A Model of Antecedents of Knowledge Sharing

Radwan Alyan Kharabsheh
Department of Business Administration, Hashemite University, Al Zarqa, Jordan
rkharabsheh@csu.edu.au

Abstract: In the new era of the knowledge economy, knowledge-based work has replaced regular, sequential work with its characteristics of flexibility, complexity, and high uncertainty (Shieh-Chieh *et. al.*, 2005). It is well recognised today that knowledge is one of the most competitive resources for the dynamic global business environment (Sharif *et. al*., 2005). Within this context, an organisation's ability to effectively implement knowledge-based activities becomes increasingly vital for the development and sustenance of competitive advantage (De Carolis, 2003; Grant, 1996). Fundamentally, knowledge-based activities include the creation and integration of knowledge, the accumulation and utilisation of knowledge, and the learning and sharing of knowledge and together, these comprise knowledge management (Shieh-Chieh *et. al.*, 2005). Among these, knowledge sharing, or flow, is the cornerstone of knowledge management (Szulanski, 1996; Gupta and Govindarajan, 2000).

Egan (2003) argued that the effective flow of knowledge is only sustainable through people. Geraint (1998) contended that too much faith has been invested in technology at the expense of people issues. Despite the fact that factors affecting the behaviour of knowledge sharing have been quite heavily investigated (Wasko and Faraj, 2000; Ardichvili *et. al.*, 2003), most studies have focused either on social or technological dimensions. Few studies integrating the both dimensions have been conducted (Fu and Lee, 2005).

This paper looks at how organisations can become more sophisticated at supporting knowledge sharing, by identifying antecedents of knowledge sharing. The basic premise of this paper is that effective knowledge sharing has three interrelated links. The first link relates to knowledge values held by organisational members, i.e. learning orientation which describes three organisational values routinely associated with the predisposition of the firm to learn: commitment to learning, open-mindedness, and shared vision. The second link relates to market orientation which typically focuses on three components: customer focus, competitor focus and inter-functional coordination. The final link relates to the organisations' absorptive capacity which is defined as 'the ability to recognise the value of new external information, assimilate it, and apply it to commercial ends'. The paper also argues that the successful sharing of knowledge requires enablers in the form of information technology infrastructure, a reward system that reinforces and encourages knowledge sharing activities and a positive social interaction that creates trust among organisational members. The paper represents work in progress. The final version of the proposed model will be tested in technology parks in Australia and Malaysia.

Keywords: Knowledge sharing, learning orientation, market orientation, networks, reward, technology

1. Introduction

In the new era of the knowledge economy, knowledge-based work has replaced regular, sequential work with its characteristics of flexibility, complexity, and high uncertainty (Shieh-Cheih, Fu-Sheng, and Kuo-Chien, 2005). Within this context, organisation's ability to effectively implement knowledge-based activities becomes increasingly vital for the development and sustenance of competitive advantage (De Carolis, 2003; Grant, 1996). Fundamentally, knowledge-based activities include the creation and integration of knowledge, the accumulation and utilisation of knowledge, and the learning and sharing of knowledge and together, these comprise knowledge management (Shieh-Chieh *et. al.*, 2005). Among these, knowledge sharing, or flow, is the cornerstone of knowledge management (Szulanski, 1996; Gupta and Govindarajan, 2000).

