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Exploring Information Management Practices: Academic Library Professionals' Experiences

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Abstract. Recognizing that information has long been an important asset for any organization, I explore in depth the management and use of information in contemporary information-intensive organizations such as academic libraries. Information processes, when integrated in the academic library’s daily working life can lead to workplace learning, with long term benefits. However, the literature demonstrates that while academic library managers manage and use information as a commodity, they are less likely to manage and use it as an asset for potential workplace learning. So, the interpretive research study I report on here explores the experiences of academic library managers regarding the management and use of information oriented to the better operation and development of their organization. Data were collected through documents, observations, and interviews and were analysed by applying thematic analysis. Findings revealed that information is used for organizing library routines, for awareness, communication, and collaboration, for creating a legacy and for decision-making. Further, information management facilitated by technology enhances the organization’s learning environment. However, maximum effectiveness requires appropriate solutions to be used along with proper training and a policy concerning their use. This research serves as a starting point for an exploratory research study on information management that can contribute to workplace learning in academic library organizations.

Keywords: Information Management, Information, Information & Communication Technologies (ICT), Workplace Learning, Academic Libraries.

1 Introduction

The evolution of Information and Communication Technologies (ICTs) and specifically the technological advances within academia such as online courses, virtual classrooms, and distance learning have changed the functioning and traditional role of the academic library and, therefore, the traditional role of library professionals [1]. At the same time, the digital age and the new information economy have brought challenges to library organizations. These challenges have brought concomitant changes in work structures and practices.

While the traditional role of academic library managers (hereafter managers) is changing, the management and use of information still occupies an important part of their work. The role of information in libraries is dual; it includes the outward information that is generated from the library’s collection and provided to its users
with the help of library professionals, but also includes the inward information that is managed, shared and used among the library professionals in order to collaboratively learn and make decisions concerning their organization. The first type of information can be considered as a service which is of value, a commodity. The second type of information can be considered as an asset because they are information resources owned by the organization and, when used effectively, can bring future benefit [2]; [10].

To address the challenges and adopt to the current information-intensive ecosystem, the managers can leverage information both externally to their users and stakeholders and internally in the library organization. Information can be used in the library to value the organization’s intangible assets in order to best leverage knowledge inwards and outwards [3]. Outward information is not in the scope of this paper. So, focusing on internal information, it can be integrated in the daily library work in order to contribute to co-creating and re-designing the organization. Consequently, it can expand learning throughout facilitation of information sharing and knowledge creation through an integrated approach to information management [4].

It is clear from the literature that, while managers manage and use information as a service, they do not take full advantage of the benefits that the management and use of information as an asset could offer to their organization [5]; [6]; [7]; [8]; [9]; [10]. Library professionals, it is argued, have been taught to treat information mainly as a commodity. A more proactive, forward planning use of information, one which treats it as an asset, seems less common [10]. Information systems, without question, can facilitate this asset-based approach.

Information management (IM) facilitated by information and communication technology can and should help academic libraries (hereafter libraries) manage information in such a way that intended end-users know it exists, can understand it, as well as access and apply it to a variety of purposes. IM is defined as the systems and processes that collect, manage, create and use corporate information for the benefit of the organization itself [11]; [12]. When information that represents library staff members’ professional knowledge is captured and managed effectively, it facilitates collaboration among them, and advances workplace learning and decision making based on that information [4]; [13]; [14]; [15]. Hence, I position myself in the IM research field which covers organization and coordination of the structures, processes, and resources for information use, and addresses organizational ICT needs in workplaces. Technology-enabled systemic conditions for learning influence how, when, and why people share and use information.

In this study, then, part of my doctoral research programme [16], I explore the experiences of academic library managers regarding in this context, showing how they actually and in practice manage and use information. Data collected from the qualitative approach described below will provide a foundation for facilitating the co-creation and re-design of contemporary information-intensive organizations through information management. From the above, two research questions are formulated:

1) How do academic library managers manage and use information?
2) What role does technology play in the management and use of information by academic library managers within their library organization?

1.1 Motivation and Topic Justification

The significance of the research topic derives from the fact that libraries have an important role in education and research [5]; [17]; [18]; [19]. They are central to university activities such as teaching, learning, research and science application [20]; [21]. To continue their pivotal role in higher education, libraries must continue to use their available resources in an effective way, co-creating and re-designing structures and processes in order to adapt to rapidly changing needs and requirements.

In this study, I focus on academic library managers because, due to their role, they are the main actors in the transformation process and future direction of the academic library organization. Of course, library staff members are also involved in the co-creation and re-design of the library; and other stakeholders’ contributions should not be excluded. However, the importance of managers’ role cannot be overlooked.

