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IF ONLY WE KNEW WHAT WE KNOW

ORGANISATIONAL KNOWLEDGE SHARING – CONCEPTS AND FRAMEWORKS

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Abstract

“If only we knew what we know” is a refrain that has echoed across centuries, cultures, organisations and day-to-day affairs. The root cause for this is the lack of a holistic and integrated view on knowledge sharing.

Globalisation and the increased speed of operations in the business world have led to dramatic changes in organisational life; the traditional way of working is no longer competitive. One of the critical factors determining the success of an enterprise nowadays is the ability to share knowledge, despite hierarchical structure, geographical barriers, and the age and experience of employees.

There has been abundant research into knowledge management and knowledge sharing. However, most of the literature devoted to knowledge sharing has approached the problem from a range of perspectives: strategic, managerial, behavioral, participatory, relational, process, contextual and/or technological. This research reviews knowledge-sharing problems and issues with the purpose of synthesizing a generic structure, gained through reviewing various frameworks, concepts and theories from different disciplines of study.

This paper aims to contribute to the knowledge-sharing research field by developing a framework which addresses the above-mentioned problems. In particular, we propose a holistic intra-organisational knowledge sharing framework that integrates strategy, process, structure, systems, people and environment into a cohesive whole. This framework is further enhanced into an inter-organisational one.

Keywords: Knowledge Management, Knowledge Sharing, Organisational Knowledge Sharing Frameworks.

1 INTRODUCTION

In the current competitive business environment, organisations need to be adaptive in the face of change and uncertain events. The way forward to adaptability involves communication and the sharing of knowledge. According to Davenport and Prusak (2000), in a rapidly globalised world, a firm can survive only through improved communication. Knowledge sharing helps organisations quickly respond to changing market conditions through collaboration between organisational units, their partners, suppliers, trading partners and outsiders in the organisational sphere (Warkentin, Bapna, & Sugumaran 2001). When an organisation has a ‘sense’ of what is going on in the network, with competitors or outside the organisational environment, they can sense future events and analyse them in the light of their enriched knowledge base.

1.1 Practical Problems

“If only we knew what we know” is the common refrain of many managers, exemplifying organisations where knowledge is not shared. The problem could be attributed to (a) creation of knowledge (b) its acquisition and codification (c) communication of knowledge (d) timeliness in the sharing of knowledge (e) usage of appropriate knowledge in an appropriate context or (f) lack of processes and (g) systems to support knowledge sharing. Dale (2007) identifies various sources that result in uncertainty for the organisation. Changes in the perspectives of customers, employees, investors, society, and partners have all resulted in a very uncertain environment. These uncertainties can only be overcome through appropriate sharing of knowledge. Knowledge Sharing seems to be a solution to uncertainty for the organisation. However, it is essential to understand that knowledge sharing by itself does not bring any value to an organisation. It has to be coordinated and managed

1.2 Research Problems

There is much ‘noise’ regarding knowledge sharing in the literature, in organisation management and practitioner use. Every possible aspect has been discussed. The literature is constantly being updated and revised with new thoughts, ideas and perspectives regarding knowledge sharing. But the conclusion that emerges is that organisations still do not collaborate well, and cannot share knowledge easily, despite widespread and intensive discussion in the various research and practice fields (Foss, Husted and Michailova 2002). The literature has emphasised the importance of knowledge sharing from strategic, managerial, relational, behavioural, individual, environmental, organisational, contextual, social, technological, and/or process perspectives. Most of the literature deals with knowledge sharing from very divergent and limited perspectives; consequently, there is no single framework which integrates all these knowledge-sharing perspectives in a coherent fashion. These research problems motivate our research objectives and they are discussed below.

1.3 Research Objectives and Artefacts

To investigate the knowledge-sharing process in an organisational environment, this study will conduct a comprehensive literature review that will examine the concepts of knowledge management and knowledge sharing, theories, models and techniques that exist in an organisational context. This paper first introduces and provides an understanding of knowledge and knowledge management in organisations (Section 2.1). It offers a discussion on the knowledge management processes and models that organisations follow when trying to participate in knowledge management (Section 2.2). Secondly, after identifying the knowledge use that exists in an organisation, we will explore the concept of knowledge sharing and its emergent theories and the aspect of context for knowledge sharing in an organisation (Section 3.1 and 3.2). Subsequently, after a review of literature on the theoretical aspect of knowledge sharing, we will propose a summary where we review the authors who have contributed to the knowledge-sharing field as well as those who were referred to in this study (Section 3.3). The resultant framework will then be developed as a presentation of a theoretical view of how knowledge is shared (Section 4). This new proposed framework exploits the strengths

and overcomes the weaknesses of current frameworks and theories by fulfilling the requirements identified in the literature review. Section 5 will conclude this paper with the discussion on the potential practical and theoretical contributions of this research.

