Establishing Governance of Collaborative Knowledge Management System in Public Sector Organisations

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ABSTRACT
Many organisations have established knowledge management system (KMS) to facilitate the systematic creation and sharing of their knowledge resources. With the emerging trends of “connectedness” and globalisation, collaboration amongst these organisations has become an integral part of knowledge management, as new technologies continue to arise. To ensure the success and standardisation of collaborative KMS amongst Malaysian government agencies, proper governance needs to be in place. The aim of this paper is to identify governance component for collaborative KMS (CKMS). Journal articles published within the period 1998-2013 were identified and analyzed. The articles were sourced mainly from Knowledge Management Research &Practice, Science Direct, Emerald, MIS Quarterly, as well as some other academic databases. Keywords used during the literature search are “governance”, “knowledge management system”, “collaboration”, “collaborative knowledge management system”, “knowledge sharing” and “knowledge management governance”. Based on this analysis, the conceptual model for governance of collaborative knowledge management system is constructed.

Keywords: governance, knowledge management system, collaborative knowledge management system

I INTRODUCTION
Information and communication technology (ICT) is redefining the business basis of organisations. Employee attendance, operations, product strategies, marketing and distribution, and the domain of knowledge depend largely or even totally on ICT. Day-by-day, ICT and its costs starting to be an essential part of an organisation need. Organisational knowledge also starts growing systematically within the ICT system, sometimes with total reliance on it. Organisations are increasingly investing in knowledge management (KM) initiatives to promote the creation, sharing, application and transfer of knowledge resources systematically through ICT known as knowledge management system (KMS).

Managing information technology comes under the IT governance umbrella and has become a topic of research interest. IT governance is defined as “the decision rights and accountability framework to encourage the desirable behaviour in the use of IT”(Weill and Ross, 2004). Research has shown that organisation with proper IT governance will achieve at least 20 per cent higher returns on assets than organisations with weaker governance(Weill, 2004). Furthermore, better governance of IT lead to improved IT outcomes(IT Governance Institute, 2009).

KM governance is a subset of IT governance (Grundstein, 2006). Previous research has acknowledged KM governance as “the structuring of the KM function, the distribution of KM decision-making rights and responsibilities among enterprise stakeholders, as well as the structures and processes for making and monitoring strategic decisions regarding KM” (Schroeder et al., 2006). The role of KM governance is to provide the policies, processes and procedures necessary to ensure that the program works effectively. These must be clearly communicated to everyone involved. Governance covers the integrated management of the program from its initial development, through production running until its end-of-life close down. A research focus on KM governance could provide important insights into how KM programs can be better established and run in organisations.

In the Malaysian context, the efficiency and effectiveness of government agencies has been a significant concern (Ali, 2003). According to the Malaysian Public Complaints Bureau, most of the complaints received from 2009 to July 2013 were about failures or delays in attending or responding to the needs of customers (BPA, 2012). This is partly due to the lack of information and collaboration between government agencies (Ninth Malaysia Plan, 2006).

The application of KM in Malaysian government agencies (MGA) is not fully optimised due to a lack of sharing culture and different understandings of its concept (MAMPU, 2011a). KMS within MGA mostly operate and work in silos. This lack of collaboration can contribute to the denial of knowledge sharing and dissemination (MAMPU,

A KMS is an information system designed to increase the utilisation and the creation of knowledge with the aim to improve an enterprise’s effectiveness. From the technical perspective, KMS as information systems designed specifically for identifying, understanding, capturing, sharing, disseminating, retrieving, integrating and leveraging knowledge (Abdullah et al., 2006; Alavi, 1999). KMS are designed, developed and deployed to assist organisations to manage their knowledge in order to perform tasks and as a decision-making tools (Davenport and Prusak, 1998). KMS technology has become renowned as an enabling and leading factor for connecting people and converting data into knowledge (Abdullah and Misran, 2010).

B. Collaborative Knowledge Management System

CKMS technology refers to organisational KMS deployment across company boundaries (Wu and Gu, 2009). The purpose of CKMS is to facilitate intra and inter-organisational KM systematically, in order to create and leverage knowledge resources as well as intellectual assets collaboratively with the goal to improve the overall organisational performance (Abdullah et al., 2007; Cormican and O’Sullivan, 2003).