Organizations, and especially re-designed organizations, require, among other things, information to support them. An important part of this support is the generation, provision, management, and use of information by managers in order for them to collaboratively learn and make decisions for the better operation and development of the organization. Information systems are used for the communication, preservation, management, use and dissemination of information practices. Changes in organizations generate requirements for additional information and systems to provide it; and any changes in the organization are determined by the managers’ decisions [22].

My own background as an academic librarian adds a certain ‘autoethnographic’ element [23] to my academic interest in the analysis and transformation of local situations through the generation of workplace learning.

This paper, then, aims at exploring and acquiring knowledge about the academic library managers’ experiences on the role of information, and its management and use within their library organization, based on the research conducted at an academic library in Sweden.

The paper is structured as follows. Following this introduction, the paper continues with section two, a brief literature review. Section three describes the paradigm, methodology, and the methods for data collection and data analysis process. Initial findings are presented in section four. The paper concludes with section five and six which present the discussion and conclusions of this study.
2 Literature Review

2.1 Information and Information Management

To begin with, I distinguish between information and the related terms of data and knowledge, because managers’ experiences and perceptions on information reflect the distinction. Data are defined as symbols for basic description of things, which cannot be used to provide insights, but can be used to create information when meaning is added or interpreted in a context [24]; [25]; [26]. According to Langefors [27], data are signs which are used to represent information. In order for data to turn into information an interpretation process is needed [27]. He also stresses that data are, on their own, neither information nor knowledge, but can provide information to those who own the necessary pre-knowledge to understand them. Additionally, Langefors [27] considers information as knowledge in a form which can be communicated. Therefore, information can be defined as meaningful or systematically organized data [28] that can be used to create knowledge [24]; [25].

Similar to Langefors, Checkland and Holwell state that data are turned into information through an intellectual process [28]. They introduced the concept of “captata” which are captured data that catch a person’s attention, are subject to a mental process, turn into information, and eventually, by changing form, turn into knowledge. Once captata are captured, they are put into a context, so we can ascribe them meaning and turn them into meaningful information which can lead to knowledge [28]. According to Checkland and Holwell, information facilitates decision making within organizations [28].

On the other hand, knowledge is defined as contextual information, which is used to indicate and guide actions through evaluating the information. Information and knowledge cannot be equated. Knowledge resides in the mind of the knowers, and it can be used to create wisdom [24]; [25]. Knowledge can also be transformed into information through documents, best practices and lessons learned. Along these lines, an interplay between knowledge and information can be identified.

Information represents one of the organization’s resources. The needed information is acquired from either internal or external sources. The role of IM practices and systems is to make sure that information is disseminated and delivered, when and where it is needed, through clear communication channels, so that the members of the organization will be able to respond to technological, financial, social, and legal changes. In addition, information enables nimble responsiveness within the workplace as employees use information to learn through information sharing and knowledge creation [13]; [29].

The concept of information management is a very broad one. Often, the term is used interchangeably with other terms such as knowledge management, data management, and content management [11]; [30]; [31]. The following definition is considered appropriate for what follows: IM integrates people, processes, technology and content. It starts with the collection and management of both physical and electronic information of organizations -such as information that comes out of librarians’ professional knowledge-, and the dissemination of this information to
interested parties by using digital technologies and information systems. It also includes all systems and processes within an organization that can be used for the creation and use of corporate information with the aim of developing or managing the organization more efficiently [11]; [12]; [32]. IM can also lead to changes in the way staff members use information to engage in knowledge activities such as the co-creation and re-design of the organization. In fact, the challenge for IM nowadays is more focused on managing the activities leading to changes of people, groups, and organizations than managing activities of collecting, storing and disseminating information [33].

3 Methodology and Methods

3.1 Methodological Approach

This study adopts the interpretive paradigm which reflects my interest in the understandings people bring to their activities. Interpretivism implies that reality is socially constructed and can be approached and understood through the meanings people give to phenomena [34]; [35]. The interpretive paradigm, then, contributes to a better understanding of the managers’ experiences of the current management and the contexts which inform the use of information within their organization. This knowledge will provide a foundation for appreciating the co-creation and re-design of contemporary information-intensive organizations through information management.

Additionally, the study embraces the qualitative research approach because it is established on the assumption that people formulate social reality based on their understandings and, if necessary, interpretations of their situations [36]. The qualitative methodological approach is chosen because, according to Myers and Avison [37], it is the appropriate method for understanding people and the social and cultural context within which they live or work.

3.2 Description of Empirical Setting

The academic library belongs to a public university in Sweden. The Library serves about 30,000 students from 5 faculties. It has existed in its current form since 2010, although some organizational changes have taken place in that time. Today it has approximately 60 employees, plus some temporary part-time staff.