Researchers have argued that individuals, namely knowledge workers, are the prime source of knowledge (Jarvenpaa and Staples, 2001), and are important for the creation, capture and sharing of knowledge within organisations (Nonaka, 1994). Through their experience in the organisation's key processes they create, find, and accumulate knowledge. Researchers argue that knowledge sharing of individually held knowledge can assist in knowledge creation at the collective level, i.e. the organisational level. For example, Senge (1990) proposed that organisational knowledge is created through communication of individual learning among co-workers. Nahapiet and Goshal (1998) postulated that organisational knowledge is created as a result of the combination and exchange of existing knowledge among employees. Egan (2003) argued that the effective flow of knowledge is only sustainable through people. Geraint (1998) contended that too much faith has been invested in technology at the expense of people issues. While Carter and Scarborough (2001) argued that many knowledge management initiatives fail largely because they ignored the people issues associated with sharing knowledge. Greengard (1998) indicated that all the technology and tools in the world won't make a knowledge-based organisation. Roberts (2000) went further by assigning an 80% people, 20% technology ratio in discussing knowledge management. Furthermore, companies that understand the need to harness knowledge are aware about the pivotal issue of creating a work environment that fosters

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knowledge sharing mechanisms and learning capabilities within and across organisations. It is well recognised that knowledge-sharing mechanisms are highly complex processes to promote in the organisation (Allix, 2003). Indeed knowledge-sharing hostility is perceived rather as a phenomenon that widely dominates organisational reality (Husted and Michailova, 2002; Gupta and Michailova, 2004). In addition, despite the fact that factors affecting the behaviour of knowledge sharing have been quite heavily investigated (Wasko and Faraj, 2000; Ardichvili *et. al.*, 2003), most studies have focused either on social or technological dimensions. Few studies integrating the both dimensions have been conducted (Fu and Lee, 2005).

The view that people are indeed pivotal to knowledge sharing and the sustenance of a competitive advantage is grounded in the knowledge based view of the firm. For example, Sveiby (2001) argued that while competitive-based and product-based strategy formulation generally makes markets and customers the starting point for the study, the resource-based approach tends to place more emphasis on the organisation's capabilities or core competences. Thus the knowledge-based strategy formulation should start with the primary intangible resource: the competence of people. Sveiby (2001: 346) believes that people can use their competence to create value in two directions: by transferring and converting knowledge externally and internally to the organisation they belong to. When the managers of an industrial company direct the efforts of their employees internally, they create tangible goods and intangible structures such as better processes and new designs for products. When they direct their attention outwards, in addition to delivery of goods and money they also create intangible structures, such as customer relationships, brand awareness, reputation and new experiences for the customers. In both these above transactions shared knowledge, within an organisation, becomes a critical factor for the organisational performance and this is exactly the way sharing knowledge is conceptualised for the purposes of this paper.

This paper draws from the strategic marketing literature and proposes a positive relationship between learning orientation, market orientation and absorptive capacity and knowledge sharing. The basic premise of this paper is that effective knowledge sharing has three interrelated links. The first link relates to knowledge values held by organisational members, i.e. a learning orientation. Here, learning orientation describes three organisational values routinely associated with the predisposition of the firm to learn: commitment to learning, open-mindedness, and shared vision. The second link relates to market orientation which typically focuses on three components: customer focus, competitor focus and inter-functional coordination. The final link relates to the organisations' absorptive capacity which is defined as 'the ability to recognise the value of new external information, assimilate it, and apply it to commercial ends'. These three links/constructs relates to the earlier mentioned views of the firm: competitive based/ product based (market orientation), the resource based (absorptive capacity) and knowledge based (learning orientation). The paper also argues that the successful sharing of knowledge requires enablers in the form of information technology infrastructure, a reward system that reinforces and encourages knowledge sharing activities and a positive social interaction that creates trust among organisational members. The conceptual framework is shown in Figure 1.

