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Critical Success Factors for The Implementation of Knowledge Management Systems in The Intelligence Community

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Abstract

Many intelligence failures were attributed to the lack of information sharing among members of the Intelligence community. As intelligence in itself is recognized as a form of knowledge, it is then not surprising that the practice of Knowledge Management among intelligence practitioners is on the increase. Technology is one of the key enablers of Knowledge Management alongside factors such as people, processes, culture and structure. As a consequence, many organizations have embarked on Technology projects in the form of Knowledge Management System (KMS) implementation. However, the implementation of KMS is a challenging endeavour. This results from the fact that these systems are often complex, and KMS implementation represents a significant change in organizations. In the Intelligence Community (IC), in particular, the culture of secrecy and the need to know creates a further challenge in realizing the benefits of KMS.

Existing research proposes a range of factors that may contribute to the successful implementation of Knowledge Management systems. The goal of this paper is to determine the applicability of these success factors in the implementation of KMS in the IC. This is achieved by reviewing the literature to outline these critical success factors and then utilizing them as a framework to evaluate the Critical Success Factors for KMS implementation in the IC. Two separate KMS implementation projects in the intelligence community are examined. The paper provides a discussion of the research findings and ends by presenting the contributions of the study, limitations and opportunities for future research.

Keywords: knowledge management, intelligence community, knowledge management systems, change management, critical success factors

1.0 INTRODUCTION

The value derived through the implementation of efficient Knowledge Management (KM) practices and the inculcation of a knowledge-sharing culture is evident throughout the literature. Further, there are numerous case studies which demonstrate the success achieved by organizations in the national security sector who have adopted KM . One of the earliest definitions of knowledge management by Davenport & Prusak (1998) describes knowledge management as the exploitation and development of an organisation's knowledge assets with the aim of achieving the organisation's objectives. This involves the management of explicit knowledge which can be documented and tacit knowledge which is subjective (hislop et al., 2018). Through Knowledge Management organisations are able to foster an environment which facilitates the sharing of knowledge and experience. This ensures that the right information and knowledge emerge and are made available to the right people at the right time, resulting in greater efficiency (Smith, 2001).

Knowledge Management enablers are those factors that assist organisations to develop their knowledge and also stimulate the creation, sharing and protection of that knowledge within the organisation (Barcelo-Valenzuela et al., 2008) . These enablers can be considered as the necessary components for ensuring the efficiency and effectiveness of Knowledge Management Strategies (Ichijo et al., 1998) It is generally agreed by researchers that the core components or enablers of Knowledge Management are organizational structure, corporate culture, people, and technology (Bennett & Gabriel, 1999); (Prusak,1997). The majority of this paper will be focused on the technology component as an enabler. However, it must be noted that all the identified components are required for the overall success of Knowledge Management Strategies. In fact, researchers found that failing to coordinate efforts between technology and human resources was a leading cause of failure of Knowledge Management projects (Akhavan et al., 2012). This cause of failure is indicative of the need to understand the environment or industry in which the system is being implemented to increase chances of success. Much of the work on success factors for the implementation of Knowledge Management Systems has been centred on the private sector; as such, this research is necessary for the Intelligence community, which, although it can be considered a part of the Public sector, has its own peculiarities and culture.

1.1 What are Knowledge Management Systems

Knowledge Management Systems (KMS) is the term used to describe the enabling technologies for effective and efficient Knowledge Management (Maier & Hadrich, 2011) . (Maier & Hadrich, 2011) the main goal of Knowledge management systems is to allow the use of knowledge from the past in current activities, thus improving organisational effectiveness. These authors state that a KMS is the technological part of a KM strategy that also includes people-oriented and organizational instruments aimed at improving the efficiency of knowledge work (Maier, 2004). The Knowledge Management Systems are similar to information systems and many of the tools and techniques used for KM are related to information systems (Akhavan et al., 2012). However, authors such as Davenport and Klahr, 1998 define KMS as systems designed to provide decision-makers and users with the knowledge they need to perform their tasks. These authors, while they recognise the similarities between KMS and traditional information systems, propose that KMSs are different in that they must also provide context for the information. Typically, most KMS focus on explicit knowledge; however, over time, there has been a shift towards exploring how these systems can support the capture and transfer of tacit knowledge. (Jennex & Olfman, 2006) define KMSs as systems designed to support and enhance knowledge-intensive tasks, processes, or projects such as knowledge creation, organization, storage, retrieval, transfer, refinement

and packaging, (re)use, revision, and feedback; thus supporting the knowledge life cycle. Essentially, KMS support knowledge work by providing for a seamless flow of explicit knowledge through a refinement process (Zack, 1999).