It is organized directly under the rector and is led by a board which is chaired by one of the vice rectors. The Library Director has the overall management responsibility for the library, its activities, and the work environment and is accountable to the Library Board. The Library is organized under 3 main sections, and 4 functions are placed under the sections. Its organizational chart is enhanced by 2 administrative and 4 other units such as the Communications unit. The heads of each section are responsible for the work and staff within their respective sections and for the development of the Library in cooperation with the Library Director. The function
leaders are responsible for the development and everyday work of each function which consists of staff members that have their main duties in the function’s field of responsibility. The administrative units of the Library are led by administrative managers who are responsible for the work within their unit but have no responsibility for staff management.

A management team exists and consists of the Library Director, the section managers, the head of the communications unit and the financial manager. When it comes to annual meetings which engage with tactical/strategic work prior to budget and organizational planning as well as for discussions of strategic importance, the management team expands to also include function leaders and administrative managers. The members of the aforementioned management team, besides the Library Director -that is, middle academic library managers- comprise the sample of this research study.

3.3 Methods for Data Collection

The qualitative approach I have described entailed the following methods for the collection of data: documents review, observations, and interviews [38]. Table 1 provides an overview of the empirical material. All participants have given their consent and signed the informed consent forms which were prepared following the ethical guidelines of the Economic and Social Research Council Framework for research ethics [39].

Table 1. Data collection overview

<table>
<thead>
<tr>
<th>What</th>
<th>When</th>
<th>How many</th>
</tr>
</thead>
<tbody>
<tr>
<td>Documents</td>
<td>October 2016 – January 2017</td>
<td>Previous and current organizational charts, Strategic and Operational documents, Conference presentations, Surveys, and the University’s and Library’s webpage</td>
</tr>
<tr>
<td>Observations</td>
<td>Weeks 46-47 2016</td>
<td>10 academic library managers</td>
</tr>
<tr>
<td>Interviews</td>
<td>Weeks 48-49 2016</td>
<td>10 academic library managers (60 – 90 min each)</td>
</tr>
</tbody>
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Documents. By reviewing and studying organizational documents concerning the Library, I acquired knowledge about its background, history, and culture. Additionally, I learnt about the Library’s organizational chart, strategy, mission, vision, current activity plan and time-frame, and the way it has organized its work practices, procedures, and policies [40]. This provided a more than useful backdrop to the organization before entering the research setting, that is, before conducting the observations and interviews. Later on, by combining the knowledge I got from studying these documents with the data I got from the observations and interviews, I managed to create a deeper understanding of the specific research setting.
Observations. During the observations, my role and identity as a researcher were fully open to everyone in the research setting, and I used shadowing as a way to observe different actions, reactions and interactions of the participants under study [41]; [42]. Observations enabled me to both act discreetly, when needed, or, taking notes on the actions of the participants who were observed, as well as asking them questions, when necessary [43].

Observations started by following each of the ten Library managers and observing them by shadowing and, then, documenting how they engaged in their everyday information activities, individually or collectively [43]. I started with informal interviews in the form of conversations both during and following observations. Hence, I requested the managers to briefly provide me with some background information regarding their section or function, and their role in it. This background information was very important for me in order later on to understand and interpret my observations. The informal interviews were combined with the observations of the Library managers’ daily information activities. Both informal interviews and observations were briefly documented in a notebook while on site.

Following the informal interviews, the actual observation started with observing what the Library managers were doing regarding information; what were their daily information activities; how they handled, managed, used, and shared information; for what reasons, i.e. for informing, for communicating, for collaborating, for collective learning, for decision-making; what means or channels they used for getting, organizing, managing and storing, sharing, sending, spreading and disseminating information; what was the purpose of their actions; whether technology played a role in that—and if so, what role. During this time, I sometimes silently observed the Library managers’ activities, while in other cases I asked questions and I took written notes.

Interviews. The starting point of interviews was the assumption that the participants’ perspectives on the phenomenon under study should be revealed as the participants perceive it; and that the participants’ perspectives are unique and valuable.

The interviews of this research study were conducted with the ten Library managers on days and times convenient for them. Each interview followed an interview guide, which served as a framework of questions to be asked, of the order to ask them and of the topics to be covered, and lasted approximately sixty minutes [44]. The interview guide was based on questions about the Library managers’ beliefs and ideas about information use, on their daily information activities, on ways they are managing and using information during these activities and their reasons for doing so; and on the channels the managers are using for managing the information within their organization. Through interviewing I aimed at capturing the participants’ experiences, however, respecting their framing and structuring of responses [38]. Follow-up questions or clarifications were possible, when needed.

