

**'A Study of the Personal Information Management practices  
of Librarians'**

**by**

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# Abstract

**Research Problem:** Personal Information Management is an increasingly important subject as more and more of people's work becomes information-based. Understanding the information management practices of information professionals both as a group and in individual sectors has been the focus of several investigations, but there is limited research focusing on librarians, although they are often the major interface between information professionals and other people. This study aims to discover how librarians practice work-related Personal Information Management and how they adapt to the constant changes in information technology.

**Methodology:** An exploratory qualitative study using data gathered from semi-structured interviews with librarians conducted in their own workspaces similar to those used in several other exploratory PIM studies, and analysed with grounded theory methods. The participants were selected from among librarians working in various branches of Auckland Libraries, who responded to a call for participants sent out in internal mailing lists.

**Results:** The study found that librarians have broad skills in the realm of personal information management, with many techniques found to deal with common problems in PIM such as information fragmentation. However, librarians' strong personal skills and ability to organise their own information leads to their information regularly being difficult to find for other librarians, as many use their own idiosyncratic structures even within shared systems.

**Implications:** The results suggest that librarians' ability to share information among themselves within an organisation could be improved by reducing the individual quirks of their organisation systems and increasing standardisation, if they can be convinced to use it.

**Keywords:** Personal Information Management, Knowledge Management, PIM, Librarians, Organisation

# Contents

1 Introduction and Topic Statement.....	1
2 Literature Review.....	3
2.1 Theoretical Framework.....	3
2.2 Reasons for PIM .....	5
2.3 Types and methods of PIM Activities .....	6
2.4 PIM Activities & Libraries .....	7
2.5 PIM and Technology.....	8
2.6 Summary of Literature Review.....	8
3 Research Questions .....	9
4 Research Design.....	9
4.1 Methodology .....	10
4.1.1 Population and Sample .....	10
4.1.2 Data collection .....	11
4.1.3 Data Analysis .....	12
5 Results.....	13
5.1 Librarians' understanding of Personal Information Management .....	13
5.1.1 Instinct about the term 'Information' - How do librarians interpret the term 'information'? .....	13
5.1.2 Types of Information - What types of information are being dealt with in librarians' PIM?.....	14
5.1.3 Information Keeping - Why do librarians keep information? .....	16
5.1.4 Personal/Work Crossover - to what extent does librarians' work PIM crossover with their personal PIM?.....	18
5.2 Means and Methods by which librarians undertake Personal Information Management...	19
5.2.1 Communication - How do librarians communicate information, and how is it communicated to them? .....	19
5.2.2 Tools - What tools do librarians use to manage information once they have it?.....	21
5.2.3 Finding - how do librarians find information in their own information collections and in external information sources?.....	22
5.2.4 Organisation - How do librarians organise their personal information collections? ...	24
5.2.5 Note Taking - How do librarians take notes and what do they do with them? .....	26
5.2.6 Memory - how much does librarians' PIM rely on memory? .....	27

5.3 Update and Change in Librarians' Personal Information Management .....	27
5.3.1 Print vs Digital - To what extent do librarians still use non-digital tools for their Personal Information Management? .....	27
5.3.2 Change - how does librarians' Personal Information Management change and update? .....	28
6 Discussion .....	29
6.1 How do librarians manage their personal information and knowledge? .....	29
6.2 What are the means and methods by which librarians manage their personal information and knowledge? .....	30
6.3 How regularly and to what extent do librarians attempt to update these methods? .....	33
6.4 To what extent do the personal information habits of librarians relate to the professional tasks of those librarians? .....	34
7 Conclusions .....	36
8 References .....	39
Appendix A: Example Information Sheet and Consent Form .....	i
Appendix B: Interview Guide .....	iv
Appendix C: Table of Themes with Exemplars .....	vi
HOW DO LIBRARIANS DO PIM (how do librarians interpret/approach basics of information management) .....	vi
MEANS AND METHODS .....	ix
UPDATE AND CHANGE .....	xv
Appendix D: Table of Participant Data .....	xvii

# 1 Introduction and Topic Statement

The objective of this project is primarily to identify what techniques, devices and programs are used by library workers in their practice of work-related personal information and knowledge management. Secondly it aims to determine how those personal management habits relate to the professional skills and tasks of those librarians. It also examines to what extent digital tools and methods have supplanted physical tools and methods for those librarians' information and knowledge management.

Personal information management, or PIM, is defined by Jones as:

“the practice and the study of the activities a person performs in order to acquire or create, store, organize, maintain, retrieve, use and distribute the information needed to complete tasks” (Jones, 2007, p.453).

Research into PIM began after the rise of the personal computer made information management faster and more accessible, and as such it often focuses on digital information in particular. A whole host of new strategies have been made necessary by the explosion in data that a person may have to manage. However, this approach is inspired largely by the technological focus of those who launched the field, and many recent studies such as Al-Omar & Cox (2016) and Pucihar, Kljun, Mariani & Dix (2016) have acknowledged that non-digital tools are still a significant part of information management techniques. For this reason, this study intentionally focuses not just on digital information, but on both digital and non-digital information management tools, and on the degree to which each is used.

There has been research on how specific groups engage in PIM, such as scholars (Al-Omar and Cox, 2016) and students (Hardof-Jaffe et al, 2009), and at least one study on how information professionals use PIM for personal long-term projects (Pucihar, Kljun, Mariani & Dix, 2016). There is still space for study on how information professionals, such as librarians, engage in information and knowledge management. Studies like these will allow a body of work to be generated that can lead to comparisons between the techniques and tools which various groups use.

The field of PIM is muddled by the existence of study into a similar concept labeled Knowledge Management or KM. In her 2007 paper ‘What are we managing – knowledge or information?’, Singh acknowledges that information and knowledge are often conflated, but describes knowledge management as a tool that generates information from knowledge assets, which can then be managed through information management techniques.

This concept is stated clearly by Streatfield & Wilson:

“We cannot manage knowledge directly – we can only manage information about the knowledge possessed by people in organisations.” (Streatfield & Wilson, 1999, p.70)

For this reason, because of the inescapable overlap in how information and knowledge are managed by a given individual, this study will follow Singh, and Streatfield & Wilson, in considering information management to be the key tool used to manage information, including information about knowledge.

There have been studies in PIM relating to library work, such as Cushing (2016) examining how PIM impacts reference work, and Otopah and Dadzie (2013) exploring PIM habits of students in libraries, but these focus on the PIM habits of the patrons and how this affected their requests of librarians. In fact, Fourie (2011a) specifically highlights the lack of research on librarians’ PIM habits. Librarians are counted among information workers in broader studies, but there is little or no research focusing on them specifically. Discovering more about the PIM habits of librarians may be useful both to understanding how these tools are used and how they are understood by librarians as information professionals. The results from this study may potentially be of use to further research comparing the PIM habits of librarians with those of non-information professionals such as library patrons, which could in turn aid in information professionals understanding what they do differently from their patrons and how to potentially explain better or different usage to patrons.

This study will examine the PIM habits of these different groups through qualitative analysis of the results from detailed interviews of a small group of librarians.

## 2 Literature Review

The studies included for this literature review were chosen to provide a brief overview of current research that is relevant to a study of PIM habits of information professionals. They were located by conducting a thorough search of several databases and journals, with a particular focus on the *Aslib Journal of Information Management*, which has a high percentage of relevant articles. The selection was refined by relevance a) to the specific topic of studies about the personal information management habits of specific groups, and b) to library-related personal information management habits.

### 2.1 Theoretical Framework

A great deal of the work on personal information management is based on the definitions Jones outlined in his 2007 paper ‘Personal Information Management’. The introduction to that paper states:

“Personal Information Management (PIM) refers to both the practice and the study of the activities people perform in order to acquire, organize, maintain and retrieve information for everyday use.” (Jones, 2007, p.453).

Jones’s paper was not the beginning of PIM research, but it was a foundation on which much of the following work was built. Jones suggests that the ideal of PIM is that we always have the right information in the right place, but that obviously this is far from true for most people. The world we live in is one where there are always new tools and methods to help with PIM. This increase in complexity of the PIM environment also leads to increase in fragmentation of our personal information, and in fact increases the overall complexity of our PIM rather than reducing it (Jones, 2007).

Jones (2007) outlines both definitions for items and activities within PIM. In items, he lays out definitions for information, for personal information, for what a Personal Information Space is and what a Personal Information Collection is. In activities, he separates PIM activities into three main sorts; finding activities, keeping activities, and maintenance activities (Jones, 2007, p.463-466). All these definitions are used regularly within the PIM literature.

For this study, the most important aspect is a definition of what exactly ‘information’ means in the context of ‘Personal Information Management’. A full definition of ‘information’ is a topic of much discussion, but for the purposes of this study the definition used by Jones will suffice;

“An information item is a packaging of information. Examples of information items include: 1. paper documents. 2. electronic documents and other files. 3. email messages. 4. web pages or 5. references (e.g., shortcuts, alias) to any of the above. Some might prefer to use the term “information object” to emphasize the point that an information item can be acted upon. Items encapsulate information in a persistent form that can be created, stored, moved, given a name and other properties, copied, distributed, deleted, moved, transformed, etc.” (Jones, 2007, p.460).

That is, in the context of information management, ‘information’ is managed in terms of discrete objects, packages of information that might come in various forms.

Bergman discusses the difficulties in quantifying research on PIM, in his 2013 paper where he attempts to lay out categories and variables for further quantitative research in the field. Although this study is qualitative, Bergman’s paper is still useful both for highlighting the areas of importance in PIM, and for the structure of his own qualitative research that produced his variables, particularly the importance of allowing the participants guide the researcher through their own PIM habits in a way that makes sense to them (Bergman, 2013).

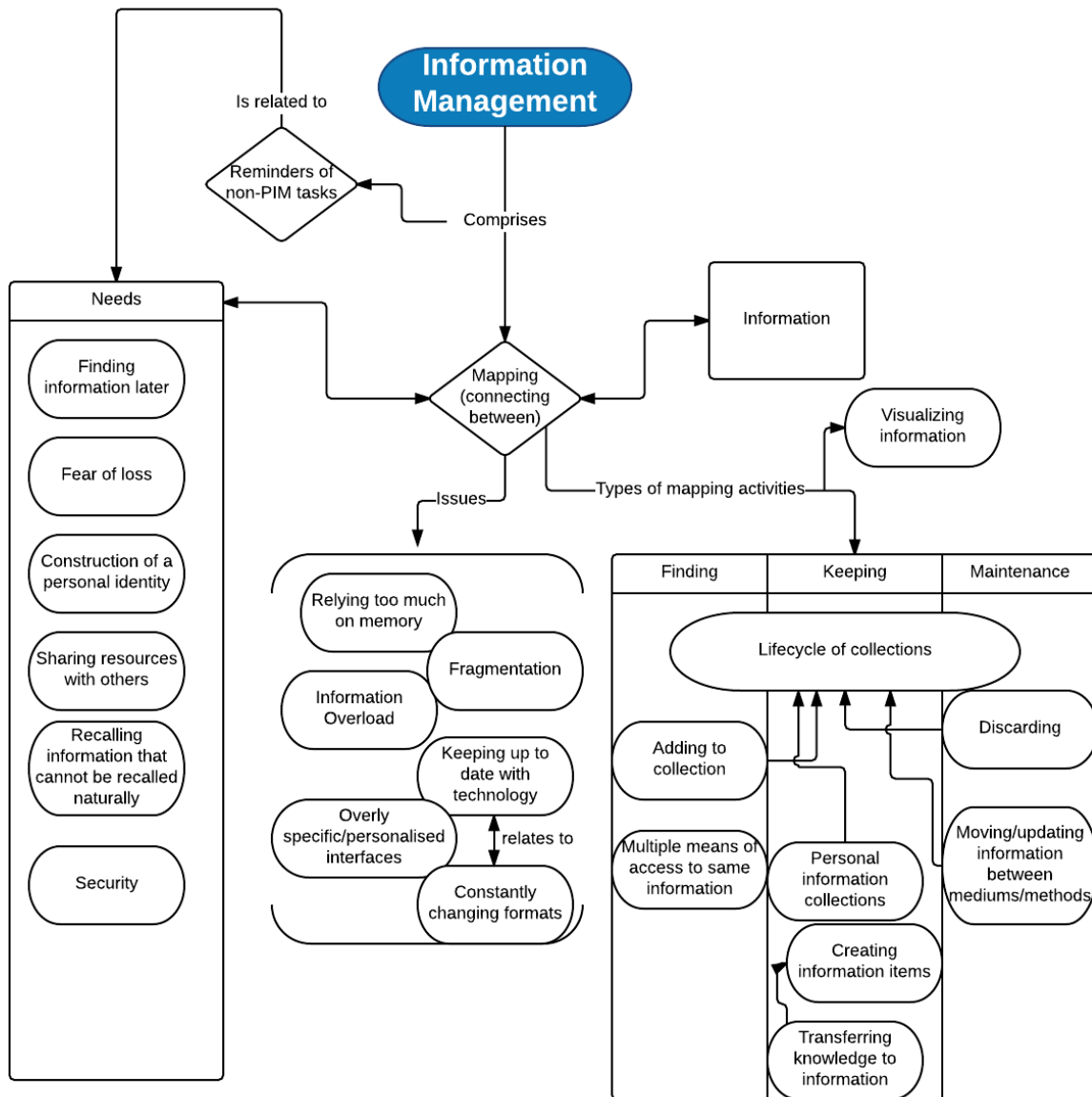
Another important input, for this study, is the work of Singh (2007), which outlines the difference, or lack thereof, between personal information management and personal knowledge management. Singh points out that knowledge cannot be managed directly, and can only be managed by managing the information about that knowledge. Jones agrees:

“Knowledge expressed and written down becomes one or more items of information – to be managed like other information items.” (Jones, 2007, p.475).

