documents (see Appendix D).

Participant 3 indicated the new Google platform would allow employees to share documents with each other in a new way and improve their ability to retrieve them quickly and easily (see Appendix C). If this indeed is the case, as an employee that has been using this new system, I have not been informed of this capability. There was limited training available when Gmail was first introduced to the City and any new archiving capabilities have not been adopted on an organization-wide level. Also, if the City did intend to use the Google platform in that way (to change archiving and retrieval capability), staff would require appropriate training. I am now using the platform for its email capabilities but have not been encouraged or trained to use it in any other way. This exemplifies the problems inherent in translating new, potentially beneficial technologies (as perceived by the organization's experts) to a broad and diversified group of users.

There are many apparent barriers that need to be addressed before the City and possibly other organizations could adopt folksonomy as part of their archiving strategy. There would need to be certain research and technology available and experts in positions that could effect change. Experts would need to be current and familiar with the most up to date collaborative tagging options for an organizational archiving. An organization must need a culture that is open to innovation and a willingness to adopt new technology. Certain resources would need to be in place -staff who are knowledgeable and can provide change management support as well as well developed reference material. Upper level management would need to be on board in order to

filter down messaging that would support a new system, and with that, a new way of looking at information.

The concept of tagging (with Gmail) could be introduced to employees at the City of Edmonton. The change management team working on the implementation of the Google platform could provide training sessions, post information on the City's intranet (ecity) and send emails informing employees of the capability they have to tag emails as well as any other new archiving and retrieving capabilities this new system may have. A representative from each division could sit on a committee to learn about the capabilities of the Google platform and then become a resource for staff learning to manoeuvre this new system as well as grasp the concept and benefits of tagging.

As the shape of knowledge changes and the amount of information continues to grow, organizations must discover the most effective ways to archive their digital information for effective knowledge management. For this to occur, an organization must have a culture of innovation, the necessary resources in place and staff in upper management who are supportive of new technology.

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