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The Impact of Knowledge Management on Innovation in Academic Libraries

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Abstract

In an ever-changing environment, innovation is a key concern for nearly every organization, including libraries. Innovation is not necessarily spontaneous; in fact, workplace factors including knowledge preservation and management can have both positive and negative impacts on the innovativeness of organizations. But how can knowledge management translate into innovation? What kind of knowledge do knowledge management systems capture? And most importantly, why should academic libraries care? This paper aims to assess the impact of knowledge management tools on innovation within an academic library context and highlight areas of further research. Based on the literature reviewed, common findings include that an effective KM system supports innovation and learning within organizations and that there are several variables within the framework of KM which can increase the effectiveness of the KM system. These variables include the use of KM tools for staff and customers alike, cooperative and supportive management attitudes, and the use of information and communication technologies (ICTs) to codify and share knowledge between institutions

Keywords: Innovation, Knowledge Management, Academic Libraries, Literature Review

The importance of innovation within the field of library and information studies cannot be overstated; libraries are no longer expected to simply exist as a welcoming repository for physical books. With decreased budgets and an exponential increase in digital literacy needs, libraries are forced to continually adapt to these changes or risk becoming obsolete to the community they are trying to serve. These ongoing adaptations often lead to innovative new ideas that positively impact the services that are provided by libraries for their patrons, particularly in academic libraries where the library users are at the leading edge of research and development. But how

are these innovations captured and codified? How are they shared? Do the current systems help or hinder innovation? While the personal knowledge of staff can contribute to the progression of a library, what happens when those key staff members leave -how do you keep that level of expertise and experience when you cannot keep the individual? This literature review seeks to analyse how knowledge management (KM) tools and processes impact the levels of innovation within academic libraries. Sources were found within library-centric, peer-reviewed publications, and were chosen based on their completeness and recency. The studies used include both qualitative and quantitative data and offer several variables that impact innovation in positive ways. Common findings include that an effective KM system supports innovation and learning within organizations and that there are several variables within the framework of KM which can increase the effectiveness of the KM system. These variables include the use of KM tools for staff and customers alike, cooperative and supportive management attitudes, and the use of information and communication technologies (ICTs) to codify and share knowledge between institutions. At the end of this paper, areas for future research will be examined.

Defining Terms

In this literature review, innovation is defined as the introduction into the organization of a new product, service, technology, or administrative practice; or a significant improvement to an existing product, service, technology, or administrative practice (Damanpour, 1996). While innovation can take many different forms producing many different outcomes, the focus of this literature review is examining the impact of KM practices on the implementation of innovations within the academic library.

Knowledge can be a somewhat nebulous term, but for in this review, it can be defined as an individual’s application of information, and the subsequent usefulness of that application (Roberts, 2000). Knowledge itself can be broken into two main categories. Explicit knowledge is that which has been codified and can be utilized immediately. Implicit knowledge is often harder to capture and can be thought of as the "know-how" of staff. While harder to qualify and quantify, implicit knowledge is a critical element to the success of any organization as it keeps the organization on track by ensuring the smooth operation in day-to-day tasks. Implicit knowledge is often linked to

individuals, which will be discussed later in this review. This review examines both explicit and implicit knowledge since both forms of knowledge can facilitate innovation.

An important point to note is that the existence of knowledge does not necessarily directly translate into innovation. The knowledge within an organization must be operationalized to contribute to change and innovation. Subsequently, the generation, capture, and codification of knowledge allows for innovation within an organization only when it is managed and disseminated correctly. With that focus in mind, it becomes important to define how KM is used and applied in a broad sense.

According to Agarwal & Island (2014), knowledge management is operationalized in three distinct phases that form the KM cycle. The first phase is knowledge capture/creation, which defines the knowledge within the organization. The second phase is knowledge sharing and transfer, during which the knowledge that was previously captured is made available to others for use. The creation of a foundation of knowledge and making that knowledge accessible to the required users within the organization are the first steps in successfully integrating a knowledge management system (KMS) into an academic library. Finally, the third phase is knowledge application and use. From there, the KMS can be used as a tool to inspire innovation within the organization by ensuring that lessons learned in the past are captured, and that past experiences can help the organization grow.

At its core, a knowledge management system (KMS) is a program or platform that allows for the capture of formal and informal knowledge, and the subsequent operationalization of that knowledge into the processes and daily work of the organization's members (Maier, 2007, p. 86). It can be as simple as a shared Google Drive, or as complicated as a multi-national intranet with automated resources. The unifying element of any KMS is the support it provides to the process of knowledge management.

