

A holistic view of knowledge management strategy

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Abstract

Purpose – The purpose of this research is to seek to address the way in which knowledge is being transmitted among the members of a large corporation and suggests a realistic strategy that promises to be most appropriate for effective knowledge transfer in the new knowledge economy.

Design/methodology/approach – The research involves an in-depth case study of knowledge transfer strategies used in a UK-based group within a high-tech global corporation. which was purposively selected for data collection. A semi-structured instrument was developed based on the review of the knowledge management literature. The data analysis procedure within the case study employed in this research was based on the approach proposed by Miles and Huberman.

Findings – Drawing on an empirical work in a large high-tech corporation, this paper suggests a hybrid strategy which recognises the interplay between the soft and hard mechanisms, and falls somewhere between the rather divergent mechanisms.

Research limitations/implications – Since the paper is based on a single research setting the findings have potential limitations in terms of generalisability and transferability.

Practical implications – To date it seems that the soft and hard mechanisms are being employed for knowledge transfer. There is considerable variation in the researchers' views about the role of the two approaches to knowledge transfer in an organisation.

Originality/value – The proposed hybrid approach to knowledge transfer provides powerful arguments for a more holistic view in terms of knowledge transfer which is crucial for the successful implementation of knowledge management.

Keywords Knowledge management, Organizations, Knowledge transfer

Paper type Research paper

Introduction

The emergence of knowledge management discipline has coincided with the development of the global knowledge based economy in which emphasis has been shifted from traditional factors of production, namely capital, land and labour, to knowledge. Parallel to this, Drucker (1992) suggests the classical factors are becoming secondary to knowledge as the primary resource for the economy. Several researchers (e.g., Despres and Hitrop, 1995; Neef, 1999; Davenport and Prusak, 1998; Day, 1994; Edvinsson and Sullivan, 1996; Davenport and Bibby, 1999) argue the effective management of knowledge is becoming a critical ingredient for organisations seeking to ensure sustainable strategic competitive advantages. Davenport and Bibby (1999), for example, point out that in the knowledge-based economy, competitiveness is increasingly based upon access to knowledge in the form of skills and capabilities.

Knowledge transfer seems to be one of the main themes of knowledge management which involves the use and creation of value from organisational knowledge (Jasimuddin *et al.*, 2005a). Against this backdrop, successful accomplishment of knowledge transfer within an organisation or between organisations has a great role to play. This paper addresses the way in which knowledge is being transmitted among the members of a case organisation so as to suggest a strategy that may promise to be most appropriate for effective knowledge transfer.

Research methodology

Several scholars, most notably Eisenhardt (1989), Bell (1993), and Yin (2003), identify the benefits of employing the case study method. Eisenhardt (1989), for example, argues that the case study strategy focuses on understanding the dynamics exist within a single setting, while Yin (2003) contends that case studies can involve either single or multiple cases, and numerous levels of analysis. The present study describes the actors' experiences in transferring knowledge within an organisational setting. Miles and Huberman (2003) suggest that much qualitative research examines a single "case", some phenomenon embedded in a single social setting. In line with this, one large multinational corporation is purposefully drawn from the high tech computer-related field which is accessible and is also considered manageable.

In qualitative research, samples are not meant to represent large populations (Miles and Huberman, 2003; Sale *et al.*, 2002; Reid, 1996). Purposeful samples of more than forty interviewees were selected who were given flexibility to discuss the issues as they liked to proceed. The respondents were asked questions like how they perceived the knowledge transfer process at their organisation, which approach they believed to be effective to carry out the knowledge sharing, and why.

Data collection

Case study approach combines data collection methods including interviews, observations, and documents (Eisenhardt, 1989), thereby ensures "triangulation" (Denzin and Lincoln, 1994). Since the research was largely exploratory in nature, a semi-structured interview schedule was chosen (Fontana and Frey, 1994). The interviews were tape recorded and subsequently transcribed. Each interview lasted on average one and a half hours which had been undertaken in the respondents' office room and a few in formal meeting/discussion rooms. Afterwards, the transcribed data were also verified with some of the interviewees to:

- get further clarification;
- cross-check; and
- identify transcription errors (Neuman, 2000).

Data analysis

The data analysis procedure within the case study employed in this research was based on the Miles and Huberman (2003) approach which provided a comprehensive roadmap to qualitative data analysis using data displays in the form of networks and graphs. After interview transcripts are coded, the process of pattern coding began. Codes generated during coding were reviewed for how they could be grouped together into categories. Afterwards, these issues were used to deduce key themes that were common or recurring.

