

Knowledge Strategy: The way to Sustain Competitive Advantage for Technology-based Enterprises

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ABSTRACT

This paper examines knowledge strategy to sustain competitive advantage for technology-based enterprises. From resource-based view, knowledge strategy enables firms to create and sustain competencies and capacity to outcompete rivals. Personal interview with 10 strategists from technology-based enterprises revealed that customized knowledge strategy is capable to create and sustain knowledge. However, the results cannot be generalized due to less rigorous qualitative analysis on the interview results. The future studies should include more informants and to use qualitative analysis software for more rigorous analysis.

Keywords: Knowledge strategy, competitive advantage, technology enterprises.

I INTRODUCTION

Today's business world is very dynamic and full with uncertainties. Changes and transformation occur everywhere for better performance and sustainability. Careful planning is important so that companies will strive to adjust not just responding to the changes of events (Schwenk & Schrader, 1993; Peel & Bridge, 1998; Smith, 1998). The shift from production-based economy to knowledge and innovation-based economy indicates the shift of paradigm from industrial organization to resource-based views (Taylor, 2003; Ismail & Sarif, 2006; Sarif, 2006).

The industrial organization (I/O) view contends that competitive advantage is gained when firms capitalized the opportunities identified from the external factors (Porter, 1980). However, resource-based view (RBV) argues that capacity building within firms is strategically appropriate when it could capitalize the opportunities or create opportunities or vice-versa (Barney, 1991, 1996, 2001; Grant, 1991).

Effective knowledge strategy enables knowledge transfer and codification activities contribute to add value into financial and human capital leads to capacity building and sustaining competitive advantage (Nonaka, 1994; Davenport & Prusak,

1998; Alavi&Leidner, 2001). This situation changes the emphasis of the economy, not just on the productivity of mass production, tangible products, and satisfaction of economic exchanges, but also sustainability in performance, survival and growth (Taylor, 2003; Sarif, 2006).

The innovation-based economy uses knowledge as the base to produce products and to provide services based on the demand of the customers (Ismail & Sarif, 2006; Sarif, 2006). In other words, customization and personalization are important elements in the economic activities.

The innovation-based economy requires active and proactive participation of industrial players to exchange knowledge so as to produce essential substance that derivatives in nature instead of productive. Derivatives are kind of property that generated from ideas, thoughts and creativity that are useful commercially to others (Macdonald, 2004). This is the basis for the production of tangible products to satisfy the needs and wants of the customers (Sarif, 2006). Since the competitive advantage of the innovation and knowledge-based economy is relying on human development potentials, human capital development becomes vital economic activities (Taylor, 2003; Alavi&Leidner, 2001).

This paper examines the role of knowledge strategy in creating and sustaining competitive advantage of technology-based enterprises in the innovation and knowledge-based economy. Knowledge strategy provides mechanisms to transfer and codify knowledge that is abstract and embedded deeply with human thought, experience and judgment. Effective knowledge strategy enables technology-based enterprises to transfer and codify knowledge. This paper contributes to theoretical and practical understanding of knowledge strategy for organizational sustainability as a strategic issue instead of operational or functional issue to enable organizations evaluates dynamic internal and external factors on perpetual basis.

II LITERATURE REVIEW

This paper integrates strategic management and knowledge management discipline to understand theoretically on the role of knowledge strategy for

organizational sustained competitive advantage. David (2011) defines strategic management as the study to combine the art and science in formulating, implementing and evaluating strategies made through various functional units to enable organizations attain organizational goals with efficiency and effectiveness. As for knowledge management, it is a study to identify types of knowledge and the possible ways to capture, store, retrieve and transfer knowledge from one individual to many individuals or organizations so that they can contribute to understanding, competency and capacity to perform organizational tasks (Alavi & Leidner, 2001).

Knowledge is about the know how in the form of ability to perform something beneficial to the individual who possesses it. Management is about the art and the science to get things done. Specifically, management is a study about how to get things done in organizations. According to Alavi and Leidner (2001), knowledge is about 'potential to influence action,' 'competencies' and 'understanding.' It appears in explicit and implicit format (Nonaka, 1994). Explicit knowledge has been codified in words and numbers which can be transferred and shared physically and electronically (Alavi & Leidner, 2001; Davenport & Prusak, 1998).

In contrast, implicit or tacit knowledge is difficult to capture, store, and transfer from one individual to another individual. Polanyi (1966) argued that tacit knowledge is embedded in individual's own experience and memory. Nonaka (1994) contended that tacit knowledge is highly personalized and deeply embedded in an individual's experience. However, it is possible to codify it through personalized approach, such as face-to-face coaching and mentoring (Brown and Duguid, 1991) and socialization approach (Nonaka, 1994).

