Conceptual Framework for Knowledge Sharing Initiative in Institution of Higher Learning: The Establishment of Knowledge Repository

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ABSTRACT
Knowledge sharing is a mechanism which can result in the establishment of knowledge repository. This repository enables knowledge deposited be retrieved for further usage other than a way for preserving knowledge in Institution of Higher Learning (IHLs). However, knowledge sharing initiative has not been established base on any guide or framework. Furthermore, factors influencing the initiative which leads to the establishment of knowledge repository ought to be revealed since there is no such research has been carried out. It is the objective of this paper to propose a conceptual framework for knowledge sharing initiative in Public Institution of Higher Learning (IHLs) in Malaysia which eventually establish a knowledge repository. Qualitative approach is adopted by means of reviewing the literature in the area. The technology, organization and environmental framework (TOE) was used as a basis to propose the conceptual framework. It is discovered that knowledge sharing framework ought to be tailored according to the jurisdiction of IHLs. Such a framework could serve as a guideline for future planning in setting up knowledge sharing initiatives, particularly among lecturers which later, leads to the establishment of knowledge repository, thence subsequently knowledge preservation.

Keywords: knowledge-sharing framework, knowledge-sharing initiative, knowledge repository, Institution of Higher Learning, knowledge preservation.

I INTRODUCTION
Knowledge sharing initiative can lead to the establishment of knowledge repository which in turn serve as strategic source of information. The initiatives are currently appear to be social phenomena and apparently an important process in any organization (Hooff, Schouten, & Simonovski, 2012). But knowledge sharing requires a prerequisite whereby organization needs to possess a culture that create, manage and share knowledge (Dukiü & Kozina, 2012) which eventually form a repository of knowledge. Since knowledge is presumed as asset, it has to be managed to enable organization to be competitive and resilient (Hanrui & Liulei, 2011). The implementation of knowledge sharing initiative in the context of Institution of Higher Learning (IHLs) in Malaysia, poses its own challenges (Sohail & Daud, 2009). Therefore, to eliminate problems and to maximised benefits, the initiative has to be well-planned and systematically implemented. This is to ensure optimum used of knowledge besides knowledge in possession is preserved in the form of repository (Ayalew, Bekele & Straub, 2010) for future sharing (Sulisworo, 2012). Other than that, the preserved knowledge can be exploited by IHLs in fulfilling industrial needs (Zwain, Lim & Othman, 2012). This paper seeks to investigate the factors that influence knowledge sharing initiative such as organizational (IHLs) factors, Information and Communication Technology (ICT) and individual (lecturers) in an effort to establish knowledge repository.

II PROBLEM STATEMENT
Knowledge sharing initiative in IHLs either globally or locally are under explored (Fullwood, Rowley & Delbridge, 2013; Rahab & Wahyuni, 2013; Zaqout & Abbas, 2012; Goh & Sandhu, 2013). Previous studies on factors influencing knowledge sharing in IHLs merely focused on the organization’s environment (Wahab, Shaari, Nordin & Rajab, 2009), practices (Ayalew et al., 2010), ethics (Patel & Ragsdell, 2011), learning environment (Agarwal, Kiran & Verma, 2012), the practice of the endeavour in community (Nistor, Baltes & Schustek, 2012), predicting intentions (Rahab & Wahyuni, 2013), behaviour (Fullwood et al., 2013) and educational cooperation (Li, Roberts, Yan & Tan, 2013). There is no specific study on factors influencing the initiative in IHLs which eventually resulted in the establishment of a repository. This study is in tandem with the suggestion by Ismail (2012) that study on factors influencing knowledge sharing should consider the individual, organizational and technological factors. In addition, studies done thus far on setting up of repositories in
IHLs only focus on the aspect of the need and the advantage of having repositories (Naiwen & Xin, 2012) and also the communication needs that interconnect the repositories. There is as yet no study on knowledge sharing initiative which eventually leads towards the establishment of repository.

III OBJECTIVE
The objective of this paper is to propose a conceptual framework for knowledge sharing initiative in Public Institutions of Higher Learning (IHLs) in Malaysia which eventually establish a knowledge repository.