Overview of the case organisation

The case organisation is the world's biggest computer manufacturer. As the leader in worldwide e-business, it is now playing a critical role in the development and application of new devices that are revolutionising information technology (IT). The company is responsible for numerous inventions having to do with computers, and regards knowledge management as an important part of its work. As a Fortune 100 corporation, it employs 100,000 staff in Europe, with about 25,000 of those working in the UK. Selecting such an organisation appears to provide the opportunity to learn a great deal about the issues central to the research (Patton, 1990). Like many other knowledge-based organisations (Jasimuddin *et al.* 2005b), the salient features of the case organisation

"Document exchange is a highly effective and efficient mechanism for sharing codified knowledge."

include the following: its critical asset is knowledge, its workforce maintains face-to-face interaction with clients, and it provides intangible output.

The research site is the corporation's software development laboratory based in the south of England. Software engineers in this lab regularly collaborate with colleagues working from multiple sites across the rest of the world. Broadly speaking, these people are either software developers, computer engineers, or programmers basically involved in a wide range of activities including development and testing of software, and servicing customers' needs. There are various ways in which the employees involve themselves in knowledge transfer.

Knowledge sharing

In the emerging knowledge-based society, major emphasis of organisations is placed on the processes of knowledge sharing, which are increasingly seen as crucial to organisation's success (Barrett *et al.*, 2004). The fact is that organisational success can be based on its ability to share the knowledge embodied in organisational routines from one organisation unit to another (Szulanski, 1996) as well as to improve their capabilities by assimilating new technology (Gilbert and Cordey-Hayes, 1996). This argument is developed by Cohen and Levinthal (1990), who suggest that the knowledge sharing is a critical factor in an organisation's ability to respond quickly to change, innovate and achieve competitive success. A growing body of empirical evidence indicates that organisations that are able to share knowledge effectively from one unit to another are more productive and more likely to survive than organisations that are less adept at sharing knowledge (Argote and Ingram, 2000; Argote *et al.*, 2000; Baum and Ingram, 1998). The significance of knowledge sharing is viewed by the Department of Trade and Industry (DTI) in its Competitiveness White Paper as:

Our success depends on how well we exploit our most valuable assets: our knowledge, skills, and creativity. These are the key to designing high-value goods and services and advanced business practices. They are the heart of a modern, knowledge-driven economy (DTI, 1998).

Approaches to sharing knowledge

A significant proportion of the contemporary literature suggests that the mechanisms which are used for organisational knowledge transfer can be classified into two dominant groups based on the tacit-explicit dichotomy. Focusing on knowledge-as-a-category, two very different mechanisms in order to transfer knowledge have emerged what we call them soft and hard mechanisms. The soft mechanism tends to transfer tacit knowledge through face-to-face interface. The hard mechanism represents transfer of explicit knowledge using information and communication technology (ICT).

This view is an extension to that of Hansen *et al.* (1999), who contend that the personalisation strategy is an approach where knowledge is closely tied to the person who develops it and shares through direct person-to-person interaction, while in the codification strategy knowledge is codified and stored in databases, where it can be accessed and used easily by anyone in the organisation. Drawing on the existing literature and the empirical work in the case organisation, the ways in which knowledge can be shared between employees are discussed in turn.

Soft mechanisms

While considering soft mechanism, the emphasis is to share tacit knowledge between individuals. Davenport and Prusak (1998) suggest that “firms hire smart people and let them talk to one another and use water coolers, talk rooms, and picnics as examples of places where the transfer of tacit knowledge can take place”. In this regard, various methods are

recommended as suitable for facilitating the transfer of tacit knowledge. Nonaka and Takeuchi (1995) use “examples of apprenticeships, brainstorming camps, the use of metaphors and analogies, social network, and learning by doing as viable ways of tacit knowledge transfer”.

Parallel to this, several other scholars (Lam, 1997; Storey and Barnett, 2001) suggest active direct communication between individuals as a means of sharing tacit knowledge. Thus such knowledge is typically shared socially through language and stories (Brown and Duguid, 1998), through the observation of practices that others undertake or through a process of learning by doing within a communal context (Lave and Wenger, 1991). Reflecting this view, Argote (1999) identifies several other mechanisms that exist for transferring knowledge including training members, allowing them to observe the performance of other experts, and providing opportunities for communication between organisational members.