2 ORGANISATIONAL KNOWLEDGE MANAGEMENT

Knowledge management has been defined as the process of capturing, storing, sharing, and using knowledge (Davenport & Prusak 1998). According to Kalling and Styhre (2003), knowledge management theory involves a specific perspective in an organisation, which is the control of intangible intellectual resources. This is the prime driver of organisational performance for competitive advantage. Knowledge is 'situational' (Kalling & Styhre 2003) as it has the ability to generate possible return and competitive advantage for an organisation, unlike material assets which decrease in value through usage or depreciation

2.1 Perspectives on Knowledge Management

Alavi and Leidner (1999) distinguish three perspectives on organisational knowledge management - information, technological, and cultural based. These perspectives are:

Information - based perspective – this represents an aspect of information availability in real time. The main issue that can be identified with the information-based view is that information can be irrelevant or it can be excessive, leading to unproductive use of the information and wasted search time. Technology-based perspective - knowledge management nowadays is primarily associated with various technological information systems. These information intelligence systems are those that can actually be associated with knowledge creation and sharing within the enterprise and / or an organisational network. Culture-based perspective - this is associated with learning and communication. It derives from the perception of the organisational environment and the combination of individuals (workers) collaborating in this environment. According to Alavi and Leidner (1999) the culture-based viewpoint carries the greatest weight for managers, the organisational environment affecting knowledge creation and sharing.

Benbya et al. (2004) express a similar view on knowledge management. The main idea postulated by the authors is based on the assumption that if these three factors of context intersect, the organisation will reach a level of successful performance and optimal implementation of a 'corporate portal'. This latter is "a tool for knowledge management synchronisation" (Benbya et al. 2004, p. 201), or an instrument which supports knowledge processes. The three categories of factors can also be seen as essential contributors which, if not practised appropriately, may lead to the disruptive adoption of a corporate portal. These three factors of context are:

Managerial Context is a cost-effective perspective with the use of technological advantages to allow programmed tools to develop, find and organise required information, as an alternative to using a salaried employee. Managerial context also includes 'soft' aspects like communication and training, by effectively providing computer literacy to knowledge workers in the organisational environment. Technical Context includes design, usability and effectiveness of technology. The main purpose of technical context in knowledge management is to provide usability and access for already developed knowledge; it acts as a reservoir of knowledge relevant to an organisation. Social Context denotes a social environment or 'soft' phenomenon in knowledge management where people operate. A positive organisational culture will empower employees to interact more often; workers will be more willing to share their knowledge and experience (Cross et al. 2001). The issue with which knowledge management is concerned in this social context is how to motivate individuals to participate in knowledge-sharing processes as well as exchanges of experience.

2.2 Knowledge Management Processes

Handzic (2004) provides a framework describing a knowledge management process and the flow of knowledge in an organisation. His model emphasises important factors like human existence and perspective of knowledge in an organisational context, based on the work of Polanyi (1966), where an

explicit and a tacit dimension are used. Furthermore, Handzic's model recognises two views of knowledge management: 'soft' and 'hard', as social and technological phenomena. In Handzic's opinion, organisational environment encompasses technological infrastructure in an organisation which affects the knowledge process. It is the power to make choices about the implementation of technology, selecting those which best support the knowledge; in our understanding, knowledge workers have an effect on technological infrastructure and its implementation.

Grover and Davenport's (2001) theory on knowledge process and its function in knowledge management says that the knowledge process can be generated by three sub-processes: knowledge generation, knowledge codification, and knowledge-transfer realisation. Knowledge generation is a process of knowledge development. Knowledge codification is a conversion of tacit knowledge into explicit knowledge by making it more accessible and applicable, and knowledge transfer includes movement from the point of generation to use. The main issue in the knowledge process is that it is a discontinuous process - these cycles of generation, codification and transfer are always present in the life of an organisation and they are mutually exclusive.

Another knowledge-process dimension has been provided by Tiwana (2000). He proposed three processes of knowledge: knowledge acquisition, knowledge sharing and knowledge utilisation. Knowledge acquisition is a procedure of expansion and the formation of insights, skills and relationships (Tiwana 2000). Knowledge acquisition is a pre-cursor to knowledge sharing and can be defined as the process of extracting, structuring and organising knowledge from one source to another. Knowledge sharing is a process of communication of knowledge with at least two parties participating, the sender and the receiver (Hendriks 1999). The sharing of knowledge absorbs interpretation from one representation to another (Neches et al. 1991). Knowledge utilisation concerns the learning process inside the organisation. Utilisation as a process can be available throughout the company and can be generalised and applied to new situations as they arise.

The two views provided by Tiwana (2000) and Grover and Davenport (2001) complement each other, both being based on a clear explanation of what knowledge process is and what elements must exist for it in an organisation. In order to understand what the knowledge process is, we construct a model which integrates the two theories in Figure 1.