The interviews were conducted in the English language. Swedish was the native language of all interviewees of this study but all of them were fluent in English. Therefore, due to the interviewees’ fluency in the English language and the researcher’s limited proficiency in the Swedish language, the interviews were conducted in English.
All interviews were audio recorded with the informed consent of the interviewees by using the researcher’s mobile phone. Additionally, during the interviews, notes were kept in the researcher’s notebook. After completing each interview, I returned at the office where I transcribed the extended notes. These notes helped me later on during the interview transcriptions and when doing the analysis of the data. All interviews were transcribed verbatim.

3.4 Method of Data Analysis

The analysis of the data gathered through documents, observations, and interviews entail an analytic approach called thematic analysis. This is an iterative process throughout the research study which aims at making interpretations from this process. For data analysis, I applied thematic analysis as described by Lichtman [45] because it provides a systematic way to analyze and interpret data which leads to better understanding the qualitative research study. According to Lichtman [45], “key concepts are derived from the data through a process of coding, sifting, sorting, and identifying themes”. This process is called the three (3) Cs; illustrating that the researcher moves from coding the initial data to categorizing them and from that to identifying key concepts (see Figure 1).

![Data Analysis Process 3Cs](image)

**Fig. 1.** Data Analysis Process adapted by Lichtman [45]

After transcribing all data, I ended up with a substantial amount of text (approximately 100 pages of documents, 120 pages of observation notes, and 100 pages of transcribed interviews) which required organization, thought and reflection in order to make sense of the data and, eventually, answer the research questions of this research study.

The analysis process started by identifying meaningful parts of the text, and by choosing several words/sentences in the text to be indicated as important which were highlighted with a marker. By reading and contemplating the text carefully, codes emerged as shown in Figure 1. This is called initial coding [45]. At this part of the analysis, codes usually represented the content or the topic or the emotion of the
participants’ responses since qualitative researches explore the setting as a whole in order to capture the experiences, perceptions, beliefs and feelings of the participants under study. These codes were extracted and were transferred to a new document where I revisited the initial coding by checking for repetitious, redundant or overlapping codes [45]. Aiming to reach a manageable number of codes, some of the initial codes were renamed. Continuing, I organized these codes into more general categories in relation to the aim and the research questions of the study. Some of the codes were treated as subcategories within the general ones. This step had to do with developing an initial list of categories [45]. This initial list was modified after several additional re-readings [45]. Therefore as shown in Figure 1, this resulted to 30 categories. Through an iterative process, I re-read the categories and decided which of them overlapped and could be merged into one category, and which of them were not important depending on the research questions and could be discarded. The initial list was modified and the initial categories were revisited, resulting in first 14 and, then, 11 categories [45]. Figure 1 illustrates the final step of the analysis process which was to identify key concepts out of the categories that reflected the meaning I gave to the collected data [45]. Those 11 categories were condensed to 6 key concepts.

4 Empirical Findings

Six key concepts emerged from the data analysis of the empirical material:

(1) “Information is all” (2) Organizing the work, (3) Awareness, communication, and collaboration, (4) Legacy, (5) Decision-making, (6) Information and Communication Channels.

Analysis revealed the following:

4.1 Key Concept 1: “Information is all”

Library managers acknowledge that information saturates the bulk of their work. They distinguish information into two types, the one that is offered to library users (information as a commodity/service), and the information which is shared and exchanged among themselves (information as an asset). They differentiate information from knowledge; and recognize that in order for information to be turned into knowledge, a connection with their experience and previous knowledge should be first made. Additionally, they recognize that, for the benefit of the organization, this knowledge has to be understood, shared and used collectively in an effective and advantageous way. The practical ways in which information is firstly seen as a vital part of their functioning and, secondly, as having an ‘inward’ and an ‘outward’ character can be seen in the following quotations.

…it's two things. It's what we have and what we offer, what we work with […] Then, I think it's a difference between information and knowledge. Information can be something that I can share, but it's not knowledge […]. it's not that complicated, but to transform it into
knowledge we need to share, we need to discuss it, and I think we need some social activities to transform information into knowledge; because the information, I think, you can take it like in parts and it doesn't have any meaning until we discuss about how can this affect what we are doing – said Library manager1

Information is all – replied Library manager2

Information we give and get, and share with others [...] is what we need to know and what others need to know [...] Information is everything we work with – excerpts from Library manager5

Information is everything, Information is exchanged, information is found – Library manager7 said

Data that I could relate to and put it in order to make sense[...], something I process myself and connect it with my experience and previous knowledge – said Library manager 10

4.2 Key Concept 2: Organizing the work

An organization can be considered to be effective when its people, structures and processes work together in an organized, goal-directed and harmonious way. Therefore, the Library managers put a great deal of effort into organizing their way of meeting and working together. However, the information and knowledge that they own would be worth nothing unless it was made known and available to the rest of library staff. For this reason, Library managers had organized ways of documenting, storing, preserving and disseminating those documents within the organization. This, of course, it is felt, needs to be done in a thorough and consistent way. When information is transferred and embedded in the organization, it is turned into collective knowledge, and eventually, it is turned into learning.