Knowledge Capture and Creation

"Academic libraries are knowledge-creation enterprises in which a large amount of knowledge is created regularly for their customers" (Daneshgar & Parirokh, 2012, p.8). As the first step of the knowledge management cycle, knowledge creation and capture are crucial to innovation in that it creates the knowledge that is applied to

systems to improve them. Koloniari et al. (2018) suggest that an organizational culture that promotes collaboration, learning, and trust is a critical foundation for an innovative organization and that the organizational culture has the largest impact on both knowledge creation and innovation of any other variable. The importance of a collaborative and innovative culture was echoed in Jantz (2017), where the onus for innovation was placed on management, who have the responsibility to promote continuous organizational change and development. Management sets the tone for the overall culture within the workplace and actively affects the job satisfaction of its employees. Evener (2015) states that employees who feel engaged and valued within their organization, and who are encouraged by their supervisors to work to their full capacity, try new methods or procedures, and celebrate their mistakes have higher overall job satisfaction. Not only are they more involved in the workplace, but the innovation within the organization is higher when the employees feel valued and supported.

As well as having supportive management, libraries should utilize all sources of knowledge that are available to them to improve their services. Daneshgar & Parirokh (2012) suggest that customer knowledge is an incredibly useful tool in guiding the innovative development of academic libraries. They break down knowledge into three broad categories: knowledge for customers (KFC), knowledge about the customer (KAC), and knowledge from the customer (KRC). Knowledge for customers is the knowledge that is used to respond to the customer's knowledge requirements and is personal in that it answers specific questions or responds to the specific needs of the customers at the time. This type of knowledge is situation dependent and is a primary output of a knowledge management cycle that results from the combination of KAC and KRC (Daneshgar & Bosanquet, 2010). Knowledge about customers, or KAC, is the information that the staff collects about the patrons to respond to them in a personalized way, and best answer their questions (Daneshgar & Bosanquet, 2010). A prime example of the collection of this type of knowledge is the reference interview when reference librarians gather the requirements, parameters, and expectations of the patron to respond to their inquiries. Finally, knowledge from the customer, or KRC, is the knowledge gains from the customers themselves. This could include their local area

knowledge, thoughts, opinions, and other personal knowledge that is shared, explicitly or otherwise, with the library. (Daneshgar & Bosanquet, 2010). This third type of knowledge is one that is underutilized but can also have a large impact on the assessment of customer needs, which can, in turn, prompt innovation in response to changing needs. When knowledge from the customer and knowledge about the customers are combined and disseminated amongst the staff, an improved output of knowledge for the customer can be achieved (Daneshgar & Bosanquet, 2010).

These three types of knowledge can (and should) be codified and shared as another avenue of assessing the needs of customers. From their study, they found that the use of KMS primarily facilitates the creation of knowledge for customers but requires using all three knowledge types for the best results. When all three forms of customer-related knowledge are operationalized throughout the institution via a KMS, the potential for innovation that centers around improved customer service is increased.

In the first phase of the KM cycle, there seems to be a consensus that the organizational culture promoted by management has a positive impact on innovation within the organization, and that codification of a variety of knowledge sources contributes to a more holistic understanding of the needs and wants of the customer base. By capturing knowledge from customers and knowledge about customers, academic libraries can then provide a higher quality of knowledge for the customers and increase the potential within the library for service-centric innovation.

Knowledge Sharing and Transfer

The next step in the KM cycle is the sharing and transfer of knowledge that was created previously. This step can be limited to within the organization or can extend to sharing information between organizations. Agarwal & Islam (2014) suggest that there are two different types of tools that libraries can use to facilitate knowledge sharing and transfer: technology and non-technology tools. Technology tools encompass methods such as video conferencing, file sharing, intranets, and social networking. Non-technology tools include collaborative workspaces, storytelling, and directories of experts (Agarwal & Islam, 2014).

Stosic & Sofronijevic (2011) identify ICTs as a key element in supporting the improvement of work processes and that ICTs are applicable in all aspects of library

innovation, from customer service to upper management. In the second stage of the KM cycle, ICTs “facilitate the rapid collection, storage, and use of explicit knowledge [...] and enhances knowledge sharing and creation” (Koloniari et al., 2018, p.794). Ugwu & Ekere (2017) also emphasized the importance of understanding the tools available to the staff that can increase innovation and service quality. In their study, focusing on university libraries in Nigeria, they found that the main activities that supported innovation included learning about new practices, user interfaces, and the application of new technology to meet the needs of the students and staff. ICTs can also be used to eliminate communication and collaboration barriers between different departments within the organization (Lee & Choi, 2003), which in turn leads to better overall communication and problem-solving. Smith and Farquhar (2000) argue that the role of technology, and particularly ICTs, is to create a knowledge hub that facilitates the communication of new ideas and procedures to those that use them. The ICTs should enable members of those communities to discuss and share new ideas, validate them as a group, and implement successful innovations in their workplace (Smith & Farquhar, 2000). The cycle then begins again, allowing for continual conversation and learning within the community. Some examples of ICTs that enable this sort of interaction could be intranet SharePoints, collaborative workspaces such as the Google Suites, or even regular meetings and brainstorming sessions in person.