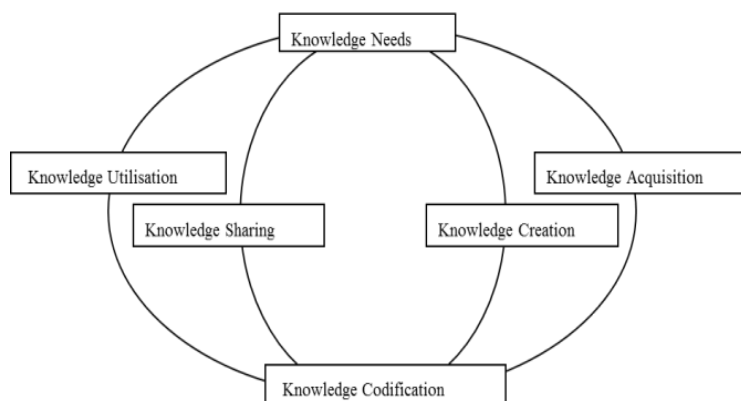


Figure 1. Knowledge-Management Process (synthesised from Grover & Davenport (2001) and Tiwana (2000))

The cyclic process starts from the point when an organisation perceives a desired need for knowledge (to, for example, solve a problem). Knowledge creation might include two knowledge activities: to discover existing knowledge already available in the enterprise, or to generate new knowledge. Knowledge creation includes the knowledge codification activity, where the tacit can be codified to become explicit and made ready for sharing and utilisation. Sharing and utilisation means making knowledge available to the participants, or interested parties. Knowledge utilisation

can happen at the same time as knowledge sharing; after knowledge becomes available for use, it can generate a learning process inside the organisation.

3 ORGANISATIONAL KNOWLEDGE SHARING

Foss et al. (2009) state that 'knowledge sharing' as an observable fact has to be governed so that organisations can realize their desired needs. This can be achieved by the "choice, combination, and deployment of formal and informal organizational mechanisms" (p.5). The concept of knowledge sharing is that knowledge, no matter how intangible or indistinct, is capable of being disseminated, transferred, diffused, shared, and distributed within and between organisations, communities of practices and departments.

3.1 Knowledge Sharing Techniques

In general, knowledge sharing occurs through communication and specifically through writing. Practice of Communication (uncodified knowledge) is a type of knowledge-sharing technique used in situations where knowledge cannot bring any benefit from being transferred via codification. Practice of communication refers mainly to the sharing of tacit knowledge. Practice of Writing (codified knowledge) presents a type of accumulated information embodied in the knowledge. Documents, dictionaries, books and manuals are knowledge-sharing instruments. Knowledge itself is not a physical object and cannot be passed around easily; it is tied to a knowledge object (Neches et al. 1991). The concept of 'knowledge object' can represent an individual, context or tangible entity.

Knowledge sharing is related to communication, which today being interpreted in different ways. The original understanding of communication is a physical interchange of information, by conversation, writing and reading. In our current environment, organisations and individuals have developed new ways to share knowledge, such as visualisation, online collaboration, online social networks and etc.

According to Kalling and Styhre (2003) the knowledge-sharing process can take place in organisations in four possible ways: interaction, collaboration, training and distribution of texts. The ways to share knowledge such as collaboration, training and interaction can be summarised under the category of face-to-face communication or, in some cases, presented as part of online communication (e.g. webinars, internal online communication networks, online social networks). Walsham (2001) considers the most powerful communication tool, even in a computer-oriented society. Davenport and Prusak (1998), in their studies of managers, indicated that managers receive two-thirds of their information from face-to-face meetings, only one-third coming from documents and codified knowledge (p.12). Face-to-face conversations have the major advantage of contextual understanding being aided by facial expression and other non-verbal cues. On the other hand, the negative side of such meetings concerns cost and time, especially now in a globalised community, when face-to-face meetings are not always affordable. The size of organisations and physical distance make the exchange of knowledge difficult, which is why the introduction of information systems for knowledge sharing is an essential aspect.

Walsham (2001) focuses on 'communities of practice' as an approach for knowledge sharing. He views the knowledge-sharing process from the perspective of 'communities of practice' (individuals working together). Walsham (2001) attributes to the community of practice the development of a shared understanding of what knowledge represents in their view, how this knowledge can be used and how it can be related to the solution of the problem. Walsham's view would have been criticised by Polanyi (1958), who states that there is no such a thing as shared norms and values. So communities are composed of individuals, each of whom has their own tacit knowledge: we cannot develop a shared understanding or common world view. Orlikowski (2002) on the other hand, proposed that knowledge is conceived of as a social practice, arrangement or, in formulation, becoming an 'ongoing accomplishment'. Here, knowledge is what is produced through interactions of communities of practice and work teams, in communication and discussion, at social events such as seminars and courses. In this perspective, knowledge is the outcome of communicative practices rather than something based on codification and de-codification (Kalling & Styhre 2003). Nonaka and Konno (1998) emphasise that knowledge, however, resides with an individual, and more specifically, individuals are the ones who can create, transfer and apply knowledge in an organisation (Bock, Zmud et al. 2005). From this viewpoint, we can conclude that the sharing of knowledge within and

outside of organisational walls can be performed only by an individual and is likely to be influenced by the motivational factor.

Knowledge is transferred and exchanged between organisations. One of the main concerns about knowledge-sharing activities among organisations is the value of strategic assets (Nonaka 2005), the loss of competitive information and the lack of essential information. Dyer and Nobeoka (2000) mentioned that knowledge that is valuable for one organisation will be private and not shared across organisational boundaries, despite the fact that organisations collaborate and participate in knowledge-sharing. Thus, a key challenge for knowledge-sharing activities among and within organisations is the motivation of members to participate and contribute to the knowledge-sharing process. Senge et al. (1999) stated that organisations are not willing to share information outside and inside the enterprise walls because they are not willing to learn and collaborate with their own members, creating difficulty in shared learning.