For this reason, knowledge and information management are too closely tied together to be extricated, and that idea is an important part of the framework that inspired this study.



## 2.2 Reasons for PIM



(fig 2.1 - Concept map of Information Management. Drawn from the works cited throughout this literature review)

People engage in PIM in many ways, but the basic reason for PIM is outlined in Jones (2007) as the process of mapping between needs and information, or bringing together information with some need which that information can aid.

Williams, John & Rowland (2009) identify among the key reasons for curating a personal collection the need to find information later, but also fear of loss, construction of a personal identity, and sharing resources with others.

Elseweiler, Ruthven & Jones (2007) focus on the benefits of PIM in recalling information that cannot be recalled naturally, but also point out that issues arise when PIM tools still rely too much on human memory, such as for search and retrieval of specific items within the information storage system. Relatedly, Chaudhry and Al-Mahmud (2015) identify information overload as one of the key issues in PIM, but also identify information overload as one of the things PIM can best help with.

For Al-Omar & Cox, a key feature of PIM is the ease of management, and also the ease of making multiple copies. The security and ease combined makes PIM technology attractive (Al-Omar & Cox, 2016). Pucihar et al (2016) talk about the importance of PIM to long-term personal projects and also to the information that is collected generally over time, much of which is either intended for a future long-term project or gets used for a project when it is rediscovered later.

Mclaughlin & Stankosky discuss the ability of PIM to build a framework for lifelong learning that continually builds upon itself, and their research concludes that effective PIM helps in both personal and organisational productivity. This research discusses how people who are better at the multipliers that PIM technology makes possible; multi-functional, multi-tasking, using multiple tools at once, are far more productive than those who do not harness PIM well (Mclaughlin & Stankosky, 2010).

From a similarly organisational standpoint, Jefferson (2006) discusses how Personal Knowledge Management (PKM) shifts the responsibility for personal learning and growth from the organisation to the individual, and how this personalisation of knowledge management and growth leads to more perceived personal gain, and higher quality outputs.

### **2.3 Types and methods of PIM Activities**

Once again the bare bones of the above material rests on Jones (2007), who describes the basic types of PIM activities as finding, keeping and maintenance activities, activities which are used as part of a process of engaging with the basic reasons mentioned in the previous section, that is, mapping needs to information. However, a key insight here is in Williams, John & Rowland (2009), who identify a key feature of PIM as the lifecycle of collections, in which items are created, added to personal collections, while others are amended, and some are discarded. Discarding of information becomes rarer with digital PIM technologies, and is uncommon even with paper-based methods. The main time when files are discarded is during a move or other physical shakeup, at which times around 22% of paper files are discarded, mostly because they are unused or obsolete. However, even these bulky unused files are rarely discarded except in these circumstances. According to Pucihar et al (2016), in many cases this is because information is regularly kept and reused for later projects, or in the expectation of being used for later

projects. They note that this expectation is a key source of the fragmentation of information present in many personal information collections.

Puchihar et al (2016) consider use of PIM for both ease of access and reminders of non-PIM tasks to be a key feature of how people use these technologies. PIM lets people optimise their information for access, but also for use in automatic ways. It also allows for visualising information in broader ways than can be achieved without these technologies.

Elswieler, Ruthven & Jones (2007) studied memory in conjunction with PIM with the aim of developing more natural, less memory reliant PIM tools. Their greatest successes came in terms of tools that allow many different means of achieving access to the same pieces of information. A key point from their research is that people are not good at remembering where they stored things, but having multiple means of access to them helps significantly.

## **2.4 PIM Activities & Libraries**

Fourie (2011a, p.389-391) identifies three suggestions for librarians to consider with PIM:

Firstly, embedding PIM in their information behavior and practice. By paying more attention to both their own PIM and the PIM of their users, librarians can tailor the information services they provide much better to the actual needs of their patrons.

Secondly, mapping the variety of objectives for PIM. This will help with identifying the reference resources that a library should be ready to provide to someone with each of those objectives.

Thirdly, keeping up to date with the vast landscape of information that information users will seek out for their PIM, and keeping in mind how it is changing beyond the old, siloed features of the classic library or even the databases that librarians have gotten used to in the digital age.

In Fourie (2011b), the focus is on the difficulties of keeping PIM up to date. Specifically, that this field is one where the technology required to keep current with the field is the technology that is being developed in the field. She stresses that librarians cannot afford to fall behind here. They must know what is current so that they can best help patrons with their own PIM needs.

PIM in libraries is approached from the user side in Cushing (2016). In a survey of public libraries, 95.3% of respondents had been asked for assistance with a patron's device, but only 86.8% reported providing assistance when asked. Help with E-readers is the most common request, but most other forms of personal technology are brought to librarians. Similarly, 71.5% of respondents were asked for aid with digital content, but only 44.6% reported being able or

willing to help. Cushing (2016) concludes that PIM assistance is a key and growing field for librarians, and work must be done to improve the service that librarians can provide.

## **2.5 PIM and Technology**

Technology is of course a key part of modern PIM. Understanding how technology both aids and hinders individuals' PIM is an important part of any study. Mas, Maurel & Alberts (2011) discuss how users tend to prefer to utilize their own personal methods of organisation over institutional electronic document management systems because those institutional systems are regularly too generic, rigid and require more up-front organisational time than the users are willing to spend (Mas, Maurel & Alberts, 2011) and the difficulties this creates when users have to find information used and/or created by someone else and kept in their own idiosyncratic filing scheme.

Karger & Jones (2006) highlight a similar issue that has only continued to increase with the advent of more and more programs, apps, and devices for organising information; information fragmentation, the presence of the same piece of information or worse, important parts of the same piece of information distributed across multiple platforms. They also identify inconsistent information, failure to update information in all locations, and the simple difficulty of remembering which tool to help you remember information you used to remember a specific piece of information. These issues are still key to PIM.

## **2.6 Summary of Literature Review**

The key reasons for PIM are based in Jones (2007), whose work describes PIM practices at heart as part of a process of mapping needs to information. A focus on how technology, particularly the constant change of technology, affects how people engage with those processes of PIM will create a solid basis for this study.

The major issues for PIM highlighted in the reviewed literature include the overload of information, or too much of a good thing (Chaudhry and Al-Mahmud, 2015); information fragmentation (Karger & Jones, 2006; Pucihar et al, 2016); issues with over-personalized approaches to PIM (Mas, Maurel & Alberts, 2011); a continued reliance on human memory even as technology attempts to erase that reliance (Elseweiler, Ruthven & Jones, 2007); the excessive backlogs of information as technology makes it easier to never discard anything, which reinforces the information overload problem (Williams, John & Rowland, 2009); and the continuing problem of keeping up to date with new PIM technology (a particular problem for

librarians) (Fourie, 2011b) as well as the issues with potential loss of information in moving from one format to a newer, 'better' format.

Following this, there are several aspects which lend themselves to a position of focus in this study. Firstly, how subjects organize their information and how fragmented that information is. Secondly but related, how often and how comprehensively people move information from one method or medium to another. Thirdly, how much similarity or lack of similarity there is between means and methods used by the subjects of the study, and what that similarity or difference says about the degree to which individual PIM of librarians is useful for transmitting information to others as well as to the individual. Lastly, whether librarians' use of PIM suggests a familiarity with the systems and tools that allows them to easily aid others in PIM.

### **3 Research Questions**

The research questions that this study aims to answer are:

- 1) How do librarians manage their personal information and knowledge?
  - a) What are the means and methods by which librarians manage their personal information and knowledge?
  - b) How regularly and to what extent do librarians attempt to update these methods?
- 2) To what extent do the personal information habits of librarians relate to the professional tasks of those librarians?

### **4 Research Design**

Following from the research questions outlined above, the aim of this study was to develop an understanding of how librarians deal with personal information and knowledge management, although the limited size and scope make it by nature an initial, exploratory study. For this purpose it was decided to use an interpretive study based on semi-structured interviews and analysed using grounded theory approach and techniques, an approach involving data analysis being conducted simultaneously with data collection in an iterative process, drawing on the data to construct an understanding from the patterns that appear there rather than from application of pre-existing theories to the data (Charmaz, 2014, p.14). The small sample size and exploratory nature of the study precluded the development of a true grounded theory, but the active coding

techniques of a grounded theory provided an approach that allowed the captured data to shape the direction of the study.

This sort of study seeks to build an understanding from categorising gathered information and identifying key concepts and how those concepts work together to describe the situation (Leedy & Ormrod, 2015). Similar approaches have been used for other similar studies of other populations, such as Al-Omar & Cox (2016) and Pucihar et al (2016). However, unlike some grounded theory studies, there has been significant work in this field before, if not with this population. This study was influenced by the theory of PIM outlined by Jones (2007) as well as the rest of the literature when developing questions and categories, but the actual coding emerged from the data rather than being pre-determined by the theory.

## **4.1 Methodology**

### **4.1.1 Population and Sample**

The participants were selected from among those individuals working as librarians within the Auckland Libraries system who responded to the invitation sent out to that group. The sample for this qualitative research project was a small group, focusing on deep investigation rather than large data analysis (Leedy & Ormrod, 2015). This small sample size and the limitation of where the sample was drawn from are the most significant limitations on the study; however, care was taken to select a range of participants and some of the results of this study have a clear agreement with or useful contrast with the results of other studies in this field, so the limitations should not mean the study is not useful.

After obtaining ethical approval and permission to conduct interviews in the participants' workspaces, an email was sent to the internal mailing lists stating the nature and general requirements for the study, and with the information sheet (see Appendix A) attached. The participants were chosen from among those who expressed interest in the project when it was advertised among the population. 10 participants were selected from the roughly 20 who responded (with 8-12 participants desired, 10 gave room for dropouts, although there were none). This is the range into which many other similar qualitative studies in the area fall, such as Khoo et al (2007) with 12 participants.

A significantly larger number of librarians expressed interest than were required, which allowed selection of participants based on the nature of their work and other factors. Participants were selected across the library system, including librarians from the central city library, specialist library branches like research centres and dedicated library call centres, and several community libraries across the city. The participants were selected from within and outside of each of

several demographic groupings, to create a group which included participants that could be compared in several distinct ways. The categories used to choose participants were:

- Whether the librarian worked directly with customers or not - care was taken to choose some who did and some who did not
- Whether they had a professional qualification - again, both librarians who did and did not have a qualification were chosen
- The level of experience - both senior librarians and more junior librarians were wanted, so care was taken to select both managers and a range of less senior librarians

A fourth dividing category, that of whether the librarians' work involved both information finding and information keeping, or only information finding, was discovered in the data analysis. See Appendix D for a table of participants showing these categories.

