

INNOVATION AS CORE COMPETENCY: THE ROLE OF KNOWLEDGE AND ORGANIZATIONAL LEARNING IN KNOWLEDGE- BASED COMPETITION ERA

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Abstrak: Munculnya tipe organisasi baru ditandai dengan adanya gejala-gejala perubahan organisasi yang tidak asing lagi seperti devolusi atau pendelegasian tanggung jawab manajerial, tanggung jawab karyawan yang makin fleksibel, peningkatan kebijakan *outsourcing*, dan meningkatnya kerjasama dalam suatu jejaring bisnis baik di dalam maupun diluar organisasi untuk mengubah pengetahuan dalam nilai-nilai bisnis. Untuk mendapatkan manfaat lebih dari pengetahuan sebagai sumber keunggulan kompetitif organisasi, pengetahuan harus dikelola melalui manajemen pengetahuan yang didefinisikan sebagai proses mengelola pengetahuan. Manajemen pengetahuan menitikberatkan pada akuisisi dan komunikasi pengetahuan yang menjadi fondasi proses pembelajaran dalam organisasi. *Organizational learning* (organisasi pembelajar) adalah suatu proses yang melibatkan semua level baik individu, kelompok, organisasional, dan *inter-organizational* yang memusatkan pada tiga tahapan yaitu akuisisi, komunikasi, dan pengetahuan. Melalui proses pembelajaran, pengetahuan dapat memberikan potensi inovasi yang kreatif yang kita sebut dengan kompetensi inti.

Kata Kunci: Kompetisi berbasis pengetahuan, organisasi pembelajar, inovasi, kompetensi inti

Introduction

Global competition characterized by varying level of environmental uncertainty that influence firm level innovativeness and performance. It is include levels of customer dependency, changing composition of customers and supplier, intensity of competition and relative size of competitors, recruitment difficulties, changing levels of technology and automation, changes in the firm's ability to access finance, changing level of information use, pertinent changes in legislature and regulatory environment, and the frequency of firm search process (Anatan and Radhy, 2007). To cope with this instability conditions, companies need to search new way in order to stay competitive and to achieve sustainable competitive advantage.

Over last decade several driving force have emerged, such as globalization of business and international competition sophisticated customers, competitor, and supplier increased technological capability and shortening of product life cycle. Among the changes, knowledge has made the most

outstanding impact, the advent of knowledge economy. Knowledge is source of lasting competitive advantage in the economy where the only certainty is uncertainty. When market shift, technologies proliferate, competitors multiply, and product becomes obsolete, successful organizations are those that consistently create new knowledge.

The emergence of new type of organization signaled by the familiar symptoms of corporate change such as devolution of managerial responsibilities, more flexibility and skill in the workforce, more resources to outsourcing, and increased networking both inside and outside the organizations to transforms knowledge into business value. Knowledge represents key personal and primary economic resources (Drucker, 1993). In this competitive environment, knowledge is progressively being perceived as core driver of competitiveness, more importantly knowledge extends beyond individual, group, or corporations to mutually supporting groups (Gummesson, 1999).

To get more benefit from knowledge as source of competitive advantage, it has to be managed through knowledge management. We defined knowledge management as the process of managing knowledge which concern with the acquisition and communication of knowledge. Knowledge management becomes the foundation of organizational learning. Organizational learning is a process involving individual, group, organizational, and inter-organizational levels which concern with three stages: acquisition, communication, and exploitation of knowledge. Through the process of learning, knowledge ultimately provide the creative potential of innovation called “core competency” and it effects organization in finding the way to improve innovation performance.

This paper discusses the role of knowledge and organizational learning in innovation process as organization’s core competency in knowledge-based competition era. The organization of the paper follow as: Section 1 introduction, Section 2 discusses knowledge-based competition as the new paradigm of business competition. Section 3 includes the process of organizational learning and the role of organizational learning in innovation process. Section 4 discusses innovation as the core competency of organizations. Section 5 presents the way to create innovation in organization. Finally, section 6 presents the conclusion.

Knowledge-based Competition: The New Paradigm of Business Competition

Today’s global economy driven by intense competition, rapid innovation, and short product life cycles, what an organization knows and how rapidly it learns are becoming as important as what it currently produces (Nonaka, 1994). In this circumstance, the notion of “resource in new millennium” given by Barney (1991) is needed to face the changing of business environment. Barney (1991) expands the common notion of a firm’s resources to encompass “all assets, capabilities, organizational processes, firm attributes, information, knowledge, etc.” He indicates how such resources enable the firm

to conceive and implement, strategies that ultimate improve its efficiencies and effectiveness. It can be argued that the value of resources is dependent on present information or knowledge.

Knowledge is recognized as an important weapon for sustaining competitive advantage and many companies are beginning to manage organizational knowledge. The adoption of the diffused competitive knowledge is essential to develop company's abilities to compete successfully in the market place. Knowledge has the ability to transform anything in this world (including human) into a resources. It has become the driver of economy activities and business competition, so that we call this era as knowledge-based economy which characterized by knowledge-based competition in business environment.

Knowledge-based economy describes trends in the most advanced economies towards greater dependence on knowledge, information, high skill levels, and an increasing need for ready to access all of these aspects. Knowledge plays a crucial role in economy activity to increase investment in research and development, education and training, and other intangible investment. Organization should emphasize on creating and transferring innovative knowledge since the speed at which knowledge is effectively transferred within organization can significantly affect its competitive ability and performance. A firm's long-term viability will depends on the successful expansion and exploitation of its knowledge assets by identifying key leverage points for achieving business results.