Technology-based enterprises are instrumental in promoting lifelong learning and human capital development via community of practice model for knowledge transfer between enterprises (Ismail & Sarif, 2006; Sarif, 2006). Knowledge strategy in technology-based enterprises enables them to create and sustain competitive advantage on long term basis. The dynamic nature of this industry requires them to be careful and thoughtful in strategic planning for knowledge development (Taylor, 2003).

Technology-based enterprises in Malaysia rely on knowledge transfer and experience exchange for capacity building on sustainable basis (Sarif, 2006). Most of these enterprises located in the government

sponsored technology parks such as Technology Park Malaysia, Cyberjaya and Selangor Science Park. Technology parks are instrumental for human capital development, technology transfer and indigenous technology development (Ismail & Sarif, 2006).

The role of technology parks are beyond the provision of physical infrastructure that includes active participation from various industry, government, and research participants (Singh, 2001). Governments have used technology parks to encourage innovation in the high technology sector although it might be risky sector when enterprise owners reluctant to participate (Macdonald, 1998, p. 162). Governments insist that lower technology-based firms that operate in technology parks with high technology firms will gradually become interested in participating in innovation in the high technology sector. Nevertheless, governments focus on the physical aspects of the technology parks and pay inadequate attention to supporting knowledge transfer between the firms in that location (Joseph, 1994, p. 46).

The high technology sector is a dynamic industry that requires that participants are proactive with respect to innovation; otherwise, they will not survive. Since the industry is dynamic, governments established technology parks to assist firms in acquiring knowledge that would promote innovation that contributed directly to technological development (Taylor, 2003; Sarif, 2006). The enhanced intensity in technological development is taken to bring prosperity to society. Joseph (2004, p. 118) argued that the high technology sector is highly knowledge intensive and that this requires participants in this sector to be innovative.

Governments have continued to emulate the approaches taken in other countries (Cook & Joseph, 2001, p. 378) even though industry players are not yet convinced that the technology parks generate economic growth (Joseph, 1997, pp. 289-290). Governments continue to believe that technology parks are powerful instruments to create innovation in the high technology sector, even though some question whether this is the case.

The above discussion is illustrated in Figure 1.

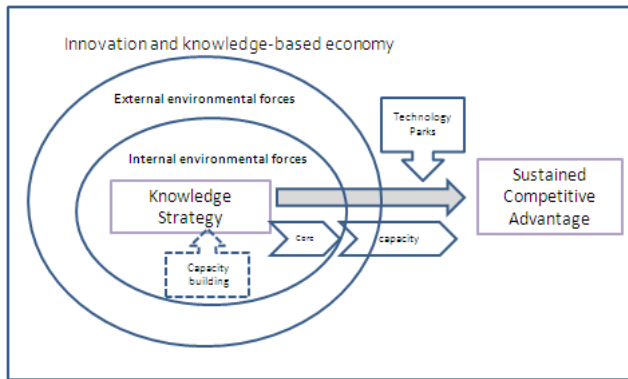


Figure 1. Framework of the Study.

Thus, the main research question for this study is “what factors contribute to knowledge strategy in creating, maintaining, and sustaining competitive advantage of technology-based enterprises?” The hypothesis of the study is the role of knowledge strategy as the way to sustain competitive advantage for technology-based enterprises.

III METHODOLOGY

The study used qualitative research method for data collection. This method enables the study to explore a context deeply, which could not be done adequately by quantitative methods, such as survey (Wainwright, 1997; Patton, 1990). Informants have more opportunities to deliberate various issues in depth, especially in the relation to the social and cultural contexts (Myers, 2000). In addition, this method allows the study to understand the thought of informants which is not very easy to obtain in a structured survey. The researchers also can probe and crosscheck the feedback with other pertinent issues raised during the interview. However, the results from qualitative research may not be applied to all situations, but they help generalizations and theories (Ezzy, 2002).

This study used note-taking approach after not getting consent from all informants to use tape recording devices, which is essential part of the research ethics requirement. After the interview process, the notes were typed and the hardcopy sent to the informants for verification. The informants were given 14 working days to verify. For the non reply interview scripts, the study considered them as final copy version. Due to the confidential nature of the information provided by the informants, their names and affiliated organizations were not disclosed.

This study interviewed ten (10) strategists of technology-based enterprises in Cyberjaya. They were asked “What are the factors contribute to competitive advantage of technology-based enterprises?”

IV FINDINGS

The findings are based on the feedback of 10 strategists from 10 technology-based enterprises in Cyberjaya (a cluster of Malaysia’s Multimedia Super Corridor). Table 1 highlights the informants’ codes and profiles. Three of the informants are from the top management category, namely TE 3, TE 6, and TE 10. The rest informants are in the middle management category. Both categories play active role as company strategists (Benjasom& Sarif, 2012).

Table 1. Informants’ Profile.