1.2 Knowledge-Sharing Culture in the Intelligence Community

The Intelligence Community refers to a set of government organisations established with the purpose of working separately and collaboratively to conduct intelligence activities in support of national security and security policy development. Intelligence analysis can be considered knowledge intensive work (Desouza, 2009). Intelligence is a type of knowledge product which relies on the delivery of high quality information in a timely manner. Intelligence agencies were the world's first ''knowledge companies.'' Managing knowledge was always the primary goal of the Intelligence Community's (IC) leadership although this may not be formally acknowledged. As such it is safe to say that the IC can benefit tremendously from KM (Lahneman, 2004). It is therefore not surprising that Intelligence Agencies have been increasingly engaged in implementing Knowledge Management Strategies. Given the critical role of Information technology as a core component of Knowledge Management, this paper is focused on identifying the critical factors that are required to successfully implement Knowledge Management technology in the form of Knowledge Management systems in organizations in the Intelligence community.

Culture can be defined as a set of shared basic assumptions that a group learned while it solved adaptation and integrated problems. These assumptions were given validity as they worked well for the group and, as such, overtime, are taught to new members as the correct way to perceive, think and feel in relation to the specific problem (Schein, 2010). The Intelligence community was founded on a culture of secrecy and held firm to a principle referred to as "need to know". This principle means that there must be an exhibited need before information and knowledge sharing is to occur. As such, this cultureassumes that it can determine ahead of time who will need to use information and which specific piece of information is necessary to counter threats. This principle has proved over time to be ineffective in tackling the security challenges posed in the current threat environment. Addressing current challenges requires making optimal use of existing information and ensuring there are mechanisms for efficient sharing between stakeholders in the sector. While knowledge management systems are a vital resource in optimizing information sharing among Intelligence Agencies, this culture of secrecy and "need to know" often hinders the successful implementation and adoption of the systems among stakeholders (Hamrah, 2013).

2.0 LITERATURE REVIEW ON CRITICAL SUCCESS FACTORS FOR KMS IMPLEMENTATION

Throughout the literature, there is no consensus on a definition for KMS success. However, several authors attempt to explain what can be deemed the success factors for KMS implementation. According to Jennex et. Al, 2005 KMS implementation can be considered a success if the system improves the organizations ability to compete and if the KM processes implemented through the system are done so effectively. These authors generally propose that the Critical success factors for KMS implementation are those factors that encourage or help users to utilize the system for performing KM functions. Hence indicating that a KMS implementation can be deemed successful if the system is being used for the intended purpose and achieving the intended objective. Evaluating the effectiveness of Knowledge management systems once implemented is important to provide a basis for company valuation, to justify

investment in KM infrastructure and to help management to focus on what is important. From the perspective of KM practitioners and academia, paying attention to the success of such systems can provideuseful information for understanding how the systems should be designed and implemented or successis crucial to understanding how these systems should be built and implemented

Rockart, 1979 defined the critical success factors for KMS implementation as those set of factors , which, once satisfactorily addressed, will result in success. Through an examination of the existing literature, it was found that several researchers attempted to identify Critical Success factors for KMS and KMS implementation. Jennex & Olfman, 2004 in their study of three KM projects, identified factors for implementing a successful KMS. These are as follows:

1. Develop a good technical infrastructure utilizing high-end devices, integrate databases, and standardize hardware and software across the organization.
2. Incorporating KMS into everyday work flows through automating knowledge capture
3. Executive/senior Management support
4. Dedicated resources for maintaining the KMS
5. Provide Training for system users
6. Design Security into the KMS
7. Link KMS usage to performance evaluation systems
8. Identifying cultural issues that can threaten successful implementation.

Davenport et al., 1998 in their study of 31 projects across 24 companies identified the following common factors for the projects deemed successful :

1. Executive / Senor management support
2. Clear communication of KMS Goals
3. Multiple avenues for knowledge transfer
4. Systems linked to economic performance
5. Incentives for system users
6. A culture which supports knowledge-sharing
7. Solid technical and organizational infrastructure

Although both Jennex & Olfman, 2006 and Davenport & Klahr, 1998 identified incentives as success factors, Malhotra & Galleta, 2003 argue that incentives alone did not guarantee success and that user motivation and commitment were more important. Likewise, Alavi and Leidner, 1999 in their research found that user motivation to share was a key factor for success. This motivation to share is linked to the organizational culture.