Organizational Culture & Change

Wen (2005) and Jantz (2017) both note that libraries are often hesitant to accept change. Academic libraries are known for sticking with their traditional roles and what has worked in the past. Past studies have shown that one of the biggest roadblocks for innovation and knowledge sharing is the organizational culture of the workplace (Smith & Farquhar, 2000). It is up to management and the human resources department to encourage and incorporate both explicit and implicit knowledge sharing within the organization. Some staff are hesitant to share their knowledge because they see themselves as indispensable; once they share their carefully curated experience, they may not be valued as the sole user of that knowledge (Wen, 2005). This hesitancy can be enhanced during times of change and upheaval, where staff are already under other stressors. Another aspect that might hinder the open sharing of knowledge is the

traditional culture of the academic library. That sense of doing things the way they have always been done preserves the long-standing status quo (Jantz, 2017) and that type of organizational culture can stifle the desire for change. Moving away from a strictly hierarchical organizational framework into a more flexible one can contribute to the shift in culture that would allow for more innovation and creativity among the staff. Resistance to that sort of change can limit the library's ability to innovate. Chen et al. (2010) argue that a supportive work environment will create a climate that facilitates knowledge sharing and encourages employees to put their efforts into applying their collective knowledge towards innovative new projects and ideas. The flatter, more integrated the organizational structure is, the more autonomy workers are given (Chen et al. 2010). That autonomy and freedom is another contributing factor that positively affects innovation within academic libraries. With a more open approach to knowledge sharing, the organization can then make use of the ICTs and other knowledge capture tools to codify staff knowledge and add it to the collective understanding of their work.

However, Biranvand et al. (2015) note that without a managerial understanding of the factors that influence knowledge sharing, most knowledge management systems will fail no matter the organizational structure. Organizational culture comes into play once again, because if there is a prohibitive culture, even the most state-of-the-art KMS will fail (Lee & Choi, 2003). With the correct understanding of their impact on the KMS within the organization, managers can promote positive learning interactions among their employees, which in turn is "one of the most effective ways to increase specialized knowledge" (Lee & Choi, 2003, p. 3) in staff members. Wen (2005) argues that using existing staffing and technology in the implementation of a grassroots KMS is the most practical and cost-effective way for academic libraries to start their KM journey. It will allow a library, which may already be fiscally constrained, to prove the effectiveness of a KMS before potentially investing in more complex and expensive systems. By encouraging the current management structure to implement a basic KMS into their daily work, the organization creates a "network of Knowledge Management managers" (Wen, 2005, 3.2.1) that can focus on the information and knowledge relevant to their department of the organization. From there, managers can begin pulling "knowledge

relevant to their operations from other units/departments" (Wen, 2005, 3.2.1) to improve their processes.

Conclusion and Future Research

The literature discussed within this paper covers a large scope of research, all falling under the umbrella topic of KM. For most of the sources, there are some general points of consensus regarding the importance of KM within academic libraries, particularly concerning the level of innovation within those libraries. The KM cycle is broken down into three phases: knowledge creation/capture, knowledge sharing/transfer, and knowledge application. All three of those phases within the KM cycle have an impact on the level of innovation in the services provided within academic libraries (Islam et al. (2017). There is some discussion as to whether knowledge sharing had a noticeable impact on innovation (Islam et al., 2017), but more localised studies have found that all three phases of the KM cycle do contribute to innovation, albeit on a lower scale than phase one and three of the KM cycle (Ugwu & Ekere, 2017).

One primary finding of many of the sources was that organizational culture and management style directly impacts the willingness and openness of staff in all phases of the KM cycle. A collaborative, trusting environment is a critical element to a successful work environment that will in turn foster a more innovative organization (Biranvand et al., 2015). Trust in their parent organization is directly linked with more motivation and knowledge growth among staff (Biranvand et al., 2015), and encourages staff members to take the initiative, and adopt an active role in decision making (Koloniari et al., 2018).

Another key point is the use and integration of ICTs in the development of KMS, and their positive impact on innovations and their implementation. ICTs can facilitate the propagation of knowledge, and there are several different styles of ICTs that can be tailored to libraries in general, and academic libraries in particular. They also do not need to be state-of-the-art bespoke systems, nor do they have to be expensive. A KMS can be built from existing, commercially available software (such as Microsoft Office or Google Suites) and integrated into the current organisational hierarchy. With the implementation of ICTs or simply new KMS, staff should be given the education and training required to successfully implement the new system, and to create the buy-in required for positive and enthusiastic forward movement.

Now more than ever, academic libraries are being asked to change at an ever-increasing rate to support their parent institution. While the concept of knowledge management and its positive impact on innovation within organizations is not new, the operationalization of KMS and ICTs within academic libraries is still not perfect. Areas of future research could include the involvement of customer knowledge into institutional KMS, and the impact of different organizational cultures in response to the increased use of technologies in the workplace. These findings should apply to academic libraries of any size or function and could even be expanded to include other similar organizations that strive to capture and apply new knowledge to improve their best practices.

Conflict of Interest Statement

None declared.

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