Code	Post
TE 1	Manager
TE 2	Senior Manager
TE 3	Vice President
TE 4	Senior Manager
TE 5	Senior Manager
TE 6	Chief Operating Officer
TE 7	Manager
TE 8	Senior Manager
TE 9	Business Manager
TE 10	Vice President

According to TE 1, competitive advantage can be obtained through intensity of sales, good corporate governance and customer oriented approach. TE 1 argued:

In order to make profit continuously, we must make more sales or more revenue. Good financial management and also good at offering technology in both physical and services.

As for TE 2, technology-based enterprises must be quick and responsive to the demand of the customers, regardless of their position as market leader or market follower. TE 2 mentioned:

This kind of business must always ahead of other companies. If we passive, other companies will go faster than us and that we left behind.

The concern for growth, survival and profitability is vital for technology-based enterprises. TE 3 stated:

My company managed to survive and make profit because we always customized our technology and always beyond our customers’ expectation. People in this industry must be always advanced.

According to TE 4, technology-based enterprises should establish cordial relationship with customers and employees so that they can work together to churn out new ideas to improve or advance technology. TE said:

Good relationship with customers, exchange ideas with them and always reward our employees when they introduce new ideas. Creativity mind, inventive behaviour and supportive organization are always important ingredients for technology companies.

TE 5 argued that the key factor to gain and maintain competitive advantage for technology-based enterprises is the technological personnel of the enterprise. TE 5 strongly argued:

Our people are our number 1 asset. Without them we cannot offer any technology to our customers. If other business talks about place, place and place; we talk about people, people and people. Our business is not about tangible products, but abstract services.

In business, TE 6 contended that the business must be able to make profit while reducing cost and enhancing the personnel's competencies. TE 6 stated:

Our operations must be cost saving. Our people must be proactive, creative and innovative. So we combine people and cost saving, we can continue to be competitive.

As manager of technology-based enterprise, TE 7 argued that technological superiority is developed by the technological personnel. Therefore, they must be paid proper attention. TE 7 said:

My company always emphasized on technology development. So our IT personnel must be able to develop IT technology, in our company, IT software, IT solutions, and so forth.

As for TE 8, technology-based enterprises can sustain competitive advantage when they made horizontal integration with technology-based organizations. TE 8 argued:

Our company collaborates with universities and government institutions to develop technology. As a company, it is costly to develop technology. We can only sell technology.

According to TE 9, technology-based enterprises are not unique from other enterprises just because they specialized in technological development, but more importantly, they must be able to win the heart of the customers and potential customers. TE 9 mentioned:

In any business, a good product or service can be sold easily and repetitively. It same goes to technology products and services.

TE 10 argued that technology-based enterprises can gain and maintain competitive advantage through strategic partnership with their technological personnel and customers. TE 10 mentioned:

A competitive business always make their customers as number 1 in their chart. Every business completed business deal is not the end of business, but it is just a starting because we need to come back to the same customers and other customers for continuous sales.

The most important factors contribute to knowledge strategy and sustained competitive advantage are derivatives or intellectual contribution from employees (TE 4, TE 5, TE 6, TE 7, TE 8, TE 9 and TE 10) (n=7), good relationship with customers (TE 1, TE 2, TE 4, TE 9 and TE 10) (n=5), and technology (TE 5, TE 7, TE 8) (n=3). Table 2 summarizes the interview results into several themes.

Table 2. Summary of Informants' Interview Results.

Code	Themes
TE 1	Sales, governance, customers
TE 2	Responsive, customers
TE 3	Growth, survival
TE 4	Customers, employees
TE 5	Employees, technology
TE 6	Cost reduction, employees
TE 7	Employees, technology superiority
TE 8	Integration, technology, employees

TE 9	Sales, employees, customers, profit
TE 10	Strategic partnership, employees, customers

Figure 2 depicts the three factors mentioned by the informants that are interacting dynamically in the knowledge strategy-sustained competitive advantage (KS-SCA) framework.

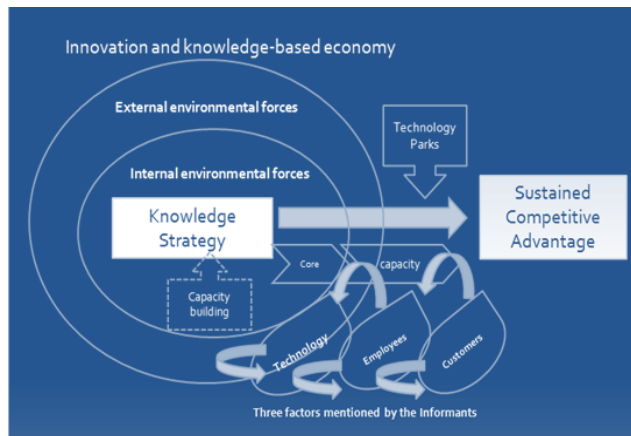


Figure 2. Three Factors for Knowledge Strategy to Sustain Competitive Advantage.