Organizing meetings. The Library has a meeting plan which sets the basic structure of the meetings. However, it can be adjusted, if there is a need for that. All library staff members meet 3 times per year. The Library management team has scheduled weekly physical meetings every Monday. The first meeting of the academic year takes place on October 1st, and every library member is allowed to attend; while all other meetings are limited to the management’s team members. However, when tactical discussions or decisions take place, the extended management team participates in these meetings. A date on Calendar is booked in advance by the Library Director. An agenda of the meeting is uploaded on the cloud file storage and sharing solution of the University by the Library Director, where the members have access, and they can add topics for discussion. During the meeting one of the members (following their names in alphabetical order) keeps notes. Then the meeting minutes are uploaded on the web portal with a link to the Library’s shared directory
so that none of the library staff misses the news. Each section and function has also scheduled meetings with varying frequency depending on what is decided within the section or function. For instance, some sections have meetings four times per year, while others have weekly meetings. Similar practices concerning the agenda and meeting minutes are followed also for these meetings.

I prepare an agenda and one of us is taking notes [...] like an alphabetical list of who will keep the notes. I send it (meaning the agenda) via Outlook. The calendar function where you can put like an agenda and the purpose of the meeting and what I expect from my co-workers to prepare [...] I say "this is my suggestion of agenda. Have I missed anything? Are there anything that you want us to discuss?" I want it to be a collaborative agenda [...] We keep them (meaning the meeting minutes) in Box. And, if we work with documents like now [...] we have Box. So we can have this in common. All of us have the documents there, the notes and the documents. And then, we keep it as an archive in S:/ – Library manager10 replied

Organizing documents. When Library managers work on a document, they store it in a cloud file storage and sharing solution belonging to the University, so that those who are working on it, can access it and make changes. When documents are completed, they are stored and archived in a shared directory of the University's main server which belongs to the Library accessible by all library staff. There three folders exist, one for each library section with subfolders representing each function having common structure and headings for the convenience of all staff members. However, it wasn't clear whether documents illustrating the Library’s work before 2010, when the organization established its current structure, were documented and stored, either in printed or in digital form. Some of the managers, when they were asked, said that documents, older than 10 years, were evaluated in 2010. Those which were worth saving, were stored in the Library’s shared directory. Still, most of the managers were not sure whether those documents were accessible or could be found unless someone had kept and stored them locally for personal use. This is connected with the lack of the sense of professional community/belonging that was observed before 2010. Some operational documents which have to be accessible by the public are also saved on the Library’s web-site. Finally, some managers store important documents for their work not only in the Library’s shared directory, but also in a folder in their personal computers, or in their personal mailboxes, or in printed forms for personal use.

We have this archival function at the university called S:/ So we have a structure there where we put all our documents, so everyone should know or try to find them there. It's a structure where we have all our plans and strategic documents and so on – said Library manager10

When I am interested in a document 10 years old and haven't used it for 10 years, then it could be hard to find it [...] because the archiving here
started [...] when we have made the new organization (meaning in 2010) – replied Library manager5

We have some archived directories or files as well. So maybe you can find it there. I also use [...] the mailbox with mails since I started working here at the university. So, if I was to look for a ten years old document, maybe it could be in my mailbox as well – answered Library manager4

4.3 Key Concept 3: Awareness, communication and collaboration

Library managers manage and use information formally or informally, internally within their organization or externally outside their organization, and individually or collectively by creating and participating in collaborative groups where they discuss, exchange, and share their information and professional knowledge in order to learn and, eventually, improve and develop themselves and their respective organizations. It is also important to communicate their work inside and outside the Library. For that reason, they work collaboratively and invest time in structuring information correctly and presenting it in an understandable way firstly to the rest of their colleagues, and, then, to library users and the public. Information management and use is enhanced by mentoring and networking activities. However, managers acknowledged the fact that improvement is needed in the speed of information dissemination within the organization; and the fact that they shouldn’t take for granted that all library staff members are aware of the information that they-the managers- know. Additionally, a lot of improvement is needed in the way information is managed and used in order to reach people outside their library organization.

In the Library organization. The University’s web portal is used for information, communication and collaboration and exchange of ideas among the managers and library staff. A group called University Library exists there. For informing the staff, weekly newsletters posted on the web portal are used in order for information to reach a wider group of library staff members. Additionally, other smaller closed groups are created which are used for the communication and collaboration of the staff for work tasks, smaller or bigger projects, or for exchanging ideas. The Library’s web-site is used for the same reasons. The shared directory of the University’s main server which belongs to the Library, and the cloud file storage and sharing solution of the University are used for getting informed and being aware about strategic, tactical, policy and other important documents. Managers also have frequent formal or informal meetings (either physical, face-to-face, or virtual through web conferencing software, blogs, and internal chat). Finally, the email is used when quick replies are required or when they want to instantly inform about something, or in order for the information to reach a specific person or group. More rarely, they use the phone.