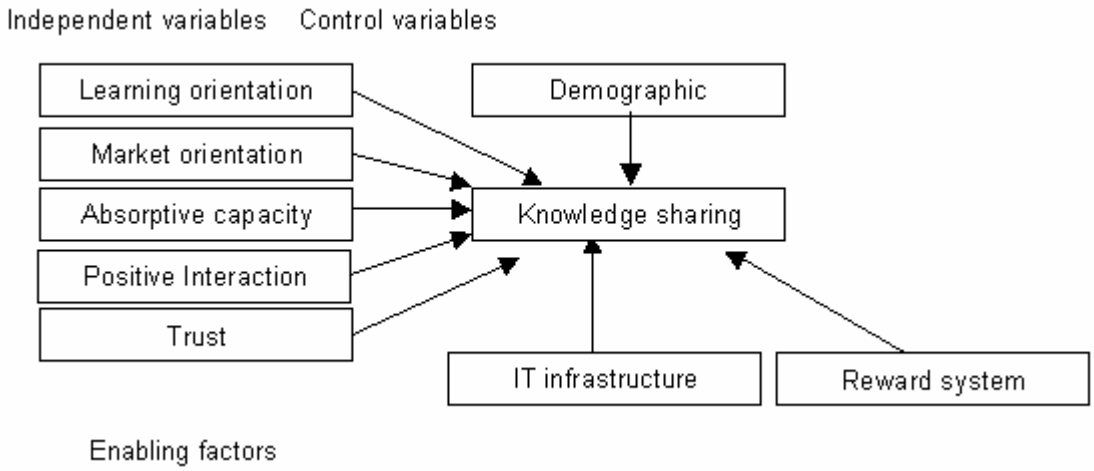

Figure 1: Conceptual framework

2. Conceptual framework

2.1 Knowledge sharing

Knowledge sharing is not well defined in the literature partially because the research area have not been very active (Bechina and Bommen, 2006). Further, this is partially because according to Davenport and Prusak (1998), knowledge sharing occurs in organisations when members ask for knowledge from other members to solve their problems. Dixon (2000) pointed out that the so-called 'common knowledge' is the knowledge employees learn from doing the organisational tasks. After identifying the relationships between actions and outcomes, a state of common knowledge is gained by sharing the interpretations among members. Furthermore, Dixon (2000) indicated that both explicit and tacit knowledge require different processes for sharing. Finally, Bartol and Srivastava (2002) defined knowledge sharing as, individuals sharing organisational relevant information, ideas, suggestions, and expertise with one another. Therefore, it can be seen that knowledge can be explicit or tacit. Explicit knowledge can be expressed in words and numbers, and easily communicated and shared in the form of hard data, scientific formulae, codified procedures, or universal principles. This knowledge is viewed synonymously with a computer code, a chemical formula, or a set of general rules (Nonaka, 1995). It is a knowledge that can be easily blueprinted, put into books, reports, manuals and so forth. This kind of knowledge is best transferred through the impersonal communication of technological transfer method (Rebentisch and Ferretti, 1995). This view of knowledge is deeply ingrained in the Western management philosophy which views an organisation as an information processing machine (Nonaka, 1995: 8). In contrast to explicit knowledge is the concept of tacit knowledge. Tacit knowledge is highly personal and hard to formalise, making it difficult to communicate or to share with others (at least not via impersonal communication methods). Insights, intuitions and hunches fall into this category of tacit knowledge, to mention some. Furthermore, tacit knowledge is deeply rooted in an individual's actions and experience, as well as in the ideals, values or emotions he or she embraces (Nonaka, 1995). Ultimately it goes to a person's expertise (Bender and Fish, 2000). Nonaka (1994) suggested that tacit knowledge can be transferred through the processes of socialisation, observation, and apprenticeship which require the maximum opportunity for both the source and the recipient to work alongside. Thus, sharing knowledge, whether explicit or tacit, requires effort on the part of the individual doing the sharing.

Not only knowledge sharing requires effort on the part of the individual sharing it, it also contains an element of reciprocity. This makes knowledge sharing different from information sharing. Whereas knowledge sharing contains elements of reciprocity, information sharing is about the management making information available to all members of the organisation and it could be unidirectional and unrequested.