Previous research has identified major elements of KMS networks that interact and work together as a CKMS (Oyefolahan et al., 2012; Sajeva, 2011). These major elements, as adapted from (Sajeva, 2011) are:

(a) KM process – KM-related activities (identify, acquire, create, store, disseminate and apply knowledge) (Grundstein et al., 2008; Sajeva, 2011);

(b) Strategic leadership – Management support and promotion (Grundstein et al., 2008; Sajeva, 2011; Salleh, 2012);

(c) Organisational infrastructure – Organisational social networks to ensure the smooth flow of knowledge in an organisation (Grundstein et al., 2008; Sajeva, 2011)

(d) Technological infrastructure – Facilitating the process of KM systematically with the use of information and communication technologies (Grundstein et al., 2008; Oyefolahan et al., 2012; Sajeva, 2011; Salleh, 2012)

(e) Organisational learning – Collaborative learning processes amongst organisation personnel (peers and experts) to facilitate knowledge creation and
enhancement (Grundstein et al., 2008; Oyefolahan et al., 2012; Sajeva, 2011)

(f) Knowledge culture – Acceptance of the importance of knowledge and KM by the organisational personnel (Oyefolahan et al., 2012; Salleh, 2012)

C. Governance of Knowledge Management System

Definition of IT governance by Grembergen (2004) and Peterson (2004), KM governance is as part of IT governance (Schroeder and Pauleen, 2007) and being described as “the structuring of the KM function, the distribution of KM decision-making rights, responsibilities among enterprise stakeholders as well as the structures and processes for making and monitoring strategic decisions regarding KM”.

Best practices IT governance frameworks such as the Control Objectives for Information and Related Technology (COBIT) and IT Infrastructure Library (ITIL) are often adopted and implemented according to the needs of the organisation. COBIT, for example, consists of 34 objectives categorised into four domains: (a) planning and organisation, (b) acquisition and implementation, (c) delivery and support, (d) monitoring and evaluation (Abu-Musa, 2009). ITIL is comprised of several areas of service management: service strategy, service design, service transition, service operation and continual service improvement (Winniford et al., 2009). IT governance components consist of organisation structure, policy, quality culture, delivery, resource management, finance management and outsource management (Nor, 2013).

Organisational KM initiatives need to be incorporated and distinguished through governance such as structures, processes or relational mechanisms (Schroeder et al., 2012) that would enable each employee to execute their responsibilities (Grembergen and Haes, 2009). Governance is a dynamic process involving implementation and monitoring as well as decision-making (Fazekas and Burns, 2012).

KM governance describes organisational guidelines on managing activities related to knowledge (Cao and Xiang, 2012). KM governance is a discipline in “implementing authority through transparent activity to leverage the sum of the knowledge of the organization to fulfill of the aims and objectives of organization” (Zygier and Owen, 2013).

III ENVIRONMENT OF KNOWLEDGE MANAGEMENT SYSTEM IN MALAYSIAN GOVERNMENT AGENCIES

Public Sector Information Architecture Blueprint from MAMPU (MAMPU, 2011a) Malaysian government agencies are structured with reference of their functions on core sectors (economic, social, security) and supporting sectors (general administration) as shown in Figure 1.

![Figure 1. Public Sector Business Model (Core Sectors)](MAMPU Information Architecture Blueprint (2011))

MGA have gradually become knowledge-based organisations since knowledge is their most vital asset (Sandhu et al., 2011). Findings from a survey of 94 government agencies and from interviews conducted on 30 selected government agencies have shown that KMS in MGA is not fully optimised due to the lack of a sharing culture and different understandings of its concept (MAMPU, 2011a).

According to the Public Complaints Bureau of Malaysia, from 2009 until July 2013, on average, 50 per cent of the complaints received were related to failures or delays in attending or responding to the needs of customers (BPA, 2012). Such failures and delays are caused by many factors. In the Ninth Malaysia Plan, one of the factors that has been identified is the lack of information and collaboration between government agencies (Ninth Malaysia Plan, 2006).

A. Barriers in Knowledge Management Initiatives

Previous researches in (Brown and Grant, 2005; Chua and Lam, 2005; Riege, 2005; Schroeder et al., 2012) have depicted a number of scenarios of KM initiatives in MGA such as (a) KMS exist in silos, (b) among agencies, there are different understandings of the KM concept, (c) there is minimal knowledge sharing across the public sector, (d) insufficient work transition plans are developed with regard to knowledge, and (e) agency staff believes that their knowledge belongs to their agency alone.

Previous researchers have found that the failure of KM programs or initiatives can often be attributed to lack of clear strategic objectives (Chua and Lam, 2005; Riege, 2005; Schroeder et al., 2012), lack of senior management supervision (Brown and Grant, 2005; Schroeder et al., 2012), lack of business integration and alignment (Chua and Lam, 2005; Riege, 2005; Schroeder et al., 2012) and unclear distribution of KM-related authority (Brown and Grant, 2005; Chua and Lam, 2005). Barriers in collaborative KM, which are also barriers in IT governance implementation, have been classified into three extensive categories (Riege, 2005):
(a) **Human barriers** refer to personal barriers such as communication skills, social networks, recognition, trust, and awareness of the benefits of knowledge collaboration (Jain and Jeppesen, 2013; Riege, 2005; Zurita et al., 2008).

(b) **Organisational barriers** refer to firm or organisational barriers in terms of rewards, top management support, organisational structure, organisational culture, strategies, policies and resistance to change (Amayah, 2013; Jain and Jeppesen, 2013; Nor, 2013; Othman and Chan, 2013; Riege, 2005).

(c) **Technology barriers** relate to the centralisation and integration of IT systems/processes, technical support, system maintenance, technology reluctance and training (Iskandar, 2011; Riege, 2005).