IV DEFINITION OF CONCEPTS
A. Knowledge Sharing
Knowledge can be defined as an integration of experience, values, information and individual understanding (Rajalakshmi & Banu, 2012). Moreover, knowledge can be uttered, summarized, written down and gathered to form experiences and new knowledge (Nonaka, Krogh, Von & Voelpel, 2006). Knowledge can also be captured in various format such as documents, pictures, voice recordings and video (Du, Fu, Zhao & Liu, 2012). Knowledge sharing occurs through the process of exchanging experiences, skills, events and thinking that is agreed by both the sender and receiver (Wahab et al., 2009; Yassin, Sahari & Salim, 2011). Knowledge sharing in this study refers to sharing notes, tests, quiz and projects among lecturers in IHLs.

B. Knowledge Repository
The knowledge repository is a warehouse for storing knowledge that can be used as a strategic source (Naiwen & Xin, 2012; Sulisworo, 2012). Organizations, especially IHLs, should develop knowledge repositories to encourage knowledge sharing among its employees, particularly academic staff or lecturers who have limited or a variety of knowledge (al-Busaidi, Olman, Ryan, Leroy, 2010; Choubey, 2011). Knowledge repository will be able to gather knowledge from among lecturers (Beatrice Kirubakaran & Saravanan, 2010; Kankanhalli, Lee & Lim, 2011; Pidun & Felden, 2013) and the resource can be obtained and re-used for learning, teaching, research and publishing purposes (Choubey, 2011; Du et al., 2012). Concurrently, forming a repository needs management’s support, especially for coordinating and managing purposes.

V FACTORS INFLUENCING KNOWLEDGE SHARING
There are a number of factors influence knowledge sharing initiative. These are:

A. Information and Communication Technology (ICT)
ICT helps the knowledge sharing activities through the process of storing, circulating and adding value to knowledge (Dukiü & Kozina, 2012) either formally or informally (Ismail, 2010). Therefore, ICT encourages lecturers to share knowledge and subsequently support the process of knowledge sharing (Hu, 2010), which crosses the geographical, functional and sectional borders (Phang & Foong, 2010). The ICT factors that are being studied, are such as the Knowledge Management system (KMS), the infrastructure and ICT management. These are shown in Table 1.1.

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<tr>
<th>ICT Factor</th>
<th>Description</th>
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<td>Knowledge Management System (KMS)</td>
<td>An application that manages knowledge in organizations that are involved in creating, storing and disseminating of knowledge. KMS is developed with an aim to coordinate knowledge management activities. In an IHLs the KMS is beneficial in achieving performance (Zwaín et al., 2012) and creates knowledge (Rajalakshmi &amp; Banu, 2012).</td>
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<tr>
<td>ICT Management</td>
<td>A part of the organizational management aspect for achieving its mission and vision (Turban &amp; Potter, 2007). ICT management is important for coordinating, planning, maintaining and monitoring the ITC system and facility in an organization.</td>
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<tr>
<td>ICT Infrastructure</td>
<td>Preparing overall ICT facilities and service. Network, software, hardware and internet facilities are part of the ICT infrastructure that supports knowledge sharing activities (Zaqout &amp; Abbas, 2012).</td>
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B. Organization
The organizational factor is one factor that plays an important role in knowledge sharing initiative (Wahab et al., 2009; Nissen & Leweling, 2010) because it influences individual behaviour towards knowledge sharing activities (Xue, Bradley & Liang, 2011). Organizational factor also exploits and supports the source of knowledge for knowledge sharing process from expert employees to new employees (French, 2010). Hence, the organizational factor is assumed as an innovation in the knowledge sharing process (Yi, 2008). The organizational factor in this paper involves the planning, internal policy and promotion, as shown in Table 1.2.
Communication can create a social network in the workplace through oral interaction and non-verbal language. Individual communication can create a social network in the workplace and the form of communication is the basis for encouraging knowledge sharing practices (Smith & Rupp, 2002). The communication process involves two parties, namely the provider and receiver (Zookefik & Nor, 2008).

Motivation – Internal power in a person creates an attitude needed for personal achievement and professional aspirations (Usman & Musa, 2012). Motivation can create a positive internal element to share knowledge among employees in an organization (Hooff et al., 2012). Knowledge sharing needs a high motivational level (Fathi, Eze & Goh, 2011).