The people at the case organisation perceive face-to-face (F-2-F) meeting as the most effective medium for their knowledge transfer within the organisation. As a team leader states, “The most powerful [effective] mechanism of knowledge transfer seems to be face-to-face interaction.” However, the methods for facilitating the transfer of tacit knowledge between employees are less obvious (Brown and Duguid, 1998). Resonating with this, Day (1994) argues that the transfer of tacit knowledge is perhaps more critical than the transfer of explicit knowledge.

Hard mechanisms

In the majority of the literature (Scarborough *et al.*, 1999; Storey and Barnett, 2001; Alavi and Leidner, 2001; Bhatt, 2001; Newell *et al.*, 1999; Broendsted and Elkjaer, 2001; Huber, 2001), it is suggested that ICT could play a central role in the transfer of an organisation's knowledge. The fact is that ICT makes the transmission of explicit knowledge, which is in words, easier. Carbonara (2005) contends that such mechanisms have the capability to transfer the vast array of knowledge and to reduce the space and time barriers. This is also supported by the empirical evidence of the present study as the majority of the interviewees also prefer to use Email when knowledge is more formal and explicit. Resonating with this, Loeb *et al.* (1998) observe that technology-assisted tools enable coordination across geography and time, and logically integrate data spreading all over the world.

In addition to e-mail, interviewees employ a variety of other computer-mediated mechanisms, including Lotus Notes, Instant Messaging and electronic bulletin board, to support knowledge transfer activities. During the past decade, many organisations invested heavily in such ICTs to increase their ability to transfer a large amount of knowledge (Eginton, 1998; Sbarcea, 1998).

Although tacit knowledge and explicit knowledge can be transferred employing soft approach and hard approach respectively (Hansen *et al.*, 1999; Zack, 1999; Bolisani and Scarso, 2000; Earl, 2000), these mechanisms are seen to have fundamentally different and distinctive characteristics. The distinctive features of Soft Mechanism and Hard Mechanism, as dichotomised by the knowledge-as-a-category perspective, are shown in Table I.

It is to be noted that organisations such as McKinsey, and Bain and Company, use soft mechanism while other organisations like Anderson Consulting, and Ernst and Young,

Table I Distinguishing features of the approaches to knowledge sharing

Features	Approaches to knowledge sharing	
	Soft approach	Hard approach
Nature of knowledge	Tacit	Explicit
Role of technology	Insignificant (if any)	Technology-focused
Role of people	People-focused	Little
Tools	Face-to-face interaction	Lotus Notes, Email, Electronic bulletin board etc.
Examples	McKinsey; Bain and Company	Anderson Consulting; Ernst and Young

employ hard mechanism (Hansen *et al.*, 1999). However, based on the empirical work at the software laboratory, this paper prescribes otherwise, in which both the mechanisms have crucial role to play for the effective knowledge transfer.

A proposed strategy that combines the existing mechanisms

From the above discussion, it is to be said that most researchers in this field tend either to view knowledge sharing approach as soft mechanism or to think in terms of hard mechanism. The interviewees report that there are strengths and weaknesses in all the mechanisms available for the transfer of knowledge. To overcome such difficulties, some respondents mention “hybrid” approach to knowledge transfer. The following part of the section describes different examples of such hybrid.

By hybrid, the respondents mean a combination of soft and hard approaches. In this context, the argument of Gupta and Govindaranjan (2000), for example, is very relevant, in which they put it thus:

“To be both effective and efficient, transmission mechanism must be tailored to the type of knowledge being transferred. When it comes to transmission mechanisms, “effectiveness” refers to whether the receiver actually receives what the sender has sent; “efficiency” refers to the cost and speed of the transmission channels. Document exchange is a highly effective and efficient mechanism for sharing codified knowledge. It is often highly ineffective, however, for transmitting tacit knowledge. Conversations and the transfer of people, by contrast, are relatively inefficient mechanisms for sharing codified knowledge. But, for transferring tacit knowledge, they may be the only effective mechanisms.”

However, as observed earlier, there is a general agreement in the literature that knowledge transfer can be accomplished through either soft mechanism or hard mechanism. It is argued that the characteristics of tacit knowledge make the knowledge transfer difficult and time-consuming to achieve (Leonard and Sensiper, 1998; Roberts, 2000). Since tacit knowledge is hard to articulate, the ways through which such knowledge is transferred is by soft mechanisms. On the other hand, in seeking to promote the explicit knowledge transfer activities, organisations have turned towards hard mechanisms as an enabling media. However, Dixon (2000), warns using technology too much to replace face-to-face interaction in knowledge transfer, arguing the fact that the use of technology to replace face-to-face conversation has only had limited success. Moreover, the link between ICT investment and business performance is not strong (Strassmann, 1998).