Knowledge sharing is a key component of knowledge management systems (Alvi and Leidner, 2001; Earl, 2001). Based on the taxonomy of knowledge management systems proposed by Earl (2001), Bartol and Srivastava (2002) identified four major mechanisms for individuals to share their knowledge in organisation: (1) contribution of knowledge to organisational databases; (2) sharing knowledge in formal interactions within or across teams or work units; (3) sharing knowledge in informal interactions within individuals; and (4) sharing knowledge within communities of practice, which are voluntary forums of employees around a topic of interest.

Knowledge sharing can also be compared to organisational citizenship behaviour or prosocial organisational behaviour. Brief and Motowildo (1986) defined prosocial organisational behaviour as positive social acts carried out to produce and maintain the well being and integrity of others. Examples of prosocial behaviours include acts like helping, sharing, donating, cooperating, and volunteering. Like knowledge sharing, these behaviours can be directed towards an individual or towards the organisation as a whole. However, knowledge sharing is not synonymous to these constructs. For an action to be considered organisational citizenship behaviour it must be performed both spontaneously and voluntarily. Although knowledge sharing may be voluntary (Kelloway and Barling, 2000), it is not necessarily spontaneous. In fact, knowledge sharing is almost always the subject of managerial exhortations and organisational reward structures, while organisational citizenship behaviour is largely unrewarded extra behaviour.

2.2 Learning orientation

Learning orientation affects the information that an organisation attends to, interprets, evaluates, and ultimately accepts or rejects (Argyris and Schon, 1978; Dixon, 1992; Hedberg, 1981). Sinkula, Baker and Noordewier (1997) described three organisational values routinely associated with the predisposition of the firm to learn. These values are: commitment to learning, open-mindedness, and shared vision.

Companies that are committed to learning value the need to understand the cause and effects of their actions (Shaw and Perkins, 1991). If an organisation places little value on learning and sharing knowledge, little learning or sharing is likely to occur (Sackmann, 1991). Galer and van der Heijden (1992) described a shared vision as 'goal convergence.' If the employees and management in an organisation have an understanding and an agreement on knowledge sharing as an important end/journey then it is more likely that it will take place. Divergent or conflicting assumptions undermine the ability of the members of the organisation to agree on the interpretation of knowledge of local market, as well as knowledge of government and culture and, thus, their ability to respond quickly to emerging trends or problems. Finally, open-mindedness is linked to the notion of unlearning (Nystrom and Starbuck, 1984). When organisations proactively question long-held routines, assumptions, and beliefs, they are engaging in the practice of unlearning. The paper, therefore, makes the following proposition:

P1:- the higher the degree of learning orientation of an organisation the higher the level of knowledge sharing within the organisation

2.3 Market orientation

Martin and Grbac (2003) defined market orientation as the implementation of marketing activities designed to satisfy customer needs better than competitors are able to satisfy customer needs. Celuch, Kasouf and Peruvemba (2002) argued that market orientation typically focuses on three components; customer focus, competitor focus and interfunctional coordination. Baker and Sinkula (1999) contended that market orientation has an operational focus on information gathering, information dissemination and the ability to behaviourally respond to what is received.

Kohli and Jaworski (1990) define market orientation in terms of three dimensions: the generation of market information about needs of customers and external environmental factors, the dissemination of such information among organisational functions and the development and implementation of strategies in response to the information. These elements include continuous and systematic information gathering regarding customers and competitors, cross-functional sharing of information and coordination of activities, and responsiveness to changing market needs (Martin and Grbac, 2003). The paper, therefore, makes the following proposition:

P2- the higher the degree of market orientation of an organisation the higher the level of knowledge sharing within the organisation

2.4 Absorptive capacity

Cohen and Levinthal (1990: 128) defined absorptive capacity as the 'ability to recognise the value of new external information, assimilate it, and apply it to commercial ends'. Cohen and Levinthal (1990:150) assumed that a firm's absorptive capacity tends to develop cumulatively, is path dependent and builds on existing knowledge: 'absorptive capacity is more likely to be developed and maintained as a by-product of routine activity when the knowledge domain that the firm wishes to exploit is closely related to its current knowledge base'. Zahra and George (2002) summarised representative empirical studies on absorptive capacity. According to Zahra and George (2002), absorptive capacity has four dimensions – acquisition, assimilation, transformation, and exploitation – where the first two dimensions form potential absorptive capacity, the latter two – realised absorptive capacity. The paper, therefore, makes the following proposition:

P3: The higher the level of firm absorptive capacity the higher the level of knowledge sharing within the organisation

2.5 Positive social interaction culture

Most knowledge is shared socially, e.g., face-to-face or telephone conversations (Bechina and Bommen, 2006). In an organisation with a positive social interaction culture, both management and employees socialise and interact frequently with each other, with little regard to organisational status. Organisational efforts should be focused on creating opportunities for employees to interact, whether formally or informally, to foster knowledge sharing. Creating these opportunities should aid in building trust among employees, to overcome the knowledge sharing obstacle whereby employees are not comfortable sharing their knowledge with people they do not know (Goman, 2002). Kelloway and Barling (2000) suggest some benefits of social interaction with respect to knowledge sharing may include: employees who are more knowledgeable about

their colleagues' potential for being knowledge sources, as well as employees who trust more colleagues and trust more completely, and who are willing to share knowledge with them as a result. Informal opportunities would include unscheduled meetings, informal seminars, or coffee break conversations. Formal opportunities would include training sessions, plant tours, and scheduled debriefings. While knowledge sharing may be facilitated through formal opportunities, this may stifle creativity (Alavi and Leidner, 2001). The paper, therefore, makes the following proposition:

P4: the existence of strong relational ties and networks in an organisation results in a higher level of knowledge sharing

2.6 Trust

According to Nahapiet and Ghoshal (1998), trust and cooperation have a two-way interaction: 'trust lubricates cooperation, and cooperation itself breeds trust.' This means that both are tightly connected and interdependent, and trust may help solve problems of cooperation. As trust lubricates these social relationships it provides opportunities for knowledge exchange. Additionally, given the higher levels of trust people are more willing to take risks in knowledge exchange (Nahapiet and Ghoshal, 1998). The paper makes the following propositions:

P5: the higher the level of trust among organisational members the higher the level of knowledge sharing within the organisation

2.7 Technology

The information technology infrastructure encompasses the technology tools supporting the knowledge sharing effort (Bechina and Bommen, 2006). Smith (2003) draws a very clear relationship between technology and knowledge sharing. One must remember that information technology makes possible the connections that enable knowledge sharing, but it does not motivate employees to share their knowledge. Technology should be viewed as an enabler of knowledge sharing. While organisations can put the tools in place, there is no guarantee that employees are going to use them, or use them effectively, so there is still a human aspect to the knowledge sharing tools.

For example, organisations develop knowledge maps whereby fields of expertise and mode of communication are added to a human resource system. This enables employees to access employees with the necessary expertise to solve their problems (Desouza and Awazu, 2003). This tool can also help employees in overcoming geographic boundaries (Desouza and Awazu, 2003). Technology tools for knowledge sharing include electronic bulletin boards, discussion forums, knowledge directories, groupware, databases, intranets, intelligent search engines, personal web pages, electronic mail, virtual conference rooms, libraries, corporate yellow pages, among many others (Alavi and Leidner, 2001; Bender and Fish, 2000; Chase, 1997; Geraint, 1998). E-learning is a training tool which can be used to train employees to use the knowledge sharing systems, and to recognise knowledge sharing behaviours (Wild *et. al.*, 2002).

P6: the existence of an effective information technology infrastructure in an organisation results in higher levels of knowledge sharing

2.8 Rewards

Numerous studies argued that the presence of a reward system is critical for the success of knowledge sharing in an organisation. For example, Bartol and Srivastava (2002) examined the role of monetary rewards in encouraging knowledge sharing in organisations. Bartol and Srivastava (2002) examined four mechanisms of knowledge sharing and found a positive relationship between monetary rewards and knowledge sharing. Further, Bartol and Srivastava (2002) argued that the system of contributing knowledge to databases is the most amenable to rewards contingent on knowledge sharing behaviours because of opportunities for the reward allocator to measure the knowledge sharing behaviours.

