2.0 Literature review

Implementation of Knowledge management should be analysed with the corporate competitiveness and innovation and organizational factors. I reviewed the two approaches. One is the approach to analyse the corporate performance and organizational factors; the other is the approach to analyse the knowledge creation and sharing process that generate the good performance of the firm.

2.1 Contingency Approach

Approach to the relationship between corporate performance, competitiveness, innovativeness, and adaptability and organizational factors is called 'Contingency Approach.'

Contingency Approach has a long history. The initial study by Lawrence and Lorsch described the two forces in the organization- differentiation (division of labour and technical specialization) and integration. They pointed that "the more differentiated an organization, the more difficult it is to achieve integration." Namely, some liaison function or system must be introduced to integrate each other. The second landmark study showed the difference between mechanistic organization and organic organization in terms of the performance (Burns and Stalker, 1961). They and their followers argued that the highly innovative organization was observed in the organic organization. According to the theory of information process efficiency, organic organization that is characterized by distributed authority and unclear job description can handle the uncertainty of the environment better (Thompson, 1967; Nonaka,
1974; Galbraith, 1977). Regarding the size of the firm Peters and Waterman described, "In the excellent companies, small in almost every case is beautiful" (Peters and Waterman, 1982). Another research showed that larger organizations in terms of assets tended to be more productive in terms of sales and profits but there was no positive relationship between organizational size and efficiency (Gooding and Wagner III, 1985). Accordingly, there were various views about the size and the corporate strategy. Miler found that strategy and structure were influenced one another (Miler, 1987). Child pointed the influence of politics/power to structure (Child, 1972).

In today's environment it is reasonable to think that KMS connects the corporate competitiveness and organisational factors. But there are few researches to deal directly with knowledge and organizational factors. Roger and Gabriel analysed some organizational and environmental factors and knowledge management systems (Roger and Gabriel, 1999).

2.2 Approach from Knowledge-resource

Different from contingency approach, many researchers have focused the internal dynamics inside the firm to analyse the corporate competitiveness since 1980s, even though Porter's model was still dominant in this field then. Some researchers found competitive advantage was inside organization. (Itami, 1980; Wernerfelt, 1984). This was followed by the finding that competitiveness came from competence of the firm (Snow et al., 1980; Hitt and Ireland, 1986; Hamel and Prahhard, 1990). It was found that this internal competence could be developed by learning (Senge, 1990). In addition to this
self-renewal ability, open sharing and dissemination of information (Open-book management) was also emphasized with the combination of empowerment and accountability (Romano, 1994). Other gurus such as information management field supported this idea by emphasizing the information resource management and data oriented approach.

The above-mentioned approach was followed by many researchers who emphasized the importance of knowledge. As I described in the former chapter, Nonaka, Stewart, Ducker and many other researchers have made a lot of studies in knowledge management field from various viewpoints. Knowledge management approach could be classified into four categories—project-based approach, knowledge creation and distribution approach, communication approach and resource-based approach. First three approaches emphasized the mechanism of knowledge creation and distribution. The last stressed the relationship between corporate performance and intellectual capital including knowledge.

**Project-based approach**

According to the classification of Harada (1999), there is a group that deals with the knowledge transfer across projects. Knowledge transfer in overlapped phases in product development was found as the source of innovation of Japanese companies (Imai, Nonaka and Takeuchi, 1985). Lead-time and overlapped phases and intense communication with suppliers were related from the study of Japanese car manufacturers (Clark and Fujimoto, 1991). Lead-time and mixed team formation from different phase engineers
were also related (Eisenhardt and Tabrizi, 1995). Aoshima and Nobeoka concluded that 'project chain' was the main mechanism of knowledge transfer between projects and was able to be achieved by two methods—people overlapping and time overlapping (Aoshima and Nobeoka, 1997). In short, this approach emphasized the importance of knowledge transfer by direct interaction between employees.

Knowledge creation and distribution approach

This group focuses the knowledge process that lead to the innovation and corporate competitiveness. Some gurus supported the Knowledge creation model—knowledge creation by interaction between tacit knowledge and explicit knowledge (Nonaka, 1991; Nonaka and Takeuchi, 1995; Nonaka and Konno, 1995, Nonaka, 1999). On the basis of this model, organization of tacit knowledge into knowledge networks (Mie Augier et al., 1999), Interorganizational knowledge creation (Mikael Holmqvist, 1999), and proper knowledge management methods in terms of knowledge creation activities and knowledge type (Satish Nambisan et al., 1999) were shown as the mechanism of knowledge enhancement.