While asking whether the respondents prefer to choose any particular mechanism, most of them question how effective one specific mechanism would be to meet all situations of knowledge transfer. Because both the soft and hard approaches have positive and negative sides for accomplishing knowledge transfer. In this regard, one of the managers elaborates:

There are strengths and weaknesses of both really. If you exclusively rely on what you have on web sites. . . then you have to be sure that it is updated. After reading it if you require more. . . then you can never ever ask to the website. . . If you speak to someone you can do that more interactively. The weakness. . . is that both the parties have to be available to interact physically. . . . If the person is in other part of the world then. . . it is better to use electronic media; generally speaking, I think the best way is to go with a hybrid of the two.

A large portion of the interviewees perceive soft approach, particularly F-2-F is most effective and efficient mechanism of knowledge transfer in some situations. At the same time, they report that Email is used most when they work as the two parts of a team split by a long distance. A team leader states, “If distance is a factor, then face to face is difficult. Probably our initial contact will be by Email or over the telephone.” This is reflected in a software tester’s statement, who remarks:

Although for certain situations, face-to-face interaction seems to be most efficient and effective, we cannot go face to face all the time with our colleagues who work from another country. Hybrid, I think, is the only way to help transfer knowledge.

It is argued that over-emphasising one at the expense of the other may lead to a situation where the organisation loses its competitive edge. Having identified and discussed the several mechanisms of knowledge transfer, the focus now moves on to how an organisation might transfer knowledge viewing organisational knowledge as a continuum perspective. Several scholars (Jasimuddin *et al.*, 2005c, Tsoukas, 1996; Boiral, 2002) have advocated that tacit and explicit knowledge are inseparable. Jasimuddin *et al.* (2005c), for instance, contend that their relationship can be likened to the portions of an iceberg above and below the waterline: the exposed explicit knowledge is supported – given meaning – by the hidden tacit knowledge. The position of knowledge on the tacit-explicit continuum is determined by its tacit-explicit mix. There is strong argument in favour of “hybrid” mechanism of knowledge transfer at the organisation studied. A manager remarks: “I probably think mixture. . . I think it is difficult to find one way that will fit in all situations. To me it is hybrid. I use both methods definitely.” A team leader explains why she uses more than one mechanism:

People can search through the Internet and can find the document they are looking for. If there is some confusion or ambiguity, then they can resolve it through personal interaction with me [contributor]. . .there are benefits to both. I don't think one approach really is better than the other. I think we need the mixture. We need a mixture of these things [mechanisms] for passing knowledge directly and distributing documents electronically. The level of complexity and the nature of problems may compel us to address a hybrid approach. We cannot go either way.

This is reflected by another employee who observes:

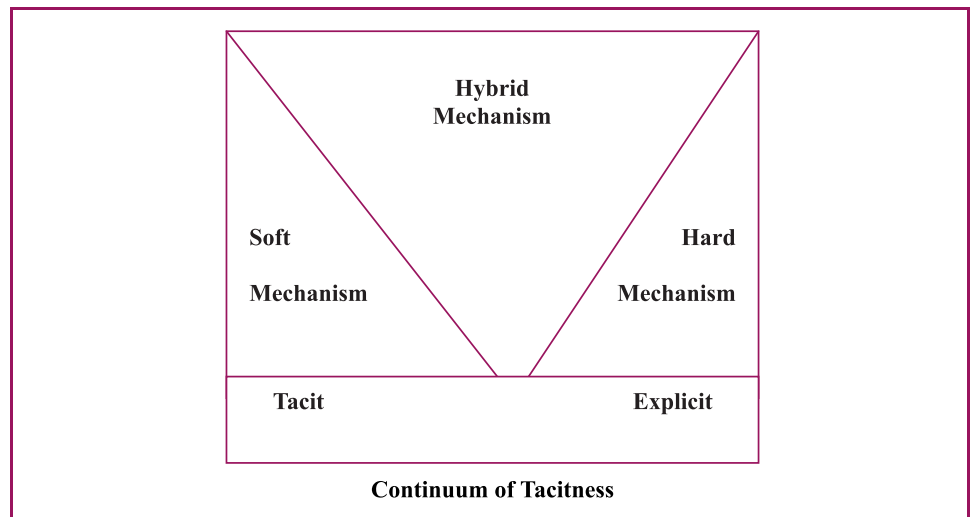
Again I think that the best comes face to face because you can see whether people understand. One of the strengths of talking to somebody is I can often realise whether they understand or not. Downside is as time goes by it is most likely they will forget something. With an Email you can be quite explicit about what needs to be done and you can go back and refer to it quite often. Sometimes you need both. Sometimes you actually better to talk to them and then send them Email which is quite explicit.