#### **4.1.2 Data collection**

Data was collected through semistructured interviews, which contained four major open-ended questions with freeform follow-up prompts to get a better understanding of the subject matter and the participant's particular individualities (Leedy & Ormrod, 2015). Each interview was recorded, and took approximately 30 minutes to one hour, depending on the nature of the interviewee's work. Those librarians whose work did not involve keeping processes (see the 'Finding only' group in the table of participants, Appendix D) took significantly less time than the others.

The interviews were conducted face-to-face in the interviewee's own workspace (similar to Pucihar et al (2016)) so that extra data could be collected in the form of observations of the area in which the subject does their personal information management. In accordance with grounded theory methods (Charmaz, 2014, p.114), notes taken during the interviews and during transcription helped with identifying the emerging themes, adapting the interview questions in later interviews, creating early codes, and directing continued study (Leedy & Ormrod, 2015).

One difficulty with data collection was getting the participants' own idea of what information and knowledge are and how they manage them, without putting concepts and words into their head and getting what they thought the interviewer wanted to know. With that in mind, the questions used as much neutral language as possible to still get results, and questions attempting to isolate the participant's particular views of information management were placed near the beginning of each interview, so as to gather that information in as unbiased a method as possible. See Appendix B for a complete interview guide.

After the interviews were completed, they were transcribed in preparation for analysis and coding. The transcription method was a fairly simple transcription, focused on the content rather than direct portrayal of the way the interviewees spoke, aimed at a clear description of the behaviors discussed, for analysis.

#### **4.1.3 Data Analysis**

The data was analysed via thematic analysis and codes developed from that analysis (Leedy & Ormrod, 2015) as well as from application of the theoretical framework of Jones (2007). The work of Berman (2013) was considered as part of the early coding process, but was not used for the coding in the end because it was too focused on analysis of PIM relating to entirely-digital personal information collections, and was too narrow a focus for this broad-focus investigation.

As a study using grounded theory techniques, coding was enacted in two main phases (Charmaz, 2014, p.113). In the initial phase codes were applied thoroughly to the first few interviews, saturating those interviews until every major theme that appeared was coded, while attempting to stick to the data and not apply pre-existing categories or biases (Charmaz, 2014, p.116). The saturation phase in which very few new codes were being generated appeared around the fourth interview. In the second phase, the most frequent codes, as well as the codes that were suggested from the notes taken during interviews and transcription and the codes which seemed most relevant in regards to the theoretical framework, were taken and applied to the full body of the collected data, including those interviews which had been used to generate the initial codes.

During this second focused phase of the coding process, the themes that were coded were organised into categories and then eventually sections, as it became more clear which would be particularly useful in answering the specific research questions. As the analysis continued, this process was repeated, collapsing some sets of codes into single codes or moving them between categories. These sections and themes (see Appendix C for a list of themes with exemplars) form the basis of the Results section below.



## 5 Results

Leading from the categories and themes discovered and generated in the analysis process, the results of this investigation are divided roughly into three major sections, with results presented by category within those sections. These sections are the three major areas of investigation that the categories and themes cover, which are aimed roughly at providing answers to the first Research Question and its two sub-questions. The answers to the second Research Question will be synthesized from an overall comparison of all the categories presented here. These three sections are:

Firstly, to prepare to answer the question ‘*How do librarians manage their personal information and knowledge?*’, we look at what librarians’ basic understanding of PIM principles is, how they interpret the concept of information, and what sorts of information they keep and use, and why.

Secondly, to prepare to answer the question ‘*What are the means and methods by which librarians manage their personal information and knowledge?*’, we look at how librarians communicate information, what tools they use for PIM, and how they find and organise information.

Finally, to prepare to answer the question ‘*How regularly and to what extent do librarians attempt to update these methods? Are they early adopters of new PIM techniques and technologies?*’, we look at how librarians deal with change in PIM, and particularly at their interactions with the hardcopy/digital dichotomy.

Further context for these categories and the results within them can be found in the table of themes with exemplar quotes, Appendix C.

### 5.1 Librarians’ understanding of Personal Information Management

#### 5.1.1 Instinct about the term ‘Information’ - How do librarians interpret the term ‘information’?

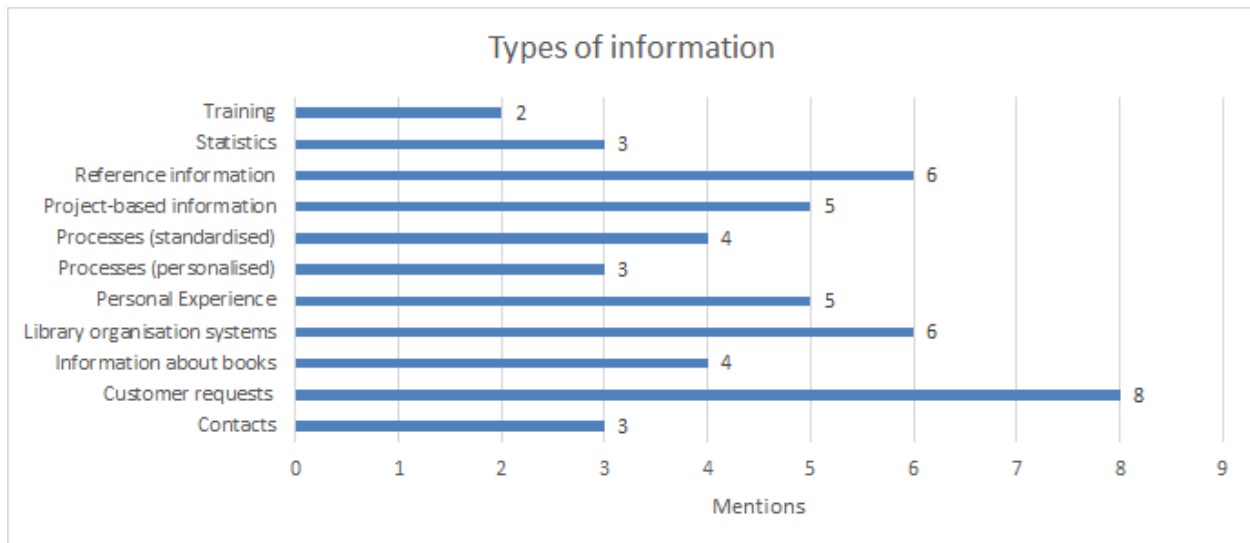
Each participant was asked ‘What sort of information is required for your job?’. This was the first time in the interview that the word ‘information’ was used by the interviewer, and therefore the answers to this question hopefully illustrate the participants’ relatively unbiased and unprompted opinion or understanding of the term ‘information’.

The vast majority of participants had some conception of ‘information’ mapped roughly to either ‘information-as-knowledge’ or ‘information-as-thing’ as described in Buckland 1991; ie. respectively *“knowledge communicated concerning some particular fact, subject, or event”* or *“objects, such as data and documents, that are referred to as “information” because they are regarded as being informative, as “having the quality of imparting knowledge or communicating information”*”. However, only one participant answered in a way that suggested their personal surface understanding of the term encompassed both. The majority of participants answered one way or the other. Only one participant had no unprompted answer to the question. After being prompted with a followup question about how they received and sent information, their response mapped to ‘information-as-thing’.

Half the total participants conceived of information as ‘information-as-item’, mostly answering the question in terms of information resources. However, the number that thought of information as ‘information-as-knowledge’ was not negligible either, these librarians speaking first about their own training and knowledge required to find those resources. Neither conception of information was completely dominant.

### 5.1.2 Types of Information - What types of information are being dealt with in librarians’ PIM?

The participants identified a number of different types of information that they deal with and manage in their work, as shown in the table below:



(fig 5.1 - Types of information in librarians’ PIM)

The most commonly mentioned type of information was information about customer requests (usually requests for other information). A strong majority of participants identified dealing with

this information. Even librarians who do not tend to work directly with customers identify this as a major type of information to be managed, as they deal with it second-hand, communicated to them from the librarians who acquired it directly:

**“And you said you sometimes get requests?”**

“We do, so those come in on an excel spreadsheet that’s managed by another team, and then we get access to it” - TM

The next most common type of information is information about library processes and methods, something that is dealt with by both the customer service librarians and the librarians that create and manage those processes. There is an important distinction here between standardised and personalised processes. Even though standardisation of library processes is seen as an important reason for having the processes, many participants either create new versions of the processes to make them more tailored to their situation, or keep the processes in a non-standard way, or often both:

“for example we deliver a rural library loan, which means we provide all the books they have in that library and the collection is rotated through our collection. Part of that process is sent to us, it’s stipulated how it works, and then the rest we have added on so internally we know who’s gonna do what, when, what checks and balances are in place to ensure it’s done on time. So that’s the part that we will write. We write in the absence of one, and when one doesn’t get down to the detail we need.” - JB

Only slightly more participants rely entirely on the standardised processes. This is one of the many ways in which the problem of fragmentation of information comes up in the PIM of librarians (Karger & Jones 2006).

Just behind process information are two more key information types for librarians; reference information, and information about library organisation systems. These two types of information are keys to what must be managed for libraries to deliver their major services. Information about the inner working of library organisation systems is used both directly for helping customers to find resources, and to understand and improve those systems to improve future services. Reference information, or information that answers specific questions customers have, is common particularly among participants who work directly with customers, but others whose work does not bring them in direct contact with customers still deal with this information to some extent.

A type of information mostly limited to those librarians who do not work directly with customers is project-based information. Many of the librarians whose jobs are about managing and creating library services rather than delivery of library services mention thinking of and managing information often in terms of the specific project the information is being used for, an approach to information management which is common in information workers (Pucihar et al, 2016). Statistics are mentioned as a type of information by a few respondents, particularly by manager librarians to adjust their future service delivery. This information is tied closely to project-based information, as it is only ever useful in the context of projects. Both of these types of information illustrate a common recurring theme in librarians' PIM, that of understanding past decisions.

### **5.1.3 Information Keeping - Why do librarians keep information?**

The results about how librarians keep information and what information it is that they keep highlight one of the most striking differences between different types of librarians' personal information management practices, namely the difference between those whose information management involves keeping and organising information, and those whose information management mainly consists of finding information within information kept and organised by others.

For two of the interviewed librarians, no answers mentioned information keeping at all, with the answers from a third librarian only mentioning one theme within the category, that of keeping information within the shared knowledge of the group of librarians. These three librarians are all librarians whose work is entirely directly helping customers with their requests, and as such they rely on information kept and organised by others rather than keeping information themselves. The rest of the participants all have personal information management practices that do involve keeping information as well as finding information.

In this category, the strongest theme is that of keeping information for the purpose of having it be available to others, which is perhaps unsurprising in a survey of librarians. This includes both keeping information to make it available to customers, but also sharing information among other librarians:

“it's put into the system in the U drive so it's accessible to my manager and managers higher up, accessible to my team, accessible to other teams if they want to check it out.” - SM

Co-operation and the issues of keeping and sharing information well among co-workers is a common theme in these interviews (see results in Communication below). A related theme, that of keeping information to pass on to a successor so that person who takes up the role when you're gone can do the job as well as you do it, is mentioned only by librarians in management

roles, but is mentioned by all of the librarians who are in management roles. Passing information to a successor seems like a theme that senior librarians in particular are worried about and have as a focus for their information keeping. In the most extreme example AB notes that all the information she keeps is kept with her successor in mind primarily, and for her own use secondarily:

“I know that I will be passing information to my successor at some point so I store info in two places, in my email (in a specific folder) and then the info that I don’t have in the email that contributes to the bigger picture I store it in a separate file, in the folder titled ‘for my successor’.”

**“So most of the info that you are keeping for your successor - do you refer to that for yourself as well?”**

“Yes, I do.” - AB

Similarly, keeping information to understand past decisions is a common theme, not just among managers but for other librarians as well.