3.2 Organisational Context for Knowledge Sharing

From the above discussion and reviewed literature, the conclusion is that organisational context plays an essential role in the knowledge-sharing process as well as for knowledge management. Under the term of organisational context, we will discuss two primary research views: organisational culture (or in another words organisational environment), and organisational structure.

Kalling and Styhre (2003) defined organisational context only in terms of the parameters of cultural distances between sharing parties (difference in views and cultural backgrounds of the associated parties engaging in knowledge sharing) and organisational distances (difference in management and organisational practices). Bock, Zmud et al. (2005) distinguish these two views of the research as organisational structure and organisational culture (climate). In their view, the institutional structure refers mainly to organisational culture or climate, which contradicts Kalling's (2003) view. However, the literature on the two aspects of organisational subdivision addresses a common phenomenon of organisational context. According to Bock, Zmud et al. (2005), climate mainly refers to the environment within an organisation, such as the behaviour of employees, their feelings, relationships and the overall climate within organisational walls. Many researchers also mentioned that social capital plays a vital role in the knowledge-sharing process. Kalling and Styhre (2003) mentioned that communication and writing in the knowledge-sharing process is always embedded in the social context, in which knowledge is codified, used and employed.

To facilitate a knowledge-sharing process and benefit from the information flow inside and outside the organisation, the workforce has to exist in an open-minded structure. There are different types of organisational structure exist in a business environment, for example: hierarchical, horizontal, networked, hybrid, project, and many others. But the most researched and studied organisational structures in the aspect of knowledge sharing are: hierarchical (or vertical, which is the traditional style), and the current business environment, which is horizontal (flat organisational structure). It is difficult for a hierarchical structure to engender an open-minded environment. Ozman (2009) comments that in a hierarchical structure, members usually create their own tasks and are subject to strong managerial control over their actions. Otto (2008) agrees, concluding that vertical organisations do not have much collaboration inside or outside the enterprise, which leads to potential benefits and opportunities from knowledge-sharing activities being missed. In a top-down structure the sharing process is much harder to perform compared to horizontal communication, where employees engage in open communication and enjoy greater autonomy. It has been proven that hierarchical organisations have more regulations, which can be an obstacle to an efficient knowledge-sharing process. Hatala (2009) also emphasises that the existence of numerous regulations in a hierarchical structure restricts access to information, which might lead to a delay in decision-making and a loss of possible communication between knowledge networks.

From the above discussion, we can conclude that organisational context plays an important role in knowledge-sharing. Within the term of organisational context, we distinguish two essential research streams, organisational culture (environment) and organisational structure. By developing a positive environment for employees, the organisation might motivate knowledge workers to participate in

knowledge-sharing activities. An organisation that encourages its employees to participate in knowledge sharing by not putting restrictions and regulations in place will gain a competitive advantage in market performance. Thus, it is important to note that an organisation needs to have a trusting relationship between co-workers, and a goal-orientated environment. More importantly, organisations need to understand the psychological behaviour of a knowledge worker and build a motivational environment for them to increase their participation in knowledge-sharing activities.

Motivation is a critical concern in knowledge sharing. The first question is whether knowledge workers are motivated to share their knowledge with others (Hendriks 1999). Many researchers are seeking to uncover the grounds behind the motivational factors of employees engaging in the knowledge-sharing process. Dyer and Nobeoka (2000) also emphasised their importance to the knowledge worker and the motivational factors which might impel an individual to participate in knowledge-sharing activities.

Chow and Chan (2008) apply a theory of reasoned action (TRA) to understand the idea behind the motivation of employees to share their knowledge. They identified that success in encouraging employees to participate in its process depends on a combination of extrinsic rewards, sense of self-worth, organisational climate and leadership politics. Bock, Zmud et al. (2005) denoted the motivation factor as being 'the willingness of individuals' to participate in knowledge-sharing activities. The issue here is that when knowledge is codified, its interpretations will still reside with the knowledge worker and cannot be used by anyone else who lacks that particular knowledge. In this way, knowledge sharing as a process cannot be forced, but can only be motivated or encouraged with management assistance.

Walsham (2001) has noted the aspects of 'power' and 'knowledge' in an organisation. But to be powerful does not necessarily mean having a sufficient amount of applicable knowledge. That is why some employees may be fearful of sharing their knowledge due to information sensitivity and the danger of being seen as politically incorrect because of current organisational policies (thinking). However, one of the main aims of organisational knowledge sharing is to perceive and be aware of different views from inside and outside of their networks, which is more valuable in an organisation than homogeneity of views, which exists because of power disturbance in an organisation.

The cognitive factor can be explained by having a receiver to transfer or distribute knowledge within context, as a dependent variable. Szulanski (1969) found two important factors of knowledge sharing: absorptive capacity and casual ambiguity (Kalling and Styhre 2003, p.159). These two factors can be explained by the source of knowledge from the quality perspective and the context of shared knowledge. The cognitive element is essential as it is representative of the knowledge worker's mind, where the individual viewpoints, beliefs and paradigms reflect the transfer of knowledge from tacit to explicit (Alavi & Leidner 2001; Nonaka 1994).