There are a few researchers (Scarborough, 1999; McAdam and McCreedy, 2000; Desouza and Evaristo, 2003; Swan and Scarborough, 2001; Pan and Scarborough, 1999) who also make isolated descriptions about the importance of combining the soft and hard mechanisms, arguing knowledge transfer is inseparable from both the mechanisms. As revealed in the study, neither the soft mechanism nor the hard mechanism alone is sufficient to transfer organisational knowledge. An employee interviewed states, “Neither approach alone can yield good results in terms of knowledge transfer.” The majority of respondents feel that knowledge transfer can not be accomplished well by depending upon only one particular mechanism. Because the employment of a particular mechanism, be it a people-focused or a technology-mediated, will not guarantee effective knowledge transfer in all situations.

The employees interviewed also report that the company actually employs a hybrid approach in some way or other. The knowledge transfer activities at the case organisation is not confined to one particular approach, be it the codification approach (technology-facilitated) or the personalisation approach (e.g., F-2-F interface). Sometimes a people-focused mechanism is followed by another technology-assisted mechanism or vice versa. That is, knowledge transfer may start with verbal inputs and end up with formal comments, which may be in written form. As a team leader notes, “Descent from less rigorous to very rigorous.”

A successful hybrid strategy is one that takes advantage of the positive features of both the soft and hard mechanisms. In other words, the proposed mechanism falls somewhere between the rather divergent mechanisms and recognises the interplay between soft and hard mechanism. This is also supported by Figure 1 which displays knowledge transfer mechanisms incorporating hybrid approach. Using the proposed mechanism, organisations might codify tacit knowledge by, for example, coded language in the first place, then codified tacit knowledge is transferred and stored in the same way that explicit knowledge can be transferred using information technologies.

Figure 1 Appropriateness of knowledge sharing approach



Conclusion

Contemporary organisations seek to acquire new competencies in order to compete effectively. At the case organisation, software development is the outcome of the collective efforts of software developers and computer engineers who are expert particularly in computer technology. Their main work is accomplished by sitting in front of workstations so their main activity goes along with interacting machines. Despite that, there is a great deal of interaction with people and involvement with non technical activities. As a result, sharing their knowledge is found as a part of their job which involves frequent interaction among themselves with and without using technology.

As noted previously, the “soft” versus “hard” argument is actually about the media of knowledge transfer processes. This paper addresses knowledge transfer media in order to deepen our understanding of the strategy that promises to be most appropriate in the new knowledge economy. The study reveals that a hybrid strategy allows organisations to seek an integrated approach to knowledge transfer through the interplay between soft and hard mechanisms. In terms of the iceberg analogy, the benefits of both tacit and explicit knowledge can be gained if soft and hard mechanisms are allowed to interact. The interesting point is that the hybrid between the two mechanisms is found crucial as far as the successful accomplishment of knowledge transfer is concerned. Strictly speaking, a pluralistic stance that hybrid approach to knowledge transfer takes will provide powerful arguments for a more holistic view.

However, the present study is not free from any limitation. Since the paper is based on a single research setting, the findings have potential limitations in terms of generalisability and transferability. The UK-based group within a high-tech global corporation is representative of a typical, mature high-tech multinational industry. Inevitably, the character of the case organisation may have a strong influence on the results of the study. As with other qualitative research approaches, the emphasis of this paper is on the perceptions of the respondents, such a research approach is always open to multiple interpretations.

Therefore, no claim will be made that the framework being suggested is the best one that can be devised for understanding the knowledge transfer mechanism in the new knowledge economy. Instead, this paper has taken a step towards developing some arguments about the knowledge transfer mechanisms through opening up the possibilities for additional understanding of knowledge transfer strategy based on holistic and integrated approach. Whilst much work remains to be done, this paper lays some groundwork for future research particularly through further field studies in understanding how this model is employed to ensure effective knowledge transfer in an organisation or between organisations.

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