The second strongest theme is that of keeping an archive of information used in the past that might be used again. This theme and that of and information being available to others surpass all other reasons for information keeping by a substantial margin. These results reinforce what has been said by others about reasons for information keeping in other studies, such as Williams, John & Rowland (2009) who identify both the need to find information later and sharing resources with others among the key reasons for keeping a personal information collection. Keeping information as an archive for information that has been useful in the past and may potentially be useful in the future for as-yet-unknown reasons also echoes the discoveries of Pucihar et al (2016) about how information is slowly accumulated over time and gets re-used for further projects when it is rediscovered in the personal archive later.

Notably, information keeping for constant use is mentioned significantly less than either of these other reasons. Whether this is because librarians are not referring to specific information regularly, or because the amount of information they are referring to regularly is just significantly less than the amount they keep because it might be useful in future, is not made clear.

A key feature of information keeping as part of Personal Information Management practice is the question of discarding information, whether it happens at all and to what extent. Unfortunately, this is a theme, which did not come out very clearly in this research. Themes both of keeping and of discarding information were noted, but there is strong overlap between them. At least half the total interviewees (which is more than half of the interviewees whose answers appear in this

category) said that they did discard at least some information fairly regularly, however, which is an interesting point of difference to Al-Omar & Cox (2016) who found that scholars rarely discard any information at all, even information kept in physical formats. On the other hand, all of the interviewees who mention discarding information also keep at least some information. Given the prevalence of keeping archives of information that may be of some unknown use in the future, this seems similar to the findings of Williams, John & Rowland (2009) and their description of the lifecycle of a collection. This is the cycle in which items are found, kept, evaluated and sometimes discarded in a cyclical format (also see the results for periodic revision in the Organisation category, below). For these reasons it seems likely that they are keeping more than they are discarding, but this is an area that needs further investigation.

#### **5.1.4 Personal/Work Crossover - to what extent does librarians' work PIM crossover with their personal PIM?**

A majority of interviewed librarians identified some degree of crossover between their work and personal PIM habits. However, there are several key themes that limit the degree of that crossover. Personal PIM tools and methods are often used for work PIM, but not vice versa. Most participants seemed to particularly avoid using work PIM tools for PIM in their personal life. The major exception is Outlook's calendar function, which is regularly used to organise personal life as well as work:

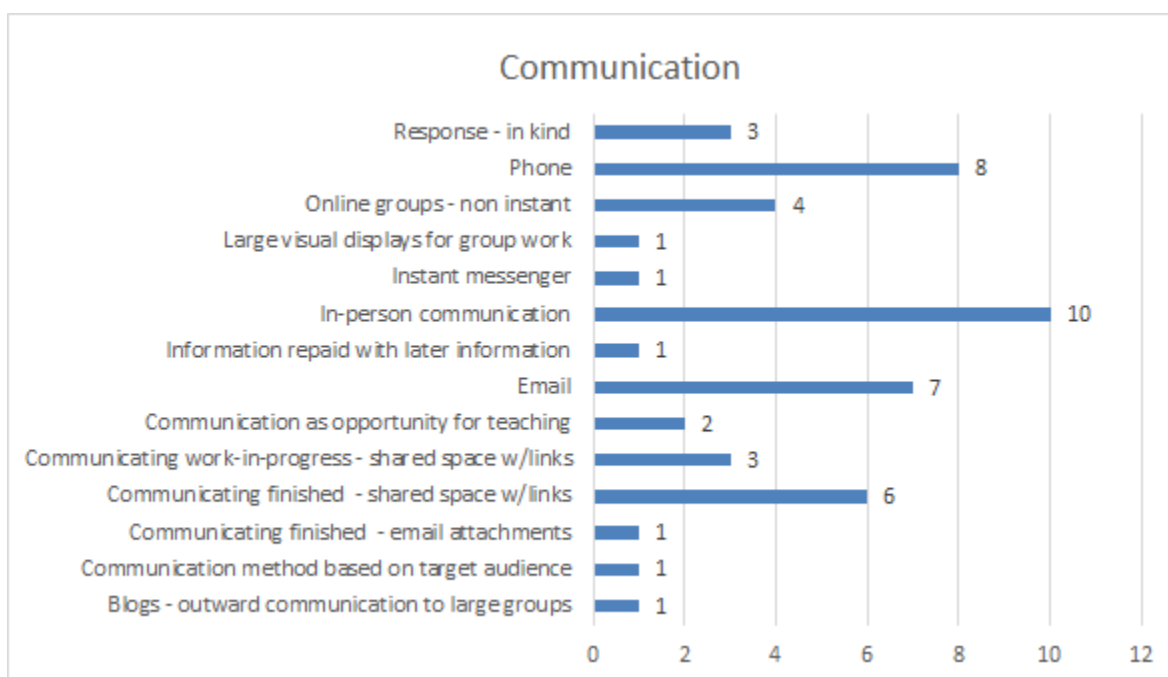
"I probably rely more on [Outlook] than anything and I use it to schedule absolutely everything because I know that if I'm not on site I can pick it up on my work cellphone and that's really valuable. I use it a lot for scheduling reminders and I put personal stuff there if it's something I need to be aware of" - KW

Many participants say they adopt new tools and techniques earlier in personal life, but also many say their personal life is not as organised as their work life, with strong overlap between the two groups. It is possible that this may have to do with librarians being more willing or able to try new things in their personal life. This would fit with what Fourie says about librarians trying to keep up to date, even though they have issues with the implementation of new technology (Fourie 2011b), also see themes in the Change category below. It is possible that they simply do not need to use these tools for the amount of work required for their PIM in their personal lives, but this is another area that would need further investigation.

## 5.2 Means and Methods by which librarians undertake Personal Information Management

### 5.2.1 Communication - How do librarians communicate information, and how is it communicated to them?

The methods librarians use to communicate information and have information communicated to them are many and varied. Most common and some uncommon forms of communication are mentioned by at least one of the participants (see the chart below):



(fig 5.2 - Librarians' information communication)

Every interviewee mentions in-person communication. This is the only theme that every interviewee has in common. There are a wide range of different reasons why this method is used, but many of them involve the secondary values of in-person communication beyond communication itself:

“People still come in all the time and want [to talk] in person, though, and I think it’s because the people who come into the library a lot are wanting that human interaction - they don’t just want a book, they want a conversation” - SB

Phone communication is also mentioned frequently by participants, with a similar range of uses. Unsurprisingly the most common form of communication used aside from these is email. This

theme is missing only, once again, those whose work is almost exclusively direct with customers. Note that that group do use phone conversation to communicate information, the distinction seeming to be because email is mostly used to communicate in an asynchronous fashion. That group mostly engage with customers in such a way that the entire process is completed in one interaction. Email is noted in several interviews to be a means of transferring information at a later date as follow-up to an initial interaction, and because it is a better means for transferring large amounts or detailed information than in-person conversations or phone calls.

When it comes to transferring large quantities of detailed information, email is not the preferred tool. The most commonly used practice among the participants is communicating information by placing the information in digital form in a shared-access drive, and then emailing links to the location. This method was mentioned largely for completed documents, but several librarians also discuss it as a method for working on documents in a collaborative fashion. An overwhelming majority of the librarians who communicate via email prefer this method, with only one interviewee mentioning email attachments as a way of communicating documents. This usage is clearly connected by several interviewees to the problem of fragmentation which is discussed in Karger & Jones (2006):

“In the drive, then linked to specific people. If we need to share something. Otherwise we replicate, and we don’t know who’s got the current version.” - TM

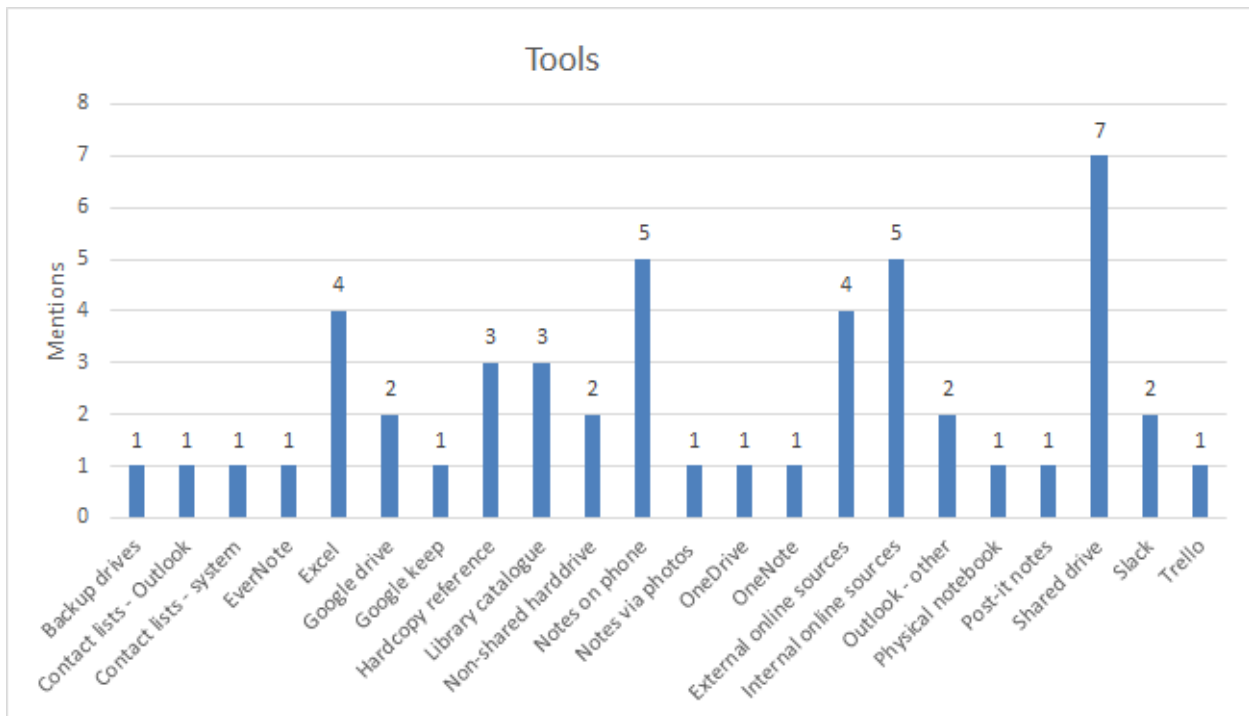
Communicating information by this method significantly reduces the problem of having multiple versions of a document available to different people, with nobody being clear which version they have and which versions others might have.

Other forms of communication are also in use by some librarians. The next most common method is the use of online groups such as Facebook and mailing lists, although this is a much less common theme than the ones such as email. These groups are used by librarians almost exclusively in a passive sense. They use them in order to find the information that comes through them, rather than to communicate information out to these groups. Other tools such as instant messengers and blogs are used by a scattering of librarians for very specific purposes, or to connect to specific people or audiences. These librarians are trying to tailor their information services to their audiences and even use communication of information as an opportunity for teaching, reflecting processes set out in Fourie (2011a) as things for librarians to consider for their PIM practice. It seems that these are processes that librarians are trying to enact at least to some extent.



### 5.2.2 Tools - What tools do librarians use to manage information once they have it?

By far the most common information management tool used by the interviewed librarians is the shared access drive, a tool which is used by all the librarians whose job involves the keeping of information, and the only tool they all use. There are a wide variety of other tools in evidence, (see the chart below):



(fig 5.3 - Tools in librarians' PIM)

As is clear from this chart, many of the tools used are used only by one or two of the interviewees. This is a category with much wider range and much less overlap than many of the others. However, the shared drive stands out both for being universal among this category of librarians, and for being the only tool that is mentioned more than a few times.

Of the other tools used, the most important are online sources of information, both external and internal. This usage highlights the fact that while librarians do spend a significant amount of their PIM process on keeping and curating collections, they also require access to information beyond what is kept in their personal information collections quite regularly. Internal information sources are used slightly more often than external ones. Librarians tend to prefer the information from the databases that the library has already selected and has dedicated access to, because it is more trustworthy and easier to access. However, external websites do have nearly as much use, because the librarians regularly have questions that cannot be answered by the databases, or

conversely, which are so simple they can be more readily answered by open-access websites. Both internal and external websites are used much more commonly than the library catalogue - the only regular users of the library catalogue are the librarians in that group who deal regularly with customers. Other librarians tend to somewhat prefer digital sources for information.