Strategy at the organisational level is one of the paradigms of the knowledge management process, where a firm needs to identify its need to share knowledge, its resources, capabilities and future opportunities. Knowledge sharing as an action takes place somewhere between 'shop-floor level: practices' and 'firm level: strategy'. Thus, the framework recognises that knowledge sharing is a matter of everyday practice in an organisation. It also shows that knowledge sharing is affected by a number of social, cognitive, cultural, organisational, and individual factors that need to be taken into consideration for perceiving a benefit from knowledge sharing. However, this framework presents only one side of knowledge sharing and lacks two essential components: first, with regard to the knowledge worker, it does mention the cognitive factor which exists in the individual mind, and the organisational context shared by individuals, but it does not place the knowledge worker as one of the essential components of the framework. The second vital aspect in our current competitive environment is the existence of the technological context. Kalling and Styhre (2003) make no mention in their framework of the role of technology.

Above discussion raises many questions such as: Why do we need knowledge sharing in an organisation? What are the benefits of the knowledge-sharing process? How can knowledge sharing be conducted smoothly inside and outside the enterprise? Table 1 summarises reasons for and

impediments to the sharing of knowledge. It represents the organisational perceived benefits from knowledge-sharing activities and the possible drawbacks which can also occur.

Perceived benefits	Possible barriers
High level of trust	Fear and suspicion
Reward for Sharing	Unintentionally rewarded for hoarding knowledge
Team-based collaborative work	The effect of Free rider
Aligned mission, vision, values, and strategy	Individual effort without recognition and reward
Joint team-wide accountability	Individual accountability and reward
Group accountability and rewards	Functional focus
Process focus	Employee-owner conflicts of interest
Focus on Customer satisfaction	Lack of organisational alignment
Being open to outside ideas	'Not invented here' syndrome
Eye on competition	Being too busy to share
Collaborative and cross-functional work	Internal competition
Need to share	Incompatible IT
Localised decision-making	Compartmentalisation of functional groups
	Centralised top-down decision-making

Table 1. Perceived Benefits and Barriers for Knowledge Sharing (adapted from Tiwana 2000)

Adapted from Tiwana (2000) and extended by the literature review, this table demonstrates that knowledge sharing might play an inadequate role in an organisation; it can disturb the organisational environment, affect knowledge management practice and does not always follow the rule of organisational ethics. Knowledge sharing has its downsides, which can harm the process of knowledge management and in consequence also affect the overall performance of the firm, despite its reputation of providing a competitive advantage. Cabrera and Cabrera (2002) mentioned in their research study that knowledge sharing might have a significant cost, offsetting its benefits for the individual and the organisation.

3.3 Summary

Knowledge sharing as a phenomenon is itself constrained by a narrow monochromatic view on what is meant by the term. As we see from the re-presented theories and views on knowledge sharing, each theory, framework or concept lacks some essential element. Most of the research concepts that we have discussed and illustrated do not consider factors such as context, socio-economic environmental factors, social capital, organisational capital, the technology aspect, and the individual as presenter of knowledge, in an all-encompassing overview. Nor does the literature deal with how these situational factors impact on knowledge sharing, knowledge-sharing strategy, processes, structures and systems.

In this literature review, the concepts of knowledge, knowledge management and the knowledge-sharing process have been discussed, focusing on the organisational perspective. Due to the vast scope of the topic, it is unrealistic to discuss all its theories, concepts and frameworks; we have concentrated on those which are applicable to the essence of our research, covering only the most significant and prominent. The purpose of the conducted review was to understand and identify perspectives which affect knowledge sharing. Without it, any attempt to build a framework combining the knowledge-sharing perspectives in a coherent fashion would be meaningless.

Our literature review, with its focus on knowledge sharing, attempts to cover the authors who have contributed to the knowledge-sharing field as well as those who were referred to in this study. We have identified that not one of the studies was able to embrace all the major organisational perspectives. This strengthens our claim that there is no framework which integrates emergent perspectives, namely knowledge, knowledge-sharing structure, knowledge-sharing process, the knowledge worker, knowledge-sharing systems, context, organisational structure and environment.

The three elements which are less likely to be discussed in the knowledge-sharing field are organisational structure, socio-economic environment and knowledge-sharing process. The

unpopularity of subjects of socio-economic environment and organisational structure for research in the knowledge-sharing field can be explained by the concept of 'context'; this is a generally defined concept, with no unique definition, and a meaning which can vary depending on content. Context, especially in current literature, has been accorded increasing weight in the knowledge-sharing discussion. Some authors have been intensely interested in the aspect of context, whether organisational, technological or socio-economic. Many authors omitted to define the context, leaving the role played by context ambiguous and irrelevant in the considerations of an organisation seeking to promote knowledge-sharing practice. As for the organisational structure, researchers mainly ignored these perspectives or tried to combine them within the concept of organisational environment. What was most unexpected was the absence of references to the knowledge-sharing process in the literature; mentions of the knowledge sharing process were common, but there was no detailed examination or in-depth research, nor did authors identify the components of the process.