If I think it could be of importance for the whole section, then I use the web portal for the section group. If it’s just a couple of colleagues from
different sections […], then I use e-mail and put a group e-mail. Quite often I think I use e-mail for that purpose. Or chat, we have internal chat. If I want a quick response from someone who is sitting by a computer, then I choose the chat function. Or, if I want to talk to someone […] then I can use Skype, to have a Skype meeting. It depends on the situation… – said Library manager10

We need to become better in sharing information when something is happening and don’t wait until it is decided because it creates insecurity and disruption – Library manager5 said

…I need to be careful because I know more than others (as an academic library manager), so sometimes I become blinded in sharing information – said Library manager5

Outside the Library organization. Information is managed and used by the managers in order to communicate the Library’s work to the library users/public. Various ways are used for this reason such as the Library’s website and its social media, conferences, communities of practice, library staff exchange and other collaborative groups where library staff members participate. However, difficulties in reaching particular groups of library users were mentioned.

…we are not that good at it. The Communication department is an important cooperation channel for this cause – Library manager10 said

We use the channels, we publish on…(referring to the web portal), we publish newsletters. However, teachers and researchers are still difficult to be reached – said Library manager7

4.4 Key Concept 4: Legacy

Projects are a way to collectively use and apply the information and knowledge which is embedded in the library organization for the benefit of the organization itself. Documenting projects, and lessons learned and best practices of them is collective knowledge that can be used as the foundation of learning, changing, refining, and finally creating new knowledge.

The managers have formulated a framework of how projects are documented. A common structure and the main steps that need to be followed have been agreed regarding all projects. So, even if the project-leader for some reason withdraws her/his participation or leaves due to resignation, retirement etc. the project will not be affected. The Library Director is usually not involved directly in the execution of projects, still s/he just sets the general guidelines at the beginning of the project. The following quotations are an illustration of that.

…the Director sets the general directions every year and she is not involved actively in the running project – Library manager4 said
We know what to do. The Library Director ties everything together, but the others are all well informed – Library manager7 answered

If the members are well informed and aware of all the steps that need to be done, it’s ok. The project is a bit affected, for example we may lose some time, but it is bearable – Library manager9 replied

4.5 Key Concept 5: Decision-making

Information which is understood and embedded in the organization allows knowledge to emerge. This knowledge helps the managers make decisions that lead to appropriate actions which can bring meaningful results for the organization. They take into account whether the decision that has to be made is strategic, if it affects directly the library staff members, or if it affects somehow the University. All decisions are discussed, and democratic procedures are followed for a decentralized decision to be made. Through the discussions with the managers I identified a model for decision-making which is followed in the Library organization:

Step 1: Organize meetings with Sections, or/and Functions, or/and Units
Step 2: Set the question
Step 3: Provide necessary information
Step 4: Start the dialogue, Discuss, Argue for it (what, why and how), Justify it
Step 5: Take the decision

We have to go through this in meetings in every section and just put that question in the agenda. So, we discuss it with every section and every function and see what we can come up with. So, if we have good arguments for this […] and if they can see that it’s worth […] we have to discuss that – Library manager4 said

…secondly, discussion between all employees in order all perspectives to be heard – Library manager2 said

4.6 Key Concept 6: Information and Communication Channels

Technology offers the means to facilitate the management, sharing, use, exchange of information. Various technology-enabled channels are used for this such as personal computers, web conferencing software, internal chat, emails, mobile phones, the Library’s website, the University’s web portal, and the Library’s social media. However, the managers underline the fact that the used channels are those imposed to them by the organization. These technology-enabled channels were selected by the organization because it is believed that they cover the Library’s needs. Therefore, certain problems exist that need to be overcome for the smooth use of the technology-enabled channels. However, they admitted that technology by itself is not enough.
Training is needed in order to use technology in the best possible way; and policies on how to use the technology-enabled channels, yet, one must not forget that a lot of information is shared by interacting with people. Face-to-face informal meetings and personal contact are still important for the managers.