### 5.2.3 Finding - how do librarians find information in their own information collections and in external information sources?

In the results about how librarians find information when they need it, most of the major themes come up approximately to the same degree, and with heavy crossover for users. Some of the participants' practices in this category are outlined in the table below:

Information finding theme	Responses	Practices
Finding by organisation	6	- using filters to find information that has metadata - browsing folder structures - knowledge of own organisation systems: "I tend to rely on file structure, and I try to keep that really clear and really tidy" - KW
Finding by memory	5	- experience of organisation systems such as Dewey - memory of website names - memory used in conjunction with personal organisation
Re-finding information to ensure up-to-date	4	- keeping up with changes to websites - keeping up with current research: " Sometimes I do have to research the same subject, because I suspect it changed, or the people who have that information changed , or the area has developed - to keep up to date" - AB
Searching for specific information	9	- faster than browsing when you know a general location already - searching based on a single piece of information such as a name - relying on search tools to help narrow it down when a customer only has a vague idea what they're looking for - searching as a backup to other sources of information to ensure nothing obvious is missed
At-a-glance reference	5	- frequently referred information - information that is hard to find in original location - being able to see all current projects at once

(fig 5.4 - how do librarians find information in their own information collections and in external information sources? N=10)

It seems that librarians are quite good at using all their options for finding information, and do not specialize too highly, rather preferring to allow the finding technique to fit the desired information. Williams, John & Rowland describe the accumulation phase of the lifecycle of information as having three major features: active seeking, passive seeking, and active creation (2009, p.348). This description seems to match the PIM activities found in this study; while the active creation phase appears in themes in other categories (see themes in Note Taking below, and the theme of project-based information in Types of Information, above), both active and passive finding appear in themes in this category. However it is notable that quite a majority of information finding themes are about active finding. Of the themes in this category, only networking to find information, and some aspects of using at-a-glance displays on walls or desktops to quickly refer to information really reflect passive information finding. Librarians are very active in their pursuit of information.

It was noted in the Tools section above that online information sources are a common tool for librarians. To find these sources, they tend to use a wide variety of finding techniques, including bookmarks, Google search, and browsing inside other websites, particularly the library's own website but occasionally inside other websites. All these tools are fairly widely used, but bookmarks hold a slight edge over searching for re-finding previously used online sources.

For finding specific information, whether inside their own collections or inside others', participants tend to rely on three major techniques; using search functions, remembering the location of what they're looking for, or relying on the organisation of the system the information is stored in. Of these systems, searching is the most common, particularly when they know exactly what they are looking for. Searching for specific information is mentioned by almost every interviewee, whereas reliance on organisation is used more for finding information that will be within a certain area, when they do not know what that information will be. In fact, several librarians mention using searching to find information even in information that has been organised and could be found by reliance on organisation:

“If I know I need a specific piece of information and I know I saved it in the files in that folder, I search.” - AB

Interestingly, there is fairly little crossover between the themes of finding by reliance on organisation systems and finding by reliance on memory. Unlike Elseweiler, Ruthven & Jones (2007), participants in this study don't consider reliance on organisation systems to be a technique that particularly relies on memory.

Re-finding information is a theme that appears in two different aspects; re-finding information because of not keeping a personal information collection, and re-finding information to ensure

that the information you have is the most up to date. The first type occurs only from those librarians in the group who work most directly with customers, who have been shown in previous results to not keep an information collection. The second type is mentioned both by those librarians and by others. Ensuring that the information had is the most up-to-date possible is a key issue when providing information to others to answer their requests, as the librarians must ensure their answers are correct.

For information that must be kept and referred to regularly, a strong theme is shown of having large-scale presentation of that information on a wall or desktop for quick reference. However, most librarians interviewed use simple printed displays for their quick reference of visualised information, and don't mention PIM technologies in this context at all. This contrasts with Pucihar et al (2016) who discuss this issue of reference and highlight the ability for PIM technology to create visualisations of information to be a key feature of digital PIM technology,

#### **5.2.4 Organisation - How do librarians organise their personal information collections?**

A major conflict within the results for how librarians organise information once they have it is the distinction, and overlap, between personal organisation systems and institutional organisation tools and systems. Mas, Maurel & Alberts (2011) state that many users prefer their own systems of organisation to institutional systems because institutional systems seem too generic and rigid. The librarians interviewed in this study reflect this assertion to some extent, although there is internal conflict in their methods. While they keep most information in the institutional shared drive, which comes with an overarching system of organisation, most of them use their own systems of organisation within that overarching system. This leads to a shared organisation which is superficially standardised while being personalised in fact, leading in turn to some librarians complaining that the shared system is quite messy, because there is little shared organisation.

Because of this personalisation of organisation, it is unsurprising that there is little overall consistency in this category, except that once again, the three librarians who work mostly with finding information for customers are mostly absent from this category. Aside from those three, all interviewed librarians mentioned using some form of organisation system in folders for digital documents, but, this is the only consistency, and there is little consistency in how they are organised or what is kept in them.

The issue of information fragmentation is once again common in the themes in this category, to the extent that it makes it difficult to draw consistent overall conclusions from the themes that appear. Although it is common for all to use some sort of organisation system for electronic documents, there is little commonality as to what is kept in them. There are a strong set of interrelated themes relating to keeping all information received through email as email, and

referring to it in those emails rather than storing it in some other format. Some who do this keep even attachments in Outlook, but others keep attachments in their document folders but still refer to stored emails for the information contained in the text of those emails.

A number of these librarians also use different systems of organisation for emails and for files, and using folder structures to organise emails is less common than folder structures to organise files. This sort of fragmentation of information based not on the type of information but its means of communication is surprisingly common for people whose reliance on the shared drive shows that they otherwise care strongly about fragmentation issues. However, other librarians keep all information in one system. Overlap between this theme and themes of keeping information as emails suggests that librarians might be keeping some sorts of information in email and moving other sorts into other organisation systems. Adding to this, several librarians state that they keep files in different locations while working on them:

“They’ll be on my desktop, so the only way that I work is that the only stuff I have on my desktop is if I’m working on it, or I need it.” - JB

Others prefer to keep even unfinished files in the final location in their organisation system, sometimes with shortcuts connecting to them from a workspace, which has the trade-off of having files in an unfinished state in the same location as finished files. This question of organisation is clearly complicated, and could potentially be an avenue for further study, but it could be that systems of organisation are so commonly personalised that larger overall themes of how librarians organise will simply fail to appear, even with a more focused study.

There are a few themes that do stand out, however. Prominent among them is the practice of periodic revision (a practice identified as an important part of the lifecycle of collections in Williams, John & Rowland 2009), a practice of regularly (anything from once every few months to yearly) going through the information storage and revising it to meet current needs.

“Often it is stuff that is tenuous and you think at the time ‘am I going to need that?’ For me it’s just kind of experience - I’ve been a community library manager for a number of years now in a number of different communities, and it’s almost like you don’t know what you need until you need it. So I review it every three or four months.” - SM

This habit seems particularly to be attached to email, as revising and discarding is more common with email than other sorts of information.

Another theme that is notable is the use of task lists as a use of information to organise the rest of one’s life (one of the key uses of PIM in Pucihar et al (2016)). A variety of tools are used for this, but the most commonly used is Outlook. Some librarians use the built-in tasks function, and others prefer to use their email inbox as a makeshift task list, leaving emails in the inbox to

signify action still needing to be taken on their subject. Some even send themselves emails about other tasks (see the related theme about emailing yourself notes in Note Taking below).

### 5.2.5 Note Taking - How do librarians take notes and what do they do with them?

The practice of notetaking in one form or another is a significant part of the PIM of every librarian interviewed, although they use many different methods - notetaking is a very personalised form of PIM. A sample of the variety of notetaking practices are outlined in this table:

Notetaking theme	Responses	Practices
Physical notes	9	- notes kept in a diary or notebook (common) - notes kept on scraps of paper - post-it notes on desk
Digital notes	7	- Windows digital sticky notes on desktop - notes kept in phone as text - notes kept on phone as photographs - notes kept in the cloud across devices
Discarding notes	6	- notes discarded after information kept elsewhere - notes discarded after task finished
Keeping notes	5	- notes kept in archive until sure they are not useful - old notebooks kept

(fig 5.5 - How do librarians take notes and what do they do with them? N=10)

Physical notes are more common than digital methods, although digital methods are also widespread. Only one of the interviewed librarians did not use some form of physical notetaking. This is one of the most ubiquitous places where physical media is still used in PIM. There is considerable overlap between the two media. Many people use both digital and physical notetaking, often simply depending on what tool they have available to them at the time.

The majority of digital note-taking is done via smartphone, and often moved to a computer via app or email later. The most common ways to take notes on phones are via dedicated note apps, and by taking photos of things such as whiteboards or paper format information. Emailing notes to yourself is a common theme for digital note taking as well (see a similar theme in Organisation above).

Both keeping archives of notes and discarding notes after they are used are common themes, with some overlap - some people keep some sorts of notes and discard others. It is also fairly common for librarians to take the information from their notes, place it into some more permanent form, and then discard the original note. This is more common than actually keeping the original notes.

### **5.2.6 Memory - how much does librarians' PIM rely on memory?**

Although quite a few participants mentioned memory as an important tool for finding information, relatively few identified it as a key tool for their PIM habits. As mentioned in Elseweiler, Ruthven & Jones (2007), people tend to not actually be very good at remembering where they stored things, so it is not surprising that it is not a key feature. The most common themes in this category are the theme (connecting with themes of Finding, above) of memory as a way of getting at information by remembering who else is likely to have the information, and the theme (connecting with themes of Note Taking, above) of writing things down being just as useful as an aid to remember them later as it is to actually have the note. However, these themes are not particularly common overall.

## **5.3 Update and Change in Librarians' Personal Information Management**

### **5.3.1 Print vs Digital - To what extent do librarians still use non-digital tools for their Personal Information Management?**

One of the most important topics in PIM is the still ongoing transition from paper to digital methods for PIM and information keeping. This is a significant area of change, and one where librarians are still definitely using some hardcopy methods for information management (see the theme of print note taking in Note Taking, above). The participants as a whole seem in favor of changing away from a print-heavy PIM, but there are some major themes where they still favor print for various reasons.

One of the most common of these themes is print used for quick reference. Many librarians still find it easier to keep their most important common reference information in print format, either as post-it notes on their workspace, or as papers in folders kept within arm's reach of their desk. This theme also has strong overlap with 'at a glance' reference in Finding, above. In a related theme, a few of the interviewed librarians still consider some print information to be more reliable, or their customers do.

Perhaps the most important of these themes for library work is the issue of communication to people who do not use digital communication of any sort. In public libraries, there is still a

significant portion of the customer base who do not have access to or knowledge of how to use digital tools. For these people, print information is still necessary, and it is therefore necessary for librarians to use it to communicate with them.

Some themes related to the move from print to digital also became clear. There is a clear theme of information stored or acquired in print format being moved to digital for long-term keeping. Several of the interviewed librarians are actively engaged in moving away from print information keeping. However, even more commonly mentioned is duplication between print and digital information. While librarians are attempting to move information to digital formats, they still find that quite a bit of the print format stays:

“If it’s something I want to keep permanently on record - there are things we have to keep permanently on record both in digital and in print format. Anything that’s to do with copyright permissions or deposit agreements, anything like that we have to have in hard copy, but I will usually keep a digital version of that on file too, and I store that separately.” - KW

For some, as mentioned in the quote above, that is because of legal requirements for print copies of information, but for others the reasons are less clear.