Another important factor which has to be kept in mind is the interpretation of tacit knowledge by an individual's cognitive faculties; this factor has not been discussed widely mainly because there is insufficient research in this area. How an individual mind interprets received knowledge can only be assumed. Yet these factors of interpretation are essential for understanding the knowledge-sharing process.

A surprising finding in the various literatures is the ranking of technology behind human beings in the knowledge-sharing process. Even in the latest literature, not one author concluded that technology perspectives have a greater effect on knowledge sharing than other emergent factors; technology was assigned only a subordinate position. Despite the proliferation of 'virtual' alternatives, face-to-face meetings remains the most powerful venue for knowledge sharing, regardless of the various costs incurred (Lesser & Storck 2001). Another key finding from the literature review pertaining to the individual in knowledge sharing is the importance of motivational factors which persuade individuals to participate and absorb knowledge. An understanding of the role of the individual, which generated copious discussion in the knowledge-sharing literature, is considered essential to an understanding of the topic (Blackler 1995; Davenport et al. 2002), and the issue of how to better share knowledge between knowledge workers is a fundamental concern in knowledge management.

Overall, the tendency which has been recognised is that some of the authors whose work we reviewed have focused on the knowledge-sharing process inside knowledge-management practice; we can regard them as 'soft' representatives of knowledge management. Some have been highly technical, emphasising importance on knowledge-sharing systems, and believe that knowledge management is becoming a fully technological managerial practice, thus type can be categorised as the authors with 'hard' perspectives on knowledge management.

Due to the overwhelming volume of research, authors do not always identify those essential perspectives which affect knowledge sharing. Also, knowledge sharing as a phenomenon cannot be generalised for every organisation, and to achieve better knowledge sharing within an organisation, as well as outside its sphere, managers, employees and business partners need to collaborate and communicate.

To conclude, this review enabled us to identify a set of issues and requirements that currently exist in the knowledge-sharing literature. In two words, we identified knowledge sharing as being a 'cyclical process', where each component identified in the literature connects with another. As illustrated in Figure 2, the key conclusion of the literature review is that research on knowledge sharing is fragmented and does not provide a holistic picture of the various elements that enable organisations to share knowledge. It is this lacuna that motivates us to propose an integrated knowledge sharing framework in the following section.