*Technology helps since we are more people and, therefore, there is more knowledge in the organization which has to be shared and exchanged [...] – Library manager9 said*

*...technology and specifically the one we use can enhance organizational learning because it is a way to exchange our expertise by using asynchronous methods – said Library manager7*

*...I basically try to follow the standard (meaning technology-enabled channels) that we have here at the library. We have S:/ to archive [...], then we have Box if you want to work with a document [...] – Library manager1 replied*

**Problems with technology.** Most of the managers referred to the University’s web portal as their main information and communication channel. The web portal which has links to the university’s finance system, the client professional reservation system, the university’s learning management system, the university’s cloud file storage and sharing solution, the webmail and the communications platform, and the university’s newsletters is something like an Information Management System for the University and the Library. However, some problems were identified by the managers such as: difficulty and time-consuming when searching for older entries; closed groups to which you don’t have access but you have to be invited in order to participate; cannot organize the information by yourself; cannot use keywords or tags to organize your information; cannot save favorites; cannot check who, how many, when, and if they accessed the announced information.

Additionally, not all library staff members have the same level of familiarity with technology, something that could be restricting when having to decide which channel to use for information, communication or collaboration.

*Not all employees are familiar with technology such as Link or Skype. And, this sometimes is a problem because, for example, I can only get in contact fast through Link. Or, we can use the library chat. But, not everyone has downloaded it – Library manager9 responded*

*The good thing, definite a pro is that we have a lot of them (meaning information and communication channels). Compared to other libraries, we, as a library we are versatile, because I think we have a large selection of communication channels [...] The con side of this, of course, is that they are too many and people don’t really know how to use them or there is a confusion about which channel to use – Librarian1*
I think the idea is good but the system (referring to the web portal) is bad because you can't search. I think it could be better in the way that you can search, you can organize it. Or, maybe, also you could have 'save favorites', or 'I want to read it later' – Library manager2 said

Suggestions for improvement. The managers made their suggestions on improving the existing technology-enabled channels. The importance of having physical meetings was underscored by them. The following quotations present their suggestions.

(Referring to the web portal) is mainly used and we learnt how to use it. But, it would be nice to have one system for all; for archiving, for communication, for video chatting…a multi-functional communication tool – said Library manager10

Technology is good, but not enough by itself. We need to have strategies on how to use it; and we need to know which is the right platform for what – Library manager6 said

..now we have a lot of split, separate, independent systems. It would be nice that the Library’s or the University’s web-site becomes an umbrella system that has everything under it. (Referring to the web portal) it is something like an umbrella, but not exactly because the systems are not well connected… – Library manager9 said

We believe a lot in systems. However, we should put our energy in collaboration and people, to create and improve the feeling. You cannot measure a feeling – Library manager9 said

5 Discussion

Key concepts (1), (2), (3), (4) and (5) answered the first research question: How do academic library managers manage and use information? The second research question: What role does technology play in the management and use of information by academic library managers within their library organization? was partially answered by key concepts (2) and (3); while key concept (6) provided the main answer to it.

The technological advances and the increased number of students and researchers in the respective university the last years raised significant challenges for the library organization. In order to respond to the challenges the Library had to strengthen its presence on campus and its impact. The provision of improved library services which satisfy the educational and research needs required, besides using the available library material and existing infrastructure, advanced technology-based information systems such as information or knowledge management systems, sophisticated library spaces
for both users and staff members (not highlighted in this paper) and, mainly, human knowledge creation and sharing [13]; [14], and an advanced workplace learning culture [15]; [46]; [47].

To create an information-rich learning environment for others, the managers first had to design and activate information-rich learning experiences for themselves [29]. By using information to learn facilitated by technology and by engaging collectively in knowledge activities [29], the managers brought improvements in the Library’s structures and processes. For this reason, the Library organization was conceptualized as an information-intensive ecosystem consisting of complex interplays among its people, its processes, its technology, and content in which knowledge emerged through individuals’ exchange of resources, experiences, and ideas.

More specifically, the Library in 2010 decided to collaboratively re-design its existing structure and shape a new one upon a basis of mutual understanding and clearer vision. The goal was a firm unified organization with a collaborative mindset and decentralized decision-making. Members of the library staff were moved to new positions or adopted more suitable for them roles, and new staff came to the Library. Knowledge and expertise were distributed in the Library in a more rational way [26]. The new Library managers motivated the staff to get more involved in knowledge activities and the development of the organization [24]; [28]. By working in smaller groups, they performed surveys, studies, or longer projects in the library, and used the findings with the aim of collaboratively re-designing and improving the library services, library spaces and library organization [13]; [14].

The managers also used their knowledge and information to improve the Library’s structures and processes [24]; [26]. After six years of going through a transformation process, managers ended up, they argued, with a clearer understanding and distinction between data, information and knowledge [27]. They realized that information to be turned into knowledge had to be connected with their previous understanding [28]. Besides that, when this knowledge was understood, shared and used by them -mainly with the help of technology-, it was beneficial for their organization. That is why they put a lot of effort in improving the management and use of information. Therefore, managers used their professional knowledge and skills to better organize their everyday work, i.e. meetings, digital documents, awareness, communication and collaboration of library staff members, decision-making, and the Library’s legacy. Having a stronger focus on how information is collaboratively generated, organized, stored, managed and shared in the Library, they set the basis for the co-creation and re-design of their organization.