### **5.3.2 Change - how does librarians’ Personal Information Management change and update?**

A key feature of the results for librarians’ attitude towards change and the impact changing tools and techniques have on their PIM is something outlined in Al-Omar & Cox (2016), the idea that ease of use is a key feature of PIM tools. This feature appears throughout this category, both as a reason for change and as a reason for lack of change. Changing tools because of frustrations with technology is a major reason to change, but equally so is feeling restricted to using what is already in use by default. This theme also resonates with the fragmentation issue identified in Karger & Jones (2006), and repeatedly within this study. Often change is limited by not wanting to contribute to added fragmentation of information while it is transferred between the two tools or while different sections of the library are using different tools, and not all of the most up to date information is present on either system.

However, the largest theme in this category is access as the major limitation to change - compare to Fourie 2011b and the difficulty librarians have with keeping up with the required adaptation in keeping up to date with developing technologies enough to be helpful to their customer base. A majority of librarians interviewed in this study found that the tools that they had access to at work tended to be limited and out of date compared to what they might wish to be using or need to be using to provide service to customers:



“because of the firewalls and things there’s difficulties with being able to access things and transfer them and that’s a source of some frustration ” - KW

Of particular note is that all of the librarians who mentioned adapting faster in personal life than work also mention this problem of access as a limitation. Even the librarians who are doing their best to actually keep up with the information management world end up being restricted in how they can apply that to their work PIM.

## 6 Discussion

### 6.1 How do librarians manage their personal information and knowledge?

As is made clear by the results about librarians’ first impressions of the term ‘information’ and by the variety of types of information they deal with in their PIM, both information-as-item and information-as-knowledge are important features of the librarians’ PIM landscape. Although the interviewed librarians have a preference towards managing knowledge as information, there is still significant knowledge kept only within their own heads contributing towards their information management.

One of the most powerful drivers behind the interviewed librarians’ PIM, perhaps unsurprisingly, is ensuring that information is available to others, both in the delivery of information to others such as customers, and in collaboration with others in the PIM process. This key theme of librarians’ information keeping is connected to many other themes that arose in the research, such as the themes of providing information to customers, of dealing with information specifically for and around customers, and particularly the predominance of themes relating to the shared drive as a method for facilitating simultaneous storage, organisation, sharing and collaboration. Most of the types of information librarians deal with in their personal information management are either information about what customers need or information to fill those needs, whether immediately or secondhand.

The interviewed librarians also care a great deal about ensuring continuity of library service, with ensuring that information is passed on to successors a key part of the PIM of senior librarians in particular, a part of PIM that ties closely to knowledge management. Related to this is the importance they place on information to help in understanding past decisions. A great deal of the information librarians keep is information that has been useful before and may be useful again, even if there is no immediately clear future use for it.

	<b>Management (n=4)</b>	<b>Non-Management (n=6)</b>
<i>Passing Information to a Successor</i>	100%	0%
<i>Understanding Past Decisions</i>	75%	50%

(fig 6.1 - continuity of library service, senior librarians compared to junior librarians)

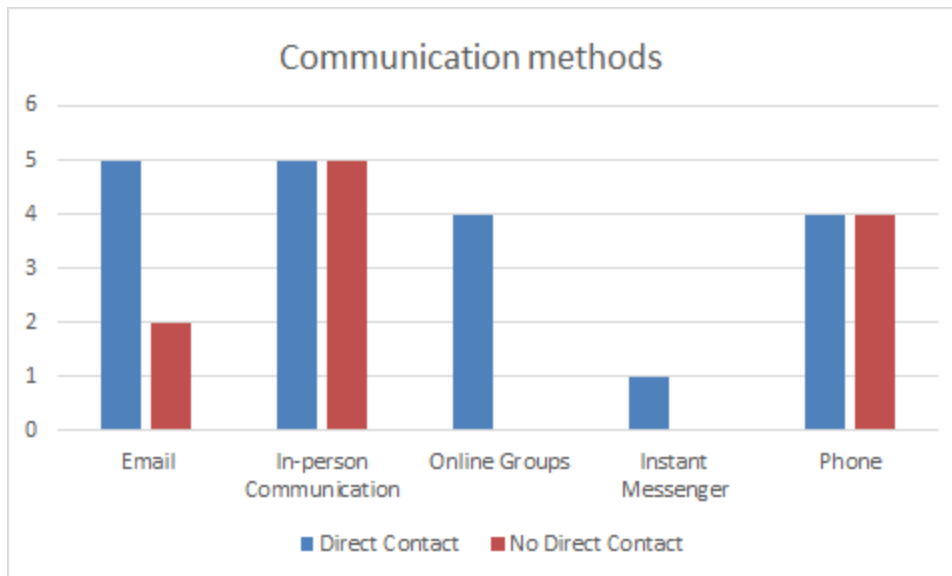
It is less clear how librarians choose what information to keep and to discard. From the results of this study, it appears that they do keep make informed decisions about what information to keep and what information to discard, but with a significant spread of reasons between librarians.

Librarians often have some sharing of tools and methods between their PIM in their personal and work lives, but this is far more likely to be in the form of personal tools used to aid in work PIM, not the other way around. The most common example is using personal smartphones to take notes for work purposes. Taking digital notes on a smartphone is common and easy, and a personal phone is one of the tools that most people have with them at all times, making it an obvious choice for note taking, even for work.

## **6.2 What are the means and methods by which librarians manage their personal information and knowledge?**

Unlike some other information professions such as scholars whose PIM is focused more on their own personal use (Al-Omar & Cox, 2016), or communication and collaboration between information workers, the interviewed librarians' PIM has a strong focus on communication both between librarians and between librarians and library customers, many of whom are much less skilled at information management than librarians are. This focus has a significant impact on the PIM of librarians. They are required to have and use a wide variety of communication tools and methods, and incorporate communication of information deeper into their PIM than most.

Librarians are simultaneously open to and capable of using modern tools and techniques for communicating information, and required to continue using more old-fashioned tools, because the range of people they are communicating with is very broad. This is particularly clear in the communication tools used by different librarians. The librarians who work the closest with library customers in a face-to-face setting are more likely to rely heavily on face-to-face communication and print-based communication of information. The librarians who mostly communicate with other librarians or communicate with customers at a distance are more likely to also use email or other modern tools like instant messenger or Facebook.



(fig 6.2 - Methods of communication, as used by librarians who work directly with patrons and those who do not)

There is a clear trend towards more advanced tools being used for larger quantities of information transfer; email to transfer information that is too detailed for a face-to-face conversation, and shared drive organisation allowing for the communication of information too large to be readily shared by email, or which exceeds the size limitations of email attachments. The most ubiquitous communication tools are the ones at either end of the spectrum; face-to-face communication with its wide applicability, and the shared drive with its large bandwidth.

When it comes to finding information, a key part of PIM, librarians use a similarly broad range of tools and methods, both as a group and as individuals. A key feature of librarians' PIM is their ability to find and re-find information in many ways, suiting the finding tool to the required information, with the ability to know what tool to use and the willingness to use multiple approaches until they find what they need. Finding and re-finding information regularly is a key feature of librarians' PIM. Many of them return to external resources to re-find information regularly rather than keeping it in their personal information collections, to ensure that they have the most up to date information possible. This need is clearly a significant part of the reason why they return to external sources so regularly:

“Sometimes I do have to research the same subject, because I suspect it changed, or the people who have that information changed, or the area has developed - to keep up to date. Maybe twice in a year, not sooner.” - AB

“it’s good to keep with current research, and the only way to do that is internet searching.” - SM

When it comes to finding information outside their own personal information collections, the interviewed librarians show a distinct preference for online resources over hardcopy resources, but particularly trust and regularly refer to the online resources within the library's collection slightly more often than external resources. To find information within their own information collections, searching tools and techniques are surprisingly dominant, even within collections that they have organised - although they do still tend to use multiple approaches to finding. Surprisingly few participants consider themselves particularly well-organised, but many consider themselves particularly adept at searching. It is also uncommon for participants to rely on their memory for finding information. This may be connected to their preference for searching, as search techniques may be less reliant on memory of where things have been placed in the organisation system than techniques such as browsing through the file structure.

In information keeping, throughout the themes it is clear that one of the biggest problems librarians face is the fragmentation of information. Many of their tools and techniques are designed to combat that fragmentation, but other tools and techniques contribute to it in their attempts to solve other problems. As observed by Jones (2007), there is an ever-increasing realm of tools for information keeping aimed at helping organise information, but that increase in options often tends to increase the issue of fragmentation of information as we adopt new tools for various types of information or information-keeping tasks. A key example of this is the use and storage of processes for library staff. Frustrations with the usability of new tool the library system has introduced to centralize process information has in turn lead to people decentralizing that information again. Librarians also have an issue with the duplication of information in print and digital formats, and several have significant issues with the use of the shared drive tool:

“[...] the massive drive that council uses. The struggle for me is keeping track - the path is massive, and it's hard to find stuff.” - TM

“I have to say that the heritage folder for our whole department is somewhat chaotic - the information is not particularly well-managed” - KW

This tool is a key feature of librarians' information keeping, and one that highlights the contradictions in information keeping practices. The tool itself is clearly designed as a tool to reduce the fragmentation of information by having librarians keep a single copy of information in a shared location rather than multiple copies in private information collections for each person who needs access. However, the ways that librarians use that shared space and the ways that each of them organises the parts of the shared space that they have control over vary widely, and this leads to many librarians expressing frustration with this tool for its lack of usability, even though they all rely on it. There is a lot of overlap in how librarians organise and find information, but little unity. In fact, because many individuals store different types of information in different ways and keep and discard information based on different criteria, there is little unity in what is

made available to others. This is a reason why so many librarians rely on searching, because it works in other people's organisation systems as in their own:

**“Is there anything where you tend to search?”**

“The old files - because they're not my structure. Other people's structure, I tend to search.” - ER

One of the other key methods librarians use to manage information is the practice of note taking. This is one of the most widespread methods, every librarian interviewed uses at least one form of note taking to aid in their information management, with several using multiple forms. Taking notes on paper is surprisingly common, actually significantly more common than digital tools. This information management method stands out both because it is so ubiquitous and also because it is an area where discarding information is more common than other areas. Much of the information from notes gets moved to other, more permanent formats before the notes are discarded.

### **6.3 How regularly and to what extent do librarians attempt to update these methods?**

In note taking and in other aspects of librarians' information management, a key feature is that while digital tools are widespread, there is still a very significant amount of paper-based information management going on. The most significant uses are in note taking, in use for quick reference, and in communication to people who don't use electronic media. Information in print is also still considered more trustworthy by some, both customers and even some librarians, who worry that many digital resources are unsourced and unreviewed. For some librarians, legal requirements for storing information in print remain. There is also considerable duplication of information between print and digital formats. An artifact of the attempt to get away from print formats for information storage is that in the time in between the beginning of the process and the information being verified as completely stored in trusted digital form, there is often extensive duplication of stored information.

Librarians are quite willing and eager to adapt and change their PIM tools and methods, but they identify access limitations as the major theme in their adoption of new tools:

“Yes, sometimes it is frustrating, I would like to accelerate - there are things I would like to use and can't. I had intuition that there would be a better way of performing that task - like direct access on mobile library laptops - but just infrastructure does not allow it to happen yet” - AB

In their work PIM, librarians tend to use the tools that are already in use by other librarians, because it is hard to enact change. Lack of control over technological progress or use in the

library is the main limitation to how fast librarians change their methods. While several are fast and eager adopters of new PIM technology in their personal lives, none are in their work. This institutional slowness is frustrating for librarians, who see a need for advances in what they use both within the library and for customers, but cannot apply it. However, librarians are trying to keep up to date and many of them are quite knowledgeable, and that knowledge can help with their interactions with customers even if the technology available to them to use is still restricted.

#### 6.4 To what extent do the personal information habits of librarians relate to the professional tasks of those librarians?

There are reasonably clear distinctions between which aspects of librarians’ PIM connect to their specific tasks and which aspects do not. The types of information dealt with, the means of communication of information commonly used, the degree of information keeping in their PIM, the way they organize information, and many of the tools used do seem to connect to the skills and tasks of librarians.