Leadership and top management support for the KM initiative were also found to be critical to its success(Holsapple & Joshi, 2000). These authors also saw the availability of resources such as financial resourcesand the skill level of employees as crucial factors.

Barna, 2003 found in his study of six projects found two categories of success factors: managerial success factors and design factors. The managerial factors included:

1. Creating a culture of knowledge sharing
2. Articulating a shared vision for KM throughout the organization

3. Rewarding Knowledge Sharing
4. Senior management support
5. Training

The design factors focused on the implementation of KMS to solve an organizational problem rather thana technical one. These include:

1. Processes for knowledge submission
2. Processes for the codification, documentation and storage of knowledge
3. Processes for capturing tacit knowledge and converting it into organizational knowledge

Cross & Baird, 2000 found that technology on its own would be insufficient for success and identified that organizational learning must be instituted. To achieve this they proposed:

1. Supporting relationships between knowledge experts and knowledge users
2. Using incentives to motivate users to use the system
3. Implementing processes to convert individual experience into organizational knowledge
4. Providing direction on what knowledge is needed by the organization.

Sage & Rouse, 1999 propose similar factors to Cross & Baird, 2000 and agree that providing incentives and direction on the required knowledge are important success factors. They also included setting and communicating clear goals for the KMS as a success factor.

Butler et al., 2007 grouped the success factors for KMS implementation into three categories, namely, KM Strategy Success Factors, IT Related Critical Success Factors and Organisational Critical Success Factors.

Table 1: Framework of CSF for KMS Implementation

CSF ID#	Critical Success Factor	Source
CSF 1	Integrated Technical Infrastructure including networks, databases/repositories, computers, software, KMS experts	Alavi and Leidner (1999), Barna (2002), Cross (2000), Davenport, et al. (1998), Jennex and Olfman (2006), Sage and Rouse (1999)
CSF 2	A Knowledge Strategy that identifies users, sources, processes, storage strategy, knowledge and links to knowledge for the KMS	Barna (2002), Holsapple and Joshi (2000) Sage and Rouse (1999)
CSF 3	An enterprise wide system that is clearly communicated and easily understood	Barna (2002), Cross (2000), Davenport, et al. (1998), Jennex and Olfman (2006), Sage and Rouse (1999)

CSF 4	Motivated and committed users including the use of incentives and training	Alavi and Leidner (1999), Barna (2002), Cross (2000), Davenport, et al. (1998), Jennex and Olfman (2006), Malhotra and Galletta (2003)
CSF 5	Organizational Culture supportive of knowledge sharing and use	Alavi and Leidner (1999), Barna (2002), Davenport, et al. (1998), Jennex and Olfman (2006), Sage and Rouse (1999)
CSF 6	Senior Management Support including allocation of resources	Barna (2002), Davenport, et al. (1998), Holsapple and Joshi (2000), Jennex and Olfman (2006)
CSF 7	Establish clear goal and purpose of KMS	Barna (2002), Davenport, et al. (1998), Cross (2000)
CSF 8	Workflows designed to facilitate knowledge capture and use	Barna (2002), Cross (2000), Jennex and Olfman (2006)
CSF 9	Protection of knowledge	Jennex and Olfman (2006), Sage and Rouse (1999)

3.0 RESEARCH METHODOLOGY

The main research question for this study was to determine the critical success factors for implementing KMS in organizations in the Intelligence community and determine the applicability of the success factors presented in the literature to the Intelligence community. To achieve this, the study utilized a qualitative research methodology whereby participants involved in the implementation of two separate KMS implementation projects, as well as users of KMS in the Intelligence community, were interviewed based on the factors identified in the framework of critical success factors for KMS implementation. These participants were selected using purposive sampling. The interviews were recorded and transcribed, then coded and analyzed to identify common themes related to success factors.