To achieve that, first the Library’s strategy was aligned with the strategy of the university. A common culture of collaboration, transparency, equality, and free access to information was cultivated by the Library and the University. However, the alignment of the University’s and Library’s strategies resulted in using the same generic technologies, both IS and ICT, to facilitate and support their information and communication needs. Consequently, specific technologies were not chosen by the managers, but were imposed on them. Managers attested to the fact that deficiencies exist in some of the systems in question, but the Library staff learned how to use them and organized its information and communication sharing around them. Most managers underscored the need of an IM system which could function as an umbrella
to gather, control and manage all the existing independent subsystems under it [24]; [26]; [28]. However, they admitted that having a plethora of information and communication channels is not always beneficial for the organization. Having policies on how to use the technology-enabled channels is important, along with getting training in order to use them in the best possible way. Apart from that, all managers stressed the importance of maintaining personal contact and face-to-face meetings.

Additionally, the increased use of social media the last years created the need for a stronger social media presence of the Library. So, the Library focused on developing its communication, webpages, and digital channels. The creation of a relatively new and reinforced Communications Unit strengthened the Library’s communication and social media presence. The digital material and the Library’s webpages were significantly improved with the application of the new Library Integrated System (LIS), and the webpages’ revamping [28]. However, most managers understood that more work is needed in that direction.

Furthermore, nuggets of useful information were sometimes held personally in ‘information silos’. Exactly why this might be is difficult to say. It might be to do with a sense of ‘ownership’ felt by some staff or for more common reasons, such as lack of time or the feeling that this kind of sharing was not a primary function [28]. While, some knowledge was, in a sense, locked away because the staff members who own it felt disconnected from their colleagues due to their location in different campus libraries. Hence, more effort is needed in tightening together the relationships of staff members of the different campus libraries in order to tone down power relations.

The results in this paper show how managers experienced information management practices enabled by technology that could help them to create workplace learning [15]. Further, there are difficulties experienced by the managers in regards to the plethora of independent information and communication channels, the lack of familiarity, policies and training on how to use them in their everyday information management practices.

6 Conclusion

This paper has presented academic library managers’ experiences and ways of managing and using information as an asset facilitated by technology with the aim of re-designing to co-create workplace learning. The empirical material was based on an academic library in Sweden. As a next step, more data is planned to be collected from other academic libraries as well.

Findings so far show that information saturates the bulk of academic library managers’ work and it is of two types: commodity and asset. Managers are aware of that, and of the fact that information to be turned into knowledge has to be connected with their previous knowledge and, then, it has to be embedded in the organization. Information is used by them in a cohesive way to organize the library routines such as meeting, documents, and knowledge sharing. It is also used for awareness, information, communication, exchange of ideas, and collaboration within and outside the Library. The management and use of information as an asset helps managers to
create a legacy. Best practices and lessons learned, which are preserved through the legacy, help them make better decisions for their organization. Besides that, when IM is facilitated by technology, the organization’s learning environment is enhanced.

However, in order for the library organization to reach workplace learning, a sense of belonging among the library staff members, both managers and librarians, is needed. All staff members are suggested to be collectively and collaboratively engaged in knowledge activities in order for knowledge to be understood, shared and embedded in the organization. When these activities are enabled by technologies, appropriate solutions are recommended to be used, and proper training on the use of technologies is suggested along with a policy concerning their use. This way the library organization will be able to gain experience and learn in order to cope within a competitive environment.

This research serves as a starting point for an exploratory research study on IM that can contribute to workplace learning in academic library organizations. Recommendations of IM with the aim of reaching workplace learning on a practical level can be of help for the library community, and for similar information-intensive organizations, while the extension of the theory of workplace learning in academic libraries can be the theoretical contribution of this research.

This study contributes in shedding light to information management practices of professionals within information-intensive contexts by providing some thick descriptions of the various ways information is managed and used by academic library managers. It also emphasizes the value of a contextualized understanding of people and processes. The analysis presented contributes to the literature on information management, particularly in the context of Sweden, since it presents IM practices of both individuals and organization as they create and deliver workplace learning to themselves and their organization. The research also shows the importance of considering IM practices of library managers as a source of embeddedness of knowledge and learning. Finally, practical on-the-job learning possibilities would provide academic library professionals space to reflect on experiences, share knowledge and co-create learning.

This paper presents some results on academic library managers’ experiences and ways of information management for workplace learning, still future work is planned to include more viewpoints and deeper analysis. Furthermore, an interesting study will be to conduct the same research in other information-intensive organizations, besides academic libraries, to investigate similarities and differences on the way information is managed, and on the related strategies followed with the aim of reaching workplace learning.

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