	Information Keeping	Types of Information		Communication		
		Reference Information	Information about Books	Email	Communication of information as opportunity for teaching	Online groups
<i>Reference-Only Librarians (n=3)</i>	0%	100%	100%	0%	66%	0%
<i>Information-Keeping Librarians (n=7)</i>	100%	42%	14%	100%	0%	57%

(fig 6.3 - Major points of difference relating to tasks of librarians)

As shown in figure 6.3 (above), the major distinction between librarians in respect to their PIM habits is between the group of librarians whose work is focused mostly on reference or working directly with customers, and the librarians whose work is focused more on second-hand interaction with customers and work on the library systems and operation. The group of

reference librarians are usually working quite directly with customers, and importantly, the tasks they are required to do mostly involve finding and refinding information in others' information collections. They rarely have any call to keep information for longer than temporary notes about customer requests, and as such, entire sections of PIM are generally out of the scope of their tasks. There is no information keeping in their work, and as a result there is none in their organisation. Their work-related PIM habits are very limited in scope compared to the librarians who have to build and maintain personal information collections. They also tend to use more direct forms of communication, that don't have to communicate as much information but provide more immediate and personal contact.

There are other aspects of PIM which relate to the differences in tasks between other sorts of librarians. Librarians who are managers, in particular, have a different set of priorities in their PIM habits than other librarians. They have more of a focus on maintaining continuity of service for the future when others take over their job (refer to figure 6.1), and more of an interest in privacy and confidentiality than other librarians, for whom openness of information is more of a priority.

There are also some clear areas in which the tasks of librarians do not seem to relate to their PIM habits, areas in which the PIM habits of librarians seem universal or to be divided along lines that do not have anything to do with their tasks. The crossover between personal and work PIM habits is one of these areas. Most librarians have some crossover, but the rest do not fall clearly into one category or another. The amount of print information still used and openness to new things does not seem to be connected either. Librarians' understanding of the term information is divided, but not along any clear task-related line. And the range and breadth of finding techniques used is a commonality to all librarians, whether they are finding only in others' information sources or in their own information collections also.

## **7 Conclusions**

Librarians are a key type of information worker whose work, by nature, helps connect between specialized information and general information needs. Understanding the PIM methods of librarians and the reasons for and issues with those methods could help provide insight into the difficulties inherent in this position halfway between two worlds, trying to work with large quantities of information in often complex ways, but communicate it to people who do not have the same skills or understanding. Although this study was limited in scope, it has some important implications about librarians' personal information management, and several avenues for further investigation. Of particular interest are the implications about how librarians' high level of personal organisation interacts negatively with institutional organisation systems and impedes communication of information and knowledge among librarians.

### **7.1 Limitations**

One of the most important limitations on this study's results to keep in mind is the small population. However, they were drawn from across many branches of the same organisation, Auckland Libraries (including the central city library, specialist library branches like research centres and dedicated library call centres, and several community libraries across the city). This has impact particularly on the results about what tools were available, and what tools were most widely used, as several of the most common tools were institutionally decided. However, this limitation has much less impact on the results concerning the techniques and methods librarians use to manage information, or on results concerning librarians' attitudes towards information management, as these results are much less reliant on what is available to librarians in this specific organisation.

### **7.2 A Key Feature - Personalising of Institutional Organisation**

Information being available to others is a key feature of the way librarians manage their personal information. Both information keeping and communication are heavily focused on this feature. However, librarians' own skill and ability in the realm of organisation leads to extreme personalisation of the way they organise information, which in turn makes it more difficult for others to find information in things they have organised.

A key example of this is in the way librarians, particularly senior librarians, interact with the shared information storage systems. Even though they state having their information being available to others, particularly successors, as a goal, these librarians have a significant problem



with how they make that information available. Each librarian tends to have their own system of organisation, even within the shared systems that are intended to be available to all. This is particularly noticeable with the library's shared drive, but also with how library processes are stored and handled. This idiosyncratic approach to organisation seems to be a key part of librarians' PIM, because they are the sort of people who have very strongly held ideas about how to organise information and the ability to apply it to their own information. Unfortunately, this high degree of individual skill leads to difficulty in exactly where librarians should have a strength, organising shared information. Each of them uses their knowledge to implement shared structures in different ways, so that while they can find information easily in their own part of the shared system, they struggle in the parts organised by others, and others struggle in theirs.

Librarians should be aware that that this is a problem many of them have. The fact that so many senior librarians in this study consider this a major priority shows that it is a key problem for senior librarians, who are aware that information and knowledge loss when senior experts leave is a major issue for knowledge workers in general (Joe, Yoong & Patel, 2013). However, the very techniques that librarians are using to attempt to deal with this issue are backfiring because librarians' strong skills in organisation lead to very idiosyncratic approaches to future-proofing their information.

Adopting organisation systems used by all, even for personal information, rather than each creating their own system of organisation as suits them and then relying on their skill with finding to work around their confusion with others' organisation systems, could go a long way towards helping with this issue.

Because of the small scope of this study, it was difficult to tell if this structural disorganisation caused by personalised organisation was a feature particularly of librarians' own individual collections that they were sharing with others, or if it is a feature that contributes also to their handling of larger shared information collections. Further investigation into whether and to what degree librarians' personal organisation systems impact their work on larger structures such as library management systems and cataloguing would be helpful and potentially lead to improvements in those systems.

### **7.3 Fragmentation**

This study highlights the issue of fragmentation of information, which is clearly a significant issue for librarians, who gather information from many sources and then have to communicate it to many customers. This issue is also one they are putting significant effort into solving, sometimes with self-sabotaging results. The librarians in this study rely heavily on their shared drive to combat information fragmentation. Further study into librarians' approach to

information fragmentation in a study that crosses multiple organisations, or alternatively case studies of specific approaches, could help all librarians find new ways to combat this key issue for librarians' personal information management.

## **7.4 Further investigation**

One of the least clear results in this study was in the area of how librarians' work PIM compares to their personal PIM in terms of updating and changing methods. There was a theme of librarians adopting new tools earlier in their personal life, but there was also a theme of librarians having more organisation in their work lives than their personal lives. This could be related to librarians simply being more willing or able to try things in their personal life, but this is a subject that would need further investigation to get more thorough results.

Another area where this study had particularly vague results was the question of which information, and how much information, librarians discard, and how they decide what to keep and what to discard. This differs from studies such as Williams, John & Rowland (2009) which had quite clear-cut findings on the rarity of discarding information. This study suggests that librarians do have reasons to keep some information and discard others, but it was unclear what those reasons are, although there may be some connection to ability to find and re-find information. Understanding the degree of keeping and discarding information in librarians' PIM and why would be another key avenue of possible further investigation suggested by this study, along with investigation into the connection between keeping/discarding and re-finding information.

Finally, one thing this study does clearly highlight is that librarians have a particular skill with finding information, with the ability to use a wide variety of approaches suited to the subject matter rather than an individual reliance on certain specific finding techniques. These findings in particular illustrate a clear image of the way librarians approach PIM, with a broad brush rather than specializing; and provide a grounding for investigations into how this librarians' approach to PIM might differ from other information workers or from those outside the information professions.

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**Appendix A:**  
**Example Information Sheet and Consent**  
**Form**

## Participant Information Sheet

### **Research Project Title:**

**A Study of the Personal Information Management practices of Librarians**

### **Researcher:**

**Timothy Creegan, School of Information Management, Victoria University of Wellington**

As part of the completion of my Masters of Information Studies, this study is designed primarily to identify what techniques, devices and programs are used particularly by librarians in their practice of personal information and knowledge management and secondarily to determine how those personal management habits relate to the professional skills and tasks of those librarians. It also will look at to what extent digital tools and methods have supplanted physical techniques for information and knowledge management.

Victoria University requires, and has granted, approval from the School's Human Ethics Committee.

I am inviting librarians to participate in this research. Participants will be asked to take part in an approximately 30 minute long interview, held at a time and location convenient to the participant. Permission will be asked to record the interview, and a transcript of the interview will be sent to participants for checking.

Participation is voluntary, and you will not be identified personally in any written report produced as a result of this research, including possible publication in academic conferences and journals. All material collected will be kept confidential, and will be viewed only by myself and my supervisor Dr Jennifer Campbell-Meier. The research report will be submitted for marking to the School of Information Management, and subsequently deposited in the University Library. Should any participant wish to withdraw from the project, they may do so until the 1<sup>st</sup> of April 2017, and the data collected up to that point will be destroyed. All data collected from participants will be destroyed within 2 years after the completion of the project.

If you have any questions or would like to receive further information about the project, please contact me at [creegatimo@myvuw.ac.nz](mailto:creegatimo@myvuw.ac.nz) or 021 263 6308, or you may contact my supervisor Dr Jennifer Campbell-Meier at [jennifer.campbell-meier@vuw.ac.nz](mailto:jennifer.campbell-meier@vuw.ac.nz) or telephone 04 463 5349.

Timothy Creegan

## Participant Consent Form

### Research Project Title:

**A Study of the Personal Information Management practices of Librarians**

### Researcher:

**Timothy Creegan, School of Information Management, Victoria University of Wellington**

I have been given and have understood an explanation of this research project. I have had an opportunity to ask questions and have them answered to my satisfaction.

I understand that I may withdraw myself (or any information I have provided) from this project, without having to give reasons, by e-mailing [tim.creegan@gmail.com](mailto:tim.creegan@gmail.com) by the 1<sup>st</sup> of April 2017.

I understand that any information I provide will be kept confidential to the researcher and their supervisor, the published results will not use my name, and that no opinions will be attributed to me in any way that will identify me.

I understand that the data I provide will not be used for any other purpose or released to others.

I understand that, if this interview is audio recorded, the recording and transcripts of the interviews will be erased within 2 years after the conclusion of the project. Furthermore, I will have an opportunity to check the transcripts of the interview.

Please indicate (by ticking the boxes below) which of the following apply:

- I would like to receive a summary of the results of this research when it is completed, and have listed a contact email below.
- I agree to this interview being audio recorded.

Signed:

Name of participant:

Contact email address:

Date:

# Appendix B:

## Interview Guide

### Interview Questions:

(Many of the prompts in under the major questions can/will refer back to previous answers for clarification, or be made unnecessary by the answers to previous questions in some interviews)

#### What is your job?

What is the overall purpose of the job? What sort of tasks do you have to do?  
What **sort of information** is required for that work? **For those tasks?**

#### How do you manage information in your daily life?

How **skilled do you consider yourself** in information management?

What sorts of information do you deal with?

Where/who does it **come from**? Where/who does it **go to**?

What **formats/channels/ways**? does it come in? Do you keep any information in **different** media/formats from how it comes to you?

Do you keep **notes** about tasks/information?

Do you have a **workspace** where you keep things you're working on, or do you save works in progress in the same place as finished works?

What **tools/applications/structures** are important for that?

Do you have any problems with using these tools for these purposes?

What **methods** are important for that?

What **information do you keep? What do you discard?**

Do you differentiate by type? Source?

What are the **biggest obstacles** to your management of information?

Do you keep work information management completely separate from personal?

Are there any tools you use that manage both? (calendars, email, filing systems, etc?) Do you use similar systems/methods, or different?

#### What information do you keep in physical formats? Digitally? In the cloud?

Why do you keep this information in those ways?

**Do you update** your information management habits? How often?

How much **attention do you pay** to new information management technologies, digital format changes, etc? Are you an early adopter, do you take more care, do you not move things at all?



Are there things you do move/update and things you don't? If so, what's the difference?

Is there a **difference between** your answer to this for work and for personal information?

### **How do you find specific pieces of information when you need them?**

How do you identify what that information is? Do you often need to find information again, or is most of your information single-purpose?

Do you **tend to rely on** organised file structures (offline or physically), using memory aids for finding external information again (such as browser bookmarks) or rely on searching for finding information again?

**If** you use different approaches for different information/circumstances,

**why?**

What sort of information do you save? What sort do you search to find again?

**If** you rely on organised file structures - how do you structure those? What sort of categories do you use?

**If** you rely heavily on searching, what sort of searching do you do? How do you remember what search techniques to use to find any given piece of information?