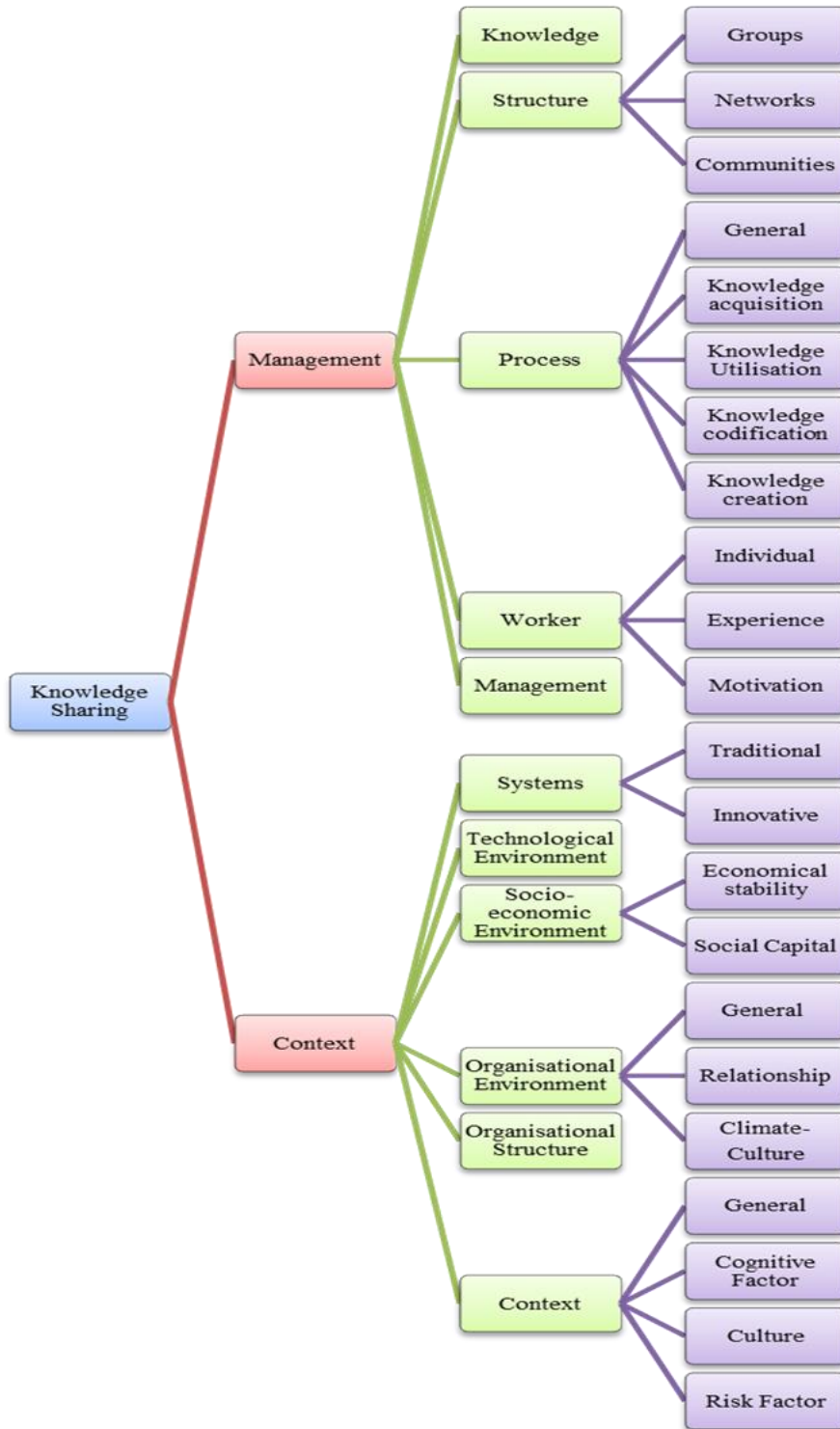


Figure 2. Fragmented Knowledge Sharing Literature

4 PROPOSED ORGANISATIONAL KNOWLEDGE SHARING FRAMEWORK

The aim of this paper is to design a framework that could contain factors identified as affecting the knowledge-sharing process both within an organisation and outside its sphere, overriding the

limitations of the existing frameworks in the knowledge-sharing field. The proposed framework is illustrated in Figure 3.

The framework is guided by the literature review and influenced by Scott-Morton's (1991) MIT90s framework. The idea of the framework is to present the organisation in relation to the inter-related components, which can be both internal and external. The organisation is influenced by its external environment which can be technological and socio-economic; the internal environment is presented by the organisational structure and organisational environment. These internal and external factors are influenced by the context.

This framework can be adopted by any organisation where knowledge sharing can take place, as it includes essential perspectives which can influence knowledge sharing. The five internal components which are presented as knowledge management components are knowledge-sharing strategy / process, knowledge-sharing structure, individuals, technology and knowledge. These factors have been compared and re-evaluated in order to investigate the process of knowledge-sharing.

The first factor which affects knowledge sharing is knowledge itself, Knowledge (A), which can be codified or un-codified, explicit or tacit. As has been discussed before, knowledge is shared through communication, which includes writing (distribution of texts). Structure in knowledge sharing is presented as Knowledge-Sharing Structure (B), where we identify the knowledge taxonomies and knowledge as 'corporate assets' in an organisation. In knowledge sharing, we emphasise the importance of knowledge that is tacit, explicit and individual.

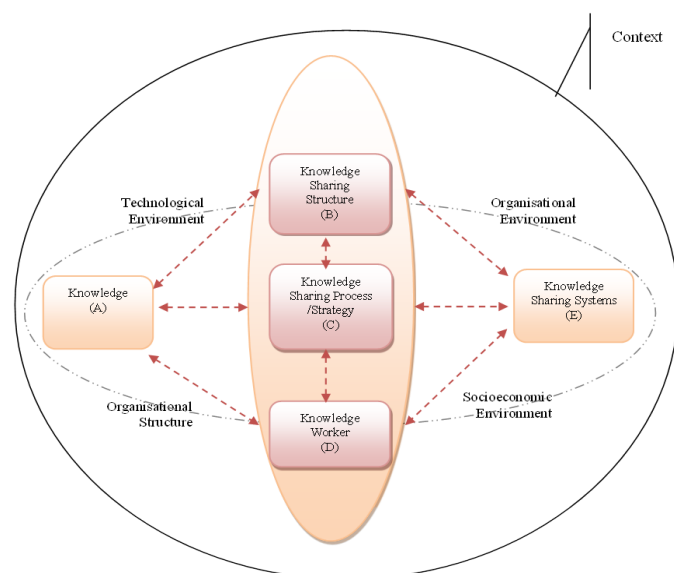


Figure 3. Proposed Intra-Organisational Knowledge Sharing Framework

Process in organisation is represented as Knowledge Sharing Process / Strategy (C), where knowledge derives from information and data. Strategy comes from the organisational initiative to share knowledge. Also here, in knowledge-sharing process and strategy, tacit knowledge can become explicit, and be reorganised as codified knowledge. The process of tacit to explicit and explicit to tacit has been described by Nonaka & Takeuchi (1995) as the process of knowledge conversion. Individual and roles: presented by the discussion of Knowledge Worker (D), who participate in communities of practice and share knowledge within and outside network connections. The technology component is presented in Knowledge-Sharing

Systems (E) as a representative of knowledge management systems. However, some authors may be concerned with the existence of information systems from the perspective of knowledge management, but, due to its importance in knowledge sharing, we decided to include it within knowledge-management practice, since it performs functions like the storage, creation and application of knowledge.

We also have a context, which has been defined by Thompson and Walsham (2004), who highlight that the knowledge-sharing process is influenced by unique contextual components that can exist in an organisation or an individual mind. All these five elements present the knowledge-management theory and also managed in an organisation.