This qualitative methodology proved best as achieving the research goals requires a detailed and in-depth understanding of the impact of the various factors influencing KMS implementation. According to (Stainback & Stainback, 1988) a holistic description of events, proceduresand philosophies occurring in natural settings is often needed to make accurate situational decisions
.The qualitative approach, therefore, was also effective in providing the researcher with the information required to develop sound recommendations for strategies which will enable efficient implementation of KMS in intelligence agencies. As Qualitative research designs are flexible (Frankel & Devers, 2000)

it allowed the researcher the opportunity to make quick changes to the research framework and direction, and explore new leads as the participants revealed new information

Qualitative research has, however, been criticized as being highly dependent on the skills of the researcher, as the results can become skewed by personal biases. Additionally, qualitative research also provides large quantities of data which makes analysis time-consuming and unlike with quantitative research , the findings are more difficult to display in a visual way (Saunders et al., 2007)

Case 1 – Project A

Project A involved the implementation of a system for content management in the organisation. This implementation was sanctioned following the completion of the knowledge Audit, where several shortcomings were identified with how organizational information assets were being managed. The system requirements were clearly defined to ensure that the system addresses the organization's needs. This system requirement specifications were developed, including consultation with the IT Department, Potentialusers and Systems developers. The implementation was projected and rolled out utilizing an Agile orincremental project management approach.

Users were informed of the ongoing project and were allowed to participate in a competition for naming the system. This strategy was focused on communicating the need and purpose of the system as well as developing ownership of the system.

Executive support was evident throughout this project, and resources were dedicated to ensuring its successful implementation. Once the system was instituted, all users received training.

Case 2 – Project B

Project B involved the implementation of a knowledge expert locator system. This system was implemented in a more ad-hoc manner to project A. While resources were dedicated towards implementing the system, and there was a clear business need for the system, there was no visible executive support. The system was communicated to users via email and some users received training in use of the system.

In both instances success implementation was defined as the ability of the system to achieve the KM objective for which they were implemented as well as the use of the system by staff in the intelligence organizations.

4.0 DISCUSSIONS OF FINDINGS

The key themes that arose in the interview regarding the CSF for the successful implementation of KMS in Project A are directly aligned with the factors presented in the framework of critical success factors for KMS implementation. This implementation included CSF 1, 2, 3, 6 and 7. While there was somewhatof an attempt to incentivize the use of the system through rewards with the system naming competition, as indicated by Malhotra & Galleta, 2003, this was insufficient to move staff members to use the systems. Interviewees expressed that the training was useful and they felt equipped to use the system, and while some staff members are utilizing the system, there was found to be general agreement that staff did not feel committed or motivated to use the system. There was agreement among participants that they understood the goals of the new system and saw how it could be useful in making them more efficient

in completing their tasks. The Organizational culture of need to know, however, affected trust in the system and most interviewees who were not directly involved in the implementation indicated that they did not feel comfortable that their information would be protected once it was shared on the system. In some instances, staff saved a copy of their reports on desktops as they perceived this would be an efficient backup system. This also supports the literature that the protection of databases and a supporting organizational culture for knowledge sharing are critical success factors for KMS implementation.

KMS Implementation for project B was found to be unsuccessful. There is limited usage of the system and staff generally felt unsure as to the goal of the system and do not feel comfortable using it due to a lack of training. This system also requires asking questions and there is a username attached to each question asked. Given the culture of secrecy, this contributed to the fears of utilizing the system. Given the lack of visible top management support for the system, interviewees found that this meant that the system wasn't as important for helping them achieve their tasks.

Among responses related to both cases Organizational culture appeared to be a dominant theme as a prohibitor for successful KMS implementation. Given overall challenges with Knowledge Sharing in the intelligence community, identified in the literature review, this is not surprising.

5.0 CONCLUSIONS AND RECOMMENDATIONS

The research explored the literature and identified nine (9) critical success factors (CSF) for Knowledge Management implementation. These CSFs were used to develop an interview guide for interviewing staff of the Intelligence community who were involved in two KMS implementation projects. The findings from the interview supported the factors identified in the literature review. However, there is a need to pay particular attention to addressing issues related to organizational culture when implementing KMS in Intelligence Agencies. Across both projects, the culture of secrecy and the need to know were found to be inhibitors to the successful implementation and adoption of the systems. The findings of this research will provide a useful guide to organizations in the intelligence community seeking to implement Knowledge Management systems. It can also help mitigate against implementation failure through early adoption of strategies aimed at addressing the issue of organizational culture.

Given the findings of this research, it appears necessary that future research should be conducted around change management for KMS implementation projects in the Intelligence community. While there existsa number of research papers on Change management for the implementation of information systems , a cursory search of academic journals and Google searches resulted in no specific research on change management for KMS implementation and, more so, specific to the intelligence community.

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