Different from this approach, Davenport and Prusak showed the process of knowledge that was emphasized the distribution mechanism (Davenport and Prusak, 1997). They stressed that knowledge must be codified into explicit knowledge as much as possible and, at the same time, tacit knowledge that could not be codified should be transferred by human-to-human interaction with support of knowledge map or other techniques.
Some gurus had more interest in how to measure Knowledge and intellectual capital (Edvinsson and Malone, 1997; Stewart, 1997). They used the similar approach of Robert Kaplan’s "Balanced Score Card". They thought that knowledge was embedded in Human Capital and Structured Capital that were related to corporate performance. Implication of this kind study was that we had to have the tool to measure the knowledge process to enhance knowledge process.

**Communication approach**

This approach also focuses the process of innovation itself. But this approach adopted the communication level as the variable to measure. The relationship between innovation and oral communication was initially argued (Mintzberg, 1973; Czepeil, 1975; Tushman, 1978). Adaptability to the environmental change was increased by communication efficiency through gatekeeper (Allen and Cohen, 1969) and knowledge interaction through transformer (Harada, 1998). Implication of these studies is that there are intermediaries that collect, translate and transform and disseminate information and knowledge.

**Resource-based approach**

This approach focuses more on the relationship between intellectual capital and corporate competitiveness. This group emphasized the importance of strategic management of intellectual capital to enhance the performance (Teece, Pisano and Shuen, 1997). Management of intellectual capital affects the profit (Sullivan, 1999; 2000) and corporate value (Rivette and Kline, 2000).
Implication of this approach is the importance of strategic management of intellectual capital including knowledge.

2.2 Approach in this study

Contingency approach has already been demonstrated its effectiveness by many researches. But this approach was criticized by some researchers including Child (1977), Kagono (1988), Nonaka (1990) and Harada (1999) in terms of its passive and environment-dependent view to the adaptation/innovation of the organization. This is because contingency approach could explain the relationship between adaptation/performance and organizational factors such as hierarchy, formalization, size and others, but could not explain the mechanism of innovation such as new technology development. This owes to the fact that it didn't deal with the technology development system as direct variables. Furthermore the adaptability in contingency theory is the outcome to passive response to environment. It ignored the active influence of the organization to the environment. Nonaka claimed that more active and dynamic side of the organization should be analysed to know the mechanism of corporate innovation/adaptation and his answer was the mechanism of knowledge creation (Nonaka, 1991).

As far as we analyse the innovation mechanism itself, Nonaka's critic is correct. Innovation itself can be explained more effectively by more direct variables such as diversity of members of project team, the level of overlapping of development phase and others rather than the variables such as the level of hierarchy. But regarding the matter of the organizational design,
contingency approach is still valid. Given the strong connection between corporate performance/innovation and knowledge creation and sharing as shown by the knowledge management gurus, it is meaningful to analyse the relationship between knowledge creation/sharing mechanism and organizational factors.

Contingency approach

Approach from Knowledge Resource

Approach in this study

Diagram 2-1 Approach in this research

Roger Bennet and Helen Gabriel (1999) had the similar approach mentioned above. They analysed the relationship between knowledge management system and organizational factor in the marketing and sales department in UK
big firms. Their approach, however, should be modified to make the analysis more effective and comprehensive because they used only the knowledge sharing systems based on Information Technology. That is, they lack the knowledge creation mechanism and traditional non-IT knowledge system. I stand on the modified approach based on their research method. This modification is necessary because Malaysia's knowledge system is thought not to use IT knowledge system so much. Besides my research dealt with the overall industries and departments in the organization in Malaysia.

2.3 Contribution of this study

In Malaysia there has not been so many researches conducted about knowledge management. For example, we can see the research on intellectual capital and company performance by Nick Bontis, William Chua Chong Keow and Stanley Richardson (2000), but it did not deal with the relationship between knowledge creation/sharing and organization.

This research has the aim to provide the overall understanding about Malaysian knowledge creation and sharing system and its relation with organizational factors. Regarding adopted variables in the research, I will measure the knowledge creation and sharing system rather than only the sharing system that a lot of existing researches dealt with. That is, it should be more comprehensive measurement of knowledge management system as described in next chapter.