Two managers from top management category and more managers from other management categories mentioned employees as the key factor for technology-based enterprises' sustained competitive advantage. TE 6 and TE 10 from the top management category mentioned employees. Another top management informant, TE 10 joined other categories of management stated that customers are important contributor to sustain competitive advantage. However, none of top management mentioned the role of technology. The three factors, namely employees, customers, technology (EST), provide the way to create and sustain competitive advantage through effective strategy that shapes by the nature of industry, key stakeholders, continuous development, optimizing corporate strategies and practical approach in technology development.

V DISCUSSION

The feedback from the informants about the factors contributing to creating and maintaining sustainable competitive advantage for technology-based firms stated that knowledge about the nature of the industry, relationship with key stakeholders, continuous development, optimizing corporate strategies and practical approach. These factors are essential to gain and sustain competitive advantage when these enterprises strive to adjust to demand of the industry and the past paced of technological

development (Schwenk & Schrader, 1993; Peel & Bridge, 1998; Smith, 1998).

For example, while TE 1 argues on the good skill in sales combined with good governance and customer oriented approach, TE 2 contends that quick and responsive is necessary to meet the economic and legal concern of TE 3. Knowledge strategy within the past paced technological development requires commitment and capacity to intensify action to share, transfer and codify knowledge into meaningful organizational action. The codification from tacit/implicit into explicit and codified format is challenging (Nonaka, 1994), but can be transferred and shared physically and electronically with the strong influence on paradigm, attitude and behavior of employees (Alavi & Leidner, 2001; Davenport & Prusak, 1998).

TE 4 extends TE 1's concern on good skills and customer friendly approach into good community of practice with them. TE 5, TE 6 and TE 7 argue that people that to be involved in the relationship will be the technological personnel for superior technological products, but TE 6 contends that cost reduction should not be left out although the enterprises apply their corporate strategy (as argued by TE 8, 9 and 10). The process is risky to be done at individual enterprise (Macdonald, 1998), but can be mitigated through collaboration and support from the government. More importantly, there must be adequate facilities and networking for knowledge management strategy to support knowledge transfer between the firms in that location (Joseph, 1994, p. 46).

Personal interview with 10 strategists from technology-based enterprises revealed that customized knowledge strategy is capable to create and sustain knowledge. However, the results cannot be generalized due to less rigorous qualitative analysis on the interview results. Figure 3 illustrates knowledge strategy to sustain competitive advantage based on the feedback of the informants.

A. Limitations

This study has a few limitations. Firstly, the narrow scope of personal interview technique to obtain the feedback only from some managers of technology-based in which they might not represent the entire industry. Secondly, the use of note taking technique and later manually transcribed might not comprehensive in capturing all the feedback despite the verification from the informants. Finally, the depth of the results might not adequate to answer the research objective of the study.

B. Implications for theory and practice

For theoretical implications, knowledge strategy as the way to sustain competitive advantage of

technology-based firms contributes to the literature of resource-based view and competitive advantage. As for practice, strategists must capitalize the internal resources to build capacity to outcompete their rival enterprises.

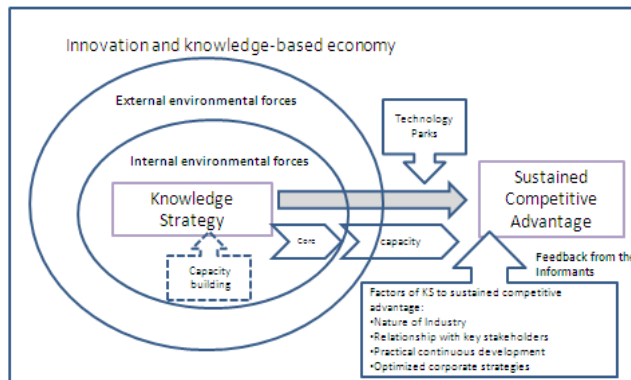


Figure 3. Knowledge Strategy for Sustained Competitive Advantage Model.

VI CONCLUSION

Technology-based enterprises are competing on offering the advanced, customized and superior technological products and services. They combined the business and knowledge-based approaches to create, maintain and sustain competitive advantage. The capability to transfer and codify knowledge among individual technology personnel into technological development is a must.

The feedback from 10 informants confirmed that knowledge strategy through organizational process and strategic partnership with technological personnel provides the strategic choice and capability to create and sustain knowledge. The results of this study contribute to the theoretical and practical understanding to use knowledge strategy in technology-based enterprises for sustained competitive advantage. However, the results cannot be generalized due lack of comprehensive and rigorous analysis. The future studies should include more informants and to use qualitative analysis software for more rigorous analysis.

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