### Table 1.2 Organizational Factor

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<tr>
<td>Planning</td>
<td>A detailed process to achieve the organizational objectives and create a comprehensive strategy in order to coordinate and integrate organizational activities (Robbins &amp; Coulter, 2009). Planning enables to forecast assumptions and technology that renders organizations to be in a prepared position (Lee &amp; Roth, 2009) and anticipate knowledge sharing activities among lecturers (Sohail &amp; Daud, 2009).</td>
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<tr>
<td>Internal Policy</td>
<td>A fixed plan that is a guide to taking consistent action in order to achieve organizational objectives (Samuel &amp; Certo, 2006) and drafted in the interest of employees and accepted as a practice (Miah &amp; Gammack, 2009). This policy can safeguard employees and share knowledge on plagiarism, accreditation and fixed assets (Paul, 2012).</td>
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<td>Promotion</td>
<td>All efforts and activities towards encouraging or improving a product or service. The promotional aspect is important for an IHLs in playing an effective role in promoting knowledge sharing activities among lecturers with the aim of facing competition in the education industry (Agarwal et al., 2012).</td>
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### Table 1.3 Lecturer Factor

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<td>Organizational Culture</td>
<td>Organizational environment that portrays the behavioural patterns of an individual that can influence the sharing of ideas and knowledge (Ismail, 2012). Activities in the organizational culture of sharing knowledge include conferences, discussions, meetings, and questions and answers. Hence, the lecturing community should create an organizational culture to encourage knowledge sharing activities (Lee &amp; Roth, 2009).</td>
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<tr>
<td>Communication</td>
<td>Human interaction through oral interaction and non-verbal language. Individual communication can create a social network in the workplace and the form of communication is the basis for knowledge sharing (Sulisworo, 2002). Communication – Human interaction through oral interaction and non-verbal language. Individual communication can create a social network in the workplace and the form of communication is the basis for knowledge sharing (Sulisworo, 2002).</td>
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C. Lecturer

The lecturer factor is an important element because lecturers constitute a big portion of IHLs staff (Shukor, Nawi, Basuaruddin & Rahim, 2009). The standard of excellence of an IHLs is measured by the quality of its lecturers based on aspects such as learning and teaching, supervising or even research and development. Besides that, lecturers need knowledge as a source of reference in preparing themselves to become competent educators (Kiran, Agarwal & Verma, 2013) and subsequently to help achieve the aims and performance of the organization (Refaiy & Labib, 2009). Hence, the lecturers should have the responsibility to practice the knowledge sharing culture (Zawawi et al., 2011). The lecturer factor in this paper falls under the culture of the organization, communication and motivation, as shown in Table 1.3.

VI KNOWLEDGE SHARING IN INSTITUTION OF HIGHER LEARNING

IHLs are centres of knowledge that can excel through the existence of knowledge sharing initiative, especially among lecturers (Sulisworo, 2012) which take the form of discussions, conferences or publications (Cheng, Ho & Lau, 2008). However, the knowledge sharing initiative might not materialize if the culture of sharing is not instilled (Cheng et al., 2008). Hence, the management of IHLs need to plan the knowledge sharing initiative in order to encourage the practice. At the same time, the initiative has to be in parallel with the mission of the IHLs in ways such as increasing the performance, increasing competitiveness and improving educational services (Kumar & Raduan, 2012) and fulfilling the industry’s peripheral needs (Zwain et al., 2012). Besides that, the knowledge sharing initiative can also overcome the problem of lost knowledge due to retirement (Zawawi et al., 2011) and transfer (Cranfield & Taylor, 2008; Goh & Sandhu, 2013) of lecturers, besides supporting the formation of the repository. Earlier studies on knowledge sharing in IHLs had studied factors that influenced, impeded and contributed towards the knowledge sharing initiative. As mentioned in section II there are several studies on factors that influence knowledge sharing practice. The factors that have been studied are organizational culture, the role of leaders and utilization of ICT (Wahab et al., 2009) and attitude, trust and rewards (Ayalew et al., 2010). Whereas, the value of knowledge, knowledge ownership, abuse of knowledge, perception, ethics, commercial, social influence and the facilitating role was studied by Patel & Ragsdell (2011); profile, leadership, culture, structure, utilizing ICT, infrastructure and knowledge management system by Agarwal et al. (2012) and estimated effort and estimated performance by Nistor et al. (2012). Meanwhile, Rahab & Wahyuni (2013) had studied the psychological factors, organizational climate, combination and communication. Fullwood et al. (2013) went on to study rewards, autonomy, institutions, leadership and the technology platform,
while Li et al. (2013) had studied motivation, convenience in sharing and types of knowledge. Studies on factors that impeded knowledge sharing initiatives had focused on practices (Jain et al., 2007; Sohail & Daud, 2009). Factors that impeded the knowledge sharing initiative included trust, lack of time, experience, rewards, culture, activities, working environment, communication and application (Jain et al., 2007) besides types of knowledge, motivation, chances and culture (Sohail & Daud, 2009).