This framework provides a definition of four different environmental factors which might affect the knowledge-sharing process: first, the organisational structure, where the more open its structure the

more easily the process of knowledge sharing can occur (Bock, Zmud, Kim et al. 2005); next, the socio-economic environment, the economic-financial situation at the current stage of the knowledge process and the level of social capital within and outside an organisation. Organisational and technological environment relate to internal elements: factors such as management style, the technology literacy of knowledge workers and motivational factors for them to participate in knowledge-sharing activities (Handzic 2004). Also we have to understand that those environments where knowledge is shared among participants must be examined with a consideration of possible risks. The risk factor inherent in sharing knowledge has been identified as one of the essential components of reluctance to knowledge-sharing. We present it outside the knowledge-management circle, existing somewhere as a context, intangible and unidentifiable. It can exist in a person's mind or in an organisation as a barrier to sharing knowledge (Hansen 2002).

The double arrows that connect the five variables show their interdependency. Each component of knowledge sharing is linked between variables, indicating a cyclical process inside the knowledge-management practice. The connection between the five variables also shows that knowledge management is affected by different environmental factors, organisational structure as well as contextual factors. Therefore, we propose that each perspective is affected by the external components. Only knowledge and knowledge-sharing systems lack a direct connection, which implies that knowledge must go through the process, structure or individual, before it can be codified in knowledge-sharing systems. From another perspective, the type of knowledge can determine what type of knowledge-sharing systems to use and which perspectives need to be regulated in order to handle the knowledge-sharing process efficiently.

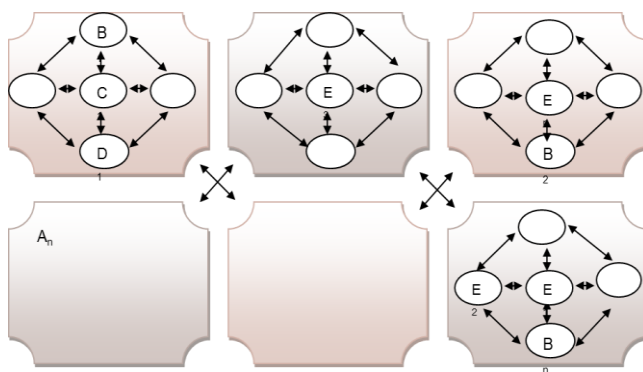


Figure 4. Proposed Inter-Organisational Knowledge Sharing Framework

also indicates the importance of inter-relationships between the five organisational variables. This framework forces an organisation to consider the contextual and environmental factors that have a vital impact on knowledge-sharing components. It provides a new definition of knowledge sharing, where the five identified variables need to be coordinated in a best effort to facilitate knowledge sharing inside and outside the organisational sphere.

5 CONCLUSION

Earlier reports and studies have been analysed and discussed in this paper in order to synthesise a framework that can assist organisations in their knowledge-sharing efforts. Each of the components in our framework is found it upon seminal works in knowledge-sharing and management. Unlike earlier frameworks, our proposed framework implicitly represents knowledge sharing as a phenomenon in an organisation.

During the research, it was discovered that most researchers dealt with the aspect of knowledge sharing according to their field of interest. This has resulted in a shallow understanding and fragmented perspectives on knowledge sharing. Furthermore, this has led to a poor understanding of knowledge-sharing components and their effect on each other.

The proposed framework groups knowledge-sharing perspectives in a coherent fashion, explicitly considers knowledge-sharing processes, strategy, structures, and workers, and provides a more detailed understanding of the internal and external elements which affect knowledge-sharing practice inside and outside organisations. We have also introduced a technological component into the framework, which we believe is fundamental to knowledge management and sharing.

This study was able to provide insights into the nature of knowledge-sharing components and their importance to the process. We raised the issue of context and socio-economic environment as well as motivation for the individuals who are the primary driver for knowledge sharing. Growing globalisation and rapidly changing environments, where multinational firms rely on knowledge workers with different cultural backgrounds, led us to consider how the individual context affects knowledge sharing and what could influence motivational factors for participation in it.

An important aspect to note is that we found much of the literature and research emphasising the importance of environmental influence in knowledge sharing to be one of the most uncontrolled issues for an organisation.

The key problem was that while organisations understood the importance of knowledge-sharing, most did not practise it. When we analysed the literature surrounding knowledge sharing in an effort to solve the practical problems, we realised that the literature was fragmented, unintegrated and lacking in key areas of knowledge sharing. This motivated us to propose a holistic framework for knowledge sharing that integrated knowledge management, knowledge-sharing systems, knowledge-sharing structure, knowledge-sharing process / strategy, knowledge workers, context, organisational structure, and environment in a seamless and cohesive fashion.

The main contribution of this paper is a detailed analysis of the literature on knowledge sharing, which motivated the construction of the framework. The analysis is a very useful guide to identifying problems in knowledge-sharing research. The framework is prescriptive and of relevance for an organisation. If the framework is used in an appropriate manner it could assist an organisation to enhance its use of shared knowledge, improving practice by identifying the elements which affect their knowledge-sharing process. The future study will provide an evidence of the proposed framework's adaptability in an organisational context.

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