**If** you rely on memory aids - do these work on their own, or do you rely on searching as well? I.e. **emailing things to yourself etc-** if you keep notes, do you keep notes after making them, or are they temporary devices?

Do those tools and techniques help? How much of your information management still **relies on your memory** to know where things are?

How much of your information management is **standardised**, and how much is personalized?

If a co-worker had to find some piece of your information, **how easily would they be able to?**

Can you show me how information is organised in this physical environment?  
How about in your digital environment?

# Appendix C:

## Table of Themes with Exemplars

A table of codes generated during analysis – sorted by section, category, and theme.

See section 4.1.3, 'Research Design - Data Analysis' for description of coding process.

All codes created in saturation coding process (first pass) are included. Themes identified as key themes during second and subsequent rounds of coding are listed with exemplars.

### HOW DO LIBRARIANS DO PIM (how do librarians interpret/approach basics of information management)

#### Instinct about the term 'information'

Information as item	<p><b>"So what sort of information do you need to have to do that?"</b></p> <p>"For that particular role I look on various websites, and I also look through publishers booklets on materials that are coming out." - TM</p>
Information as knowledge	<p><b>"So what sort of information is required to do that job?"</b></p> <p>"Reference work you need to have a good general knowledge. I'm an older librarian so I know Dewey classification and I know physically where a book is likely to be in the building so that can sometimes be a shortcut for me . But also knowing how the catalogue works so you can use it efficiently." - CO</p>
Both knowledge and item	
No instinct/unclear	

#### Types of information

Customer requests	<p>"people come to me, and you don't know what kind of query they're going to come with - sometimes it's just how do I work the photocopier, sometimes it's how can I find information on a topic." - CO</p>
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Library organisation systems	"Specifically that's more - when are my books due, can I renew them, can you order this for me. Mostly account related" - SB
Reference information	"and when we're dealing with a research enquiry you'd systematically go through all of those sources" - KW
Personal Experience	"Reference work you need to have a good general knowledge." - CO
Project-based information	<b>"Information that's going out from you - who's it going to?"</b> "A lot of it is going out into a project - into the project can be the person, or the specific process we're trying to achieve" - ST
Information about books	
Processes (standardised)	
Contacts	
Processes (personalised)	
Statistics	
Training	

### **Information Keeping**

Information being available to others	"I try to keep stuff organized mostly - so that other people will be able to find it." - ER
Information keeping - archives (but might use again)	"often it's single-purpose and I've put it in there thinking I might need access to it again" - KW
Keeping information to understand past decisions	"it's useful to have a provenance trail for something so you have an understanding of how something has come to be where it is" - KW
Passing information to successor	"I know that I will be passing information to my successor at some point so I store info in two places , in my email (in a specific folder) and then the info that I don't have in the email that contributes to the bigger picture I store it in a separate file, in the folder titled 'for my successor'." - AB

Discarding information - yes	"Sometimes I might write a report for one thing and then learn of changes that are political or local and you'll write a new report bringing in new points that you need, and I'll often get rid of the first one. Because I don't want to clutter up my drive with things no longer relevant." - SM
Discarding information - no	"I'll refer back to it sometimes, and then yeah it stays there." - TM
Information keeping - constant use	
Information keeping - probable to use in future	
Shared group knowledge relied on for reference	
Information keeping - archives (won't use again)	
<b>Personal/work crossover</b>	
Crossover	"I tend to use the same [methods] - I use the same for my personal email, I don't organize it in folders as well, my work one is more organized, and I delete more personal ones - I guess so I have that paper trail; at work. I do the same thing with my phone, take photos with my personal phone, I'll take that and my work phone with me. Similar kind of processes I suppose." - TM
Personal used for work, work not used for personal	"I email it to my work from my home or from my phone - keeping notes on my personal phone, not a work phone" - SM
Earlier adoption in personal use	"I do - when we have an upgrade on council system probably I've already upgraded on my home system and often it's downgrading to come back to the council system" - SM
Personal not as organised	
No crossover	
Notes used for both	

## MEANS AND METHODS

<b>Communication</b>	
In-person communication	"People still come in all the time and want it in person, though, and I think it's because the people who come into the library a lot are wanting that human interaction - they don't just want a book, they want a conversation" - SB
Phone	" If they need something urgently - customer in front of them - they ring me up." - ER
Email	"Depends how in-depth the information they need - if I know it off by heart I just tell them, otherwise I take notes and email them when I have the answers." - ER
Communicating finished information - shared space w/links	"In the drive, then linked to specific people. If we need to share something. Otherwise we replicate, and we don't know who's got the current version." - TM
Online groups - non instant	" I don't only rely on communications coming to me, I actively seek them - so I may be subscribing to many listservs or networks or groups" - AB
Communicating work-in-progress information - shared space w/links	
Response - in kind	
Communication of information as opportunity for teaching	
Blogs - for outward communication to large groups	
Choosing communication method based on nature of target audience	
Communicating finished information - email attachments	
Information repaid with later information	
Instant messenger	

Large visual displays for group work	
<b>Tools</b>	
Shared drive	"But anything that's not confidential that gives a background to the activity of the research Centre, anyone can dip into and have a look at" - KW  "What I do with some info that I know I need to pass on, I definitely save it soft copy in email or in shared folder where I know people can access it" - AB
Online information sources - internal	"I think the two most used websites are Auckland libraries and Auckland council." - NK
Online information sources - external	"For that particular role I look on various websites, and I also look through publishers booklets on materials that are coming out" - TM  "We also use other things like google, Wikipedia, fantastic fiction, things like that." - NK
Notes on phone	"if I'm at an event and I hear about a person or an idea I will put it in google keep, on my phone, because it's on my phone and in my computer." - ST
Excel	
Hardcopy reference	
Library catalogue	
Google drive	
Non-shared harddrive	
Outlook - other	
Slack	
Backup drives	
Contact lists - Outlook	
Contact lists - system	
EverNote	
Google keep	
Notes via photos	
OneDrive	
OneNote	
Physical notebook	

Post-it notes	
Resistant to some tools because seems like busywork	
Trello	
<b>Finding</b>	
Searching for specific information	"If I know I need a specific piece of information and I know I saved it in the files in that folder, I search." - AB
Browsing to find inside websites	"I browse - if I know it's a digital library resource I need, I go straight to the digital library and then straight to the resource" - JB
Finding by reliance on organisation	"I'm also lucky that I have a very good memory and because I'm so organized now I can remember where I put something and just open it and know where to go - almost like a sixth sense." - SM
Using bookmarks to re-find websites	<b>"And do you use bookmarks, or searching from the bar every time?"</b> "The ones I use regularly are right here on the bar, I would never remember them, cos there's so many of them I always have to get into." - ER
At-a-glance/large scale presentation for quick reference	"visual cue person, so I like everything to be in my field of view" - ST
Finding by remembering location	<b>"How do you find it? Do you keep bookmarks for those?"</b> "I just know" - JB
Google search to find websites	"Occasionally we use google - I would say more than occasionally, as google has gotten better we use it more and more frequently." - NK
Networking - groups	"talking to people, so I'm out in the community, I'm speaking to rotary clubs, I'm getting feedback about how they perceive us and what they think we should or shouldn't be doing. Local board - it's sort of maintaining the networks and relationships" - SM
Re-finding information to ensure up-to-date information	"But also, it's good to keep with current research, and the only way to do that is internet searching." - SM
Browsing to find websites again	

Networking - key people	
Searching even though organisation systems are also used	
Re-finding information because always using others' kept information	
Searching in things organised by others	
Searching for large data sets	

### Organisation

Organisation in folders - documents	"keep it in my folders and do things that way (folders are annotated by subject matter quite specifically - I might have a customer service folder but within that I'll tease it out into elements)" - SM
Keeps in-progress information separate workspace	"They'll be on my desktop, so the only way that I work is that the only stuff I have on my desktop is if I'm working on it, or I need it. It might be because I've just pulled it off my phone and not yet put it on the shared drive. It might be because I've found a usb drive with work in progress on it and downloaded it into a 'files to file' folder on my desktop and I still haven't filed them." - JB
Task lists	"It's more a reminder - so I will send something as a reminder in email. If it happens on a weekend or on holiday I will immediately send a reminder to my work email so that it's here when I can come back to work, so I can't lose it" - SM
Different organisation systems used for email and for files	<b>"Do you use a similar set of folders for emails you're keeping as for files you're keeping?"</b> "No. Different sorts - I use more folders for email than other files in folders"
Organisation in folders - email	"With incoming emails what i tend to do is keep lots of folders in my inbox for things that I want to keep. Often issues will, you get so far with them and then they die down and they might reactivate. So if it's something I think is going to continue on for a while I'll create a folder in my inbox and shift things to there" - KW



Periodic Revision	"Often its stuff that is tenuous and you think at the time 'am I going to need that?' For me it's just kind of experience - I've been a community library manager for a number of years now in a number of different communities, and it's almost like you don't know what you need until you need it. So I review it every three or four months" - SM
Considers self very organised	
Keeping emailed information in Outlook - even attachments	
Keeping emailed information in Outlook - not attachments	
Keeps everything in one system - even email	
Mostly personalised	
Thinks shared resources are messily organised	
Confidential information kept on private hddrive	
Keeps in-progress information in final location	
Mostly standardised	

### Note Taking

	"Otherwise I do have a notebook here if I do think I need to take a lot of notes." - ER
Physical notes	"I did use to use postit - what I would sometimes do is if I was working on a current project, I'd use post-it notes - color differentiated, if I had ideas I'd put on pink postit notes" - ST
Digital notes	"I also use my phone to take photos of whiteboards and come back to that later." - TM
Discarding notes	"Occasionally. I don't keep them - when I'm done with them they're gone." - ER
Keeping notes	"I tend to archive... Well I tend to keep them, and once again I go through them periodically and if I haven't used them then they go. If I have used them then I'll write them up into a format where I'll keep them permanently." - KW

Emailing yourself notes	"If I don't think it's likely, I'll take notes on my phone and email it to myself if I do - I do that from home as well." - ER
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**Memory**

Knowing who knows things * (strong crossover with Finding)	
Writing things down for later reference also to help remember them without reference	
Information kept only as memory * (strong crossover with Information Keeping)	

## UPDATE AND CHANGE

### Print vs Digital

Print as quick reference	"A hardcopy of that is usually laminated and kept in the workroom because it's a touchstone to make sure we're doing it" - SM
Duplication - print & digital	"Yeah, all my staff files. Even those are probably stuff I've got a digital copy of already. So I'm duplicating I guess quite heavily. " - JB
Print transferred to digital for keeping	
Print used for communication to people who don't use digital	
Physical notes for large notes	
Print for trustworthiness	
Digital for simple notes	
Legal requirements for print copies	
Print for easy collaboration in person (one-on-one)	
Print for taking down information quickly	

### Change

Access as limitation	"Yes, sometimes it is frustrating, I would like to accelerate - there are things I would like to use and can't. I had like, intuition that there would be a better way of performing that task - like direct access on mobile library laptops - but just infrastructure does not allow it to happen yet" - AB
Changing because of frustrations with technology	"And one of the reasons for that is that in past local authorities I've worked for they've had a policy of purging emails unless you save them to another drive and you often lose valuable information. I've learned by trial and error" - SM
Using what is already in use by default	"For years for example I was really resistant to using outlook calendar, partly because nobody else did and it seemed like creating information for its own sake but because our

	managers all use it now I couldn't do without it." - KW
Evolution	
Lack of update because no better tools found	
Lack of update because not worth it	
No updating - very specific data/formats	

# Appendix D:

## Table of Participant Data

Initials	Contact with Customers	Professional?	Finding and Keeping or Finding only?	Management
AB	No	Yes	Finding and Keeping	Yes
CO	Yes	Yes	Finding only	No
ER	No	Yes	Finding and Keeping	No
JB	No	Yes	Finding and Keeping	Yes
KW	Yes	Yes	Finding and Keeping	Yes
NK	Yes	Yes	Finding only	No
SB	Yes	No	Finding only	No
SM	No	Yes	Finding and Keeping	Yes
ST	No	No	Finding and Keeping	No
TM	Yes	Yes	Finding and Keeping	No