Meanwhile, Alwi, Bakar & Hamid (2008) had studied factors that contributed to the knowledge sharing initiative, such as knowledge sharing practices that include organizations, culture, technology and communications. Past research had also grouped these factors as the above into three categories, which are technology, organization and individual. The study that focused on individuals was carried out by Nistor et al. (2012) and Li et al. (2013); while organization and technology was studied by Wahab et al. (2009) and Alwi et al. (2008); individuals and organizations by Ayalew et al. (2010) and Patel & Ragsdell (2011). Studies that had focused on all three factors (individuals, organizations and technology) were carried out by Jain et al. (2007); Alhammad, Faori & Husan (2009); Agarwal et al. (2012); Rahab & Wahyuni (2013) and Fullwood et al. (2013).

However, there was no specific study focused towards one factor that had influenced the knowledge sharing initiative among lecturers in IHLs, which finally lead towards the formation of knowledge repository. Hence, studies on knowledge sharing need to be explored further because each initiative differs in its focus (Ismail, 2012). Forming the repository is important as a long-term strategic source (Naiwen & Xin, 2012) in tandem with the status of IHLs as a warehouse of knowledge (Cheng et al., 2008; Sohail & Daud, 2009).

VII THEORETICAL FRAMEWORK

The theoretical framework used to develop the conceptual framework in this study is the technology, organization and environment (TOE) framework which was introduced by Tornatzky and Fleischer in 1990 and adapted from the ‘Theory of Organizational Contingencies’. The TOE framework is suitable for use in research based on organizations (Arpaci, Yardimci & Ozkan, 2012) and performance indicators (Savita, Dominic & Ramayah, 2012). This framework has three contexts: technology, organizational and environmental, as shown in Figure 1.1 (Awa, Harcourt & Emecheta, 2012; Angeles, 2013). The technology context includes infrastructure, processes, technics and the latest ICT expertise (Tornatzky & Fleischer, 1990; Pan, 2005) that emphasises on making decisions related to ICT (Tung & Lai, 2013). While the organizational context includes size, scope, centralization, official function, management structure, quality of human resources, decision-making methods, communication, intentions, planning and structure (Tornatzky & Fleischer, 1990; Lippert & Ph, 2006) that leans towards organizational characteristics (Arpaci et al., 2012). In addition, the environmental context comprises firms, suppliers, employees, customers, competitors and government agencies (Tornatzky & Fleischer, 1990).

VIII KNOWLEDGE SHARING CONCEPTUAL FRAMEWORK

Analysis on past models and knowledge-sharing frameworks has found that the framework emphasises two factors. First, there is a need to develop repository, and second, the different factors that influence knowledge sharing initiatives. Both these factors are the basis for developing the conceptual framework in this paper according to the approach used by Ismail (2010); Yassin et al. (2011). The approach to the conceptual framework development is shown in Figure 1.2. The inputs that actually represent the factors that influence knowledge sharing are ICT, organization (IHLs) and lecturers. Meanwhile, the process represents the knowledge-sharing activities and the output represents repository formation.
by Liu (2008); Lee et al. (2009) had used the environmental context to portray individuals. In the context of this study, lecturers represent the individuals. The TOE framework is also used to study the information system and knowledge management. Management represents the knowledge sharing initiative. The conceptual framework development process is shown in Figure 1.3, while Figure 1.4 is the final form of the suggested knowledge sharing conceptual framework. The details factors are shown in Table 1.1 ICT, 1.2 Organization(IHLs) and 1.3 lecture as the above.

![Diagram of conceptual framework]

In the context of this study, the information system is in the form of the repository while knowledge...
IX CONCLUSION
The development of conceptual framework for knowledge sharing initiative in this study has emphasised on two components - the knowledge sharing influencing factors and the need to establish the repository. TOE framework was incorporated in the development of the conceptual framework due to its suitability to the factors being studied. The framework is developed since it is evident from the past research that there is no study that has been undertaken on knowledge sharing initiative which finally lead the establishment of knowledge repository.

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