Kugel and Schostek (2004) examined the effect of monetary rewards on knowledge sharing in Simens, the German giant and concluded monetary rewards seemed to have an immediate effect on motivation to share knowledge. Nevertheless, the authors argued that the quality of the knowledge shared can be inferior, and the attitude that knowledge is a private and non collective good is enforced. The authors noted that once the rewards are withdrawn knowledge sharing will decrease.

Gammelgaard (2007), using a questionnaire survey producing data from 1,535 respondents from 9 different organisations localised in 4 different countries, demonstrated that employees are mostly intrinsically motivated and preferred 'soft' incentives like acknowledgements and personal development over increases in salary. In addition, Gammelgaard (2007) found that the type of knowledge management system used – a system based on face-to-face transfers or one based on information technology (IT) systems - affects preferences for the intrinsically-motivated incentives. The paper makes the following proposition:

P7:- the use of 'soft' incentives over monetary incentives results in higher levels of knowledge sharing

2.9 Demographics

There has been little work done on the impact of demographic variables on knowledge sharing. However, some demographic variables may have an effect on how employees choose to share their knowledge. For example, Organ and Rayan (1995) argued that employees with shorter tuners are more likely to share knowledge. Organ and Rayan (1995) also argued that gender may have an impact on the communication styles and hence, there is a possibility that it will have an effect on knowledge sharing. The paper, therefore, makes the following proposition:

P8: demographic variables have an influence on levels of knowledge sharing

3. Conclusion

This paper looks at how organisations can become more sophisticated at supporting knowledge sharing, by identifying antecedents of knowledge sharing. The basic premise of this paper is that effective knowledge sharing has three interrelated links. The first link relates to knowledge values held by organisational members, i.e. learning orientation. Here, learning orientation describes three organisational values routinely associated with the predisposition of the firm to learn: commitment to learning, open-mindedness, and shared vision. The second link relates to market orientation which typically focuses on three components: customer focus, competitor focus and inter-functional coordination. The final link has to do with the organisations' absorptive capacity which is defined as 'the ability to recognise the value of new external information, assimilate it, and apply it to commercial ends'. The paper also argues that the successful sharing of knowledge requires enablers in the form of information technology infrastructure, a reward system that reinforces and encourages knowledge sharing activities and a positive social interaction that creates trust among organisational members.

These links are reflected in different views of knowledge. For example, while competitive-based and product-based strategy formulation generally makes markets and customers the starting point for the study and therefore the market orientation link, the resource-based approach tends to place more emphasis on the organisation's capabilities or core competences, hence the absorptive capacity link. And finally, knowledge based view of the firm which believes that people can use their competence to create value in two directions: by transferring and converting knowledge externally and internally to the organisation they belong to; hence learning orientation.

The implication for mangers is that effective knowledge sharing is multifaceted. At the core of organisation where people are seen as the greatest resource of all there is a need for: a commitment to learning, willingness to think outside the box, and the willingness to unlearn old knowledge. At the organisational level, the organisation should have the right routines that support finding, assimilation and accumulation of knowledge and consequently the successful development of this knowledge into commercial ends. This is not possible, however, without a focus on the market in terms of: the needs of customers, competitions and inter-functional coordination. Managers also need to understand what motivates each employee and provide soft and/or hard incentives to encourage and reinforce knowledge sharing activities. And finally, there is a need to foster an environment of trust and cooperation to overcome risk and the unwillingness to share knowledge. This paper should be seen as work in progress and represents the first stage of a major research project. In the second phase of the research a refined version of the model will be tested in technology parks in Australia and Malaysia.

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