**B. Collaborative KMS within MGA**

A CKMS is a discipline that allows KMS to cooperatively and mutually collaborate across organisations 'precincts to accomplish organisations' desires and aspirations (Wu and Gu, 2009). Through CKMS, organisations can collectively create, share, access and apply knowledge across organisations systematically to achieve the organisations’ objectives. With CKMS, organisations can share and learn each other expertise collaboratively in order to improve efficiency and productivity.

CKMS comprises a more holistic KM concept that encompasses both human and technology-oriented directions. MGA can improve productivity through a consolidation and collaboration exercise which will result in increased productivity, minimised redundancies and improved efficiencies through centralised management and maintenance of shared resources.

**IV STUDY APPROACHES**

With comparison on previous study, the related literature constructed on keywords is shown in Figure 2, including KMS, KM governance, knowledge sharing, collaboration and collaborative KM. Journal articles published between 2003 and 2013 were sourced for the literature review from the Knowledge Management Research & Practice, Journal of Knowledge Management, Emerald, Science Direct, MIS Quarterly, and other academic databases. Also, several consultations were conducted with MGA personnel and academic experts in governance and KM in order to identify the possible components for collaborative KMS.

**V DISCUSSIONS**

The focus of this study is to extract the governance components for CKMS.

**A. Governance Components for Collaborative KMS**

In previous studies, the elements of collaborative KMS (Gallupe, 2000; McNabb, 2007; Mesos and Smith, 2000; Pan and Scarbrough, 1999) KM governance components (Chourides et al., 2003; Grundstein, 2006; Schroeder et al., 2012; Zyngier and McKay, 2006) and IT governance components (Abu-Musa, 2009; Nor, 2013; Winniford et al., 2009) are reviewed, analyzed and extracted. Expert views from several consultations with MGA personnel and academic experts in governance and KM also being analyzed together with the previous study in identifying governance component for CKMS. With reference to the literature review discussed in the previous section and expert view, the conceptual elements of collaborative KMS are identified and summarised as in Table 1.

**Figure 2. Related literature constructed on keywords**

<table>
<thead>
<tr>
<th>KM/S</th>
<th>Socio-technical KM/S</th>
<th>Collaborative KM/S</th>
<th>KM/S Governance</th>
<th>IT Governance</th>
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**Table 1. Theoretical construct of governance component for collaborative KMS**
From the study that has been conducted, as shown in Figure 3, most of the elements (70%) extracted are based from KMS governance framework and also 63% of the elements extracted were discussed during the expert consultation. Besides that collaborative KMS given almost 60% of the elements, followed by IT governance with 57%. While, socio-technical KMS contributed only 48% of the elements.

Based on the analysis, organizational infrastructure achieved 89% importance, followed by collaborative environment with 83% importance, KM process (78%), people and knowledge culture with 61% importance, strategic management and organizational learning with 44% and financial management with 33%.

(c) Organisation performance – knowledge can easily enhance organisational performance in terms of service quality and delivery.

Analysis made has shown that the KM process which represents knowledge-related activities, the organisational infrastructure which represents the organisational social network and the technological infrastructure which signifies ICT technology in facilitating the knowledge process, are among the important elements of collaborative KMS.

As part of the organisational management, strategic leadership that acknowledges the value of KM is significant as a governance element. Organisational learning and knowledge culture are processes that need to be embedded. Financial management which is important in IT governance has not been taken into consideration in the CKMS environment.

The presented model could provide a holistic view and better understanding of governance for CKMS that could be practiced in the organization. This conceptual model needs to be reviewed and constructed for further research findings.

B. Conceptual Model for Governance of CKMS

With reference to the conceptual model (Figure 5), the main objective of collaborative KMS governance should be to achieve:

(a) Organisation knowledge quality– knowledge content can be easily applied, accessed, disseminated and enhanced to improve the performance of a task and facilitate the decision-making process;

(b) Organisation integration– knowledge can be easily integrated and shared collectively and collaboratively;

Figure 4 shown that most important component of governance for collaborative KMS is technological infrastructure with overall 94% importance.

The KMS of MGA need to be consolidated and collaborated in order to ensure increased productivity minimised redundancies and improved efficiencies through the centralised management and maintenance of shared resources. This collaborative KMS require proper governance.

VI CONCLUSION

The KMS of MGA need to be consolidated and collaborated in order to ensure increased productivity minimised redundancies and improved efficiencies through the centralised management and maintenance of shared resources. This collaborative KMS require proper governance.

The governance of CKMS conceptual model includes two main sub-systerns: 1) the subsystem of knowledge management system governance, and 2) the subsystem of collaborative knowledge management system. Both subsystems are needed to ensure that governance of CKMS could be achieved.

However, this conceptual model for the governance of CKMS will need to be verified and validated through further research in order to gain better insights into the actual governance components of CKMS for Malaysian government
agencies. The results will be able to assist policy-makers in governing CKMS.

REFERENCES