The shift from industrial era to knowledge era is described by changes in economic and business process and the increasing importance of knowledge activity. Business processes are knowledge-intensive, reflecting what employees know about customers, products, past successes and failures, and the processes themselves. Table 1 explained new challenges as a result of organizational shift from industrial era to knowledge economy.

Table 1. Characteristics of Industrial Era and Knowledge Era

Industrial Era	Knowledge Era
Physical assets	Intangible Assets
Fragmented task	Integrated and coordinated task
Mass marketing	JIT Product
Operational efficiencies	Innovation
Management control	Common goals and objectives
Training	Lifelong learning/training

Source: Kimpeler, S., 2001

From Table 1, we can conclude that the business environment have changed during the movement from industrial era to knowledge era, as information and

knowledge receive more and more attention in business process. New economics dynamics are arising in the industry, driven by interacting trends such as:

1. The increasing importance of knowledge as an intangible production factor
2. The formation of strategic partnership and cooperation
3. The rapid change of strategy within a networked and knowledge-based economy

Traditional factors of production such as land, labor, and capital have become secondary, and knowledge is the only meaningful of resource today. Moreover, the aptitude of the worker and the firm to seek new and up to date knowledge through organizational learning is the only means of sustaining the value of the firm's knowledge resources.

Knowledge Management as the Foundation of Organizational Learning

Organizations are trying to improve the generation and utilization of knowledge. The activities associated with these efforts are identified as knowledge management. Many researchers have emphasized three major factors for managing knowledge: enablers, processes, and organizational performance (Beckman, 1999; Damarest, 1997; O'dell & Grayson, 1999). Knowledge management enablers are organizational mechanisms for fostering knowledge consistently; they can stimulate knowledge creation, protect knowledge, and facilitate the sharing of knowledge in an organization (Ichijo et.al, 1997). Knowledge processes, that also known as knowledge management activities, can be thought of as a structured coordination for managing knowledge effectively (Gold et.al, 2001). Typically, knowledge processes include activities such as creation, sharing, storage, and usage. Whereas knowledge processes represent the basic operations of knowledge, enablers provide the infrastructure necessary for the organization to increase the efficiency of knowledge processes (Sarvary, 1999). Organizational performance defined as the degree to which companies achieved its business objectives. It may be measured in terms of organizational learning, profitability, or other financial benefits in knowledge management. Without measurable success, passion from employees and managers will vanish (Elenkov, 2002).

Nonaka and Takeuchi (1995) explained the knowledge management process as a continuous process or a cycle process that can be divided into four sequential phases include knowledge acquisition, knowledge organization, knowledge dissemination, and knowledge application. Figure 1 describes this cycle process. Each phase plays a specific role and incorporates relevant information technologies such as (computer-aided design, computer-assisted manufacturing, and work process simulations) as support.

Knowledge Acquisition phase deals with finding and acquiring knowledge in knowledge-based resources. In this stage, organization should make conscious efforts to sense, search, and define relevant knowledge and its sources. Identifying Research and development (R&D) relevant knowledge is the critical first step to identify knowledge relevant for current and predictable

future needs. The next step is finding ways to access or extract knowledge through developing special protocols, processes, and systems such as the Internet to acquire knowledge. Internet application will give benefits to provide access to a vast amount of information and knowledge on the global scale, particularly on competing products and services, patents, consumer preferences, technological, and other trends.

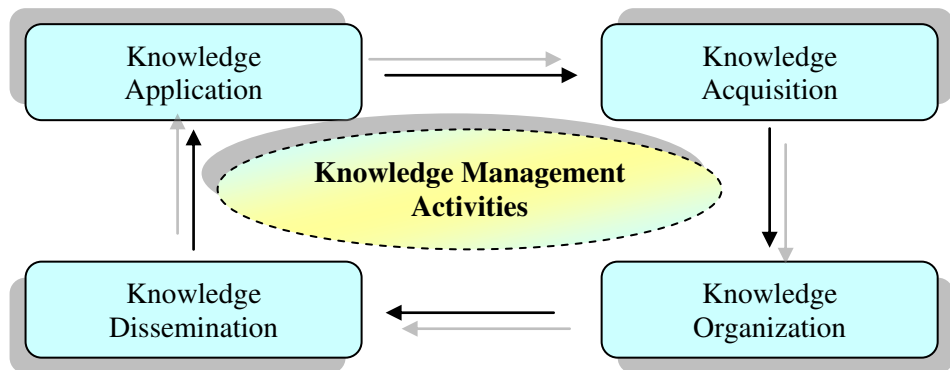


Figure 1. Knowledge Management Activities
Source: Bhatt, 2001

Knowledge organization phase deals with refining, organizing, and storing the knowledge collected. In this phase, knowledge is first filtered to identify and cross-list the dimensions that are useful for different R&D projects to increase the knowledge exchange assisting autonomous and systemic innovations (Chesbrough and Teece, 1996). The next step, knowledge is structured with indices, links, and catalogs for storage. Filtering and structuring agents can be used to develop knowledge architecture and maps to develop to retain the experience and know-how of R&D engineers and designers.

Knowledge dissemination phase involves who gets what knowledge (personalization) and how (distribution). In this phase, not all collected information and knowledge is useful to everybody. Irrelevant information and knowledge can confuse the interpretation and application of relevant knowledge. Therefore, knowledge must be personalized and distributed to meet the specific needs of users. A knowledge-based personalization approach and an information-based codification approach should be used to disseminate tacit and explicit knowledge (Hansen et al., 1999). Intranets and extranets provide a platform to personalize presentation and access.

Knowledge application phase involves applying knowledge to a new scenario and learning from it. Learning from a knowledge application involves analysis and critical evaluation. The applicability of knowledge should be

evaluated in terms of its relevance, novelty, comprehensibility, life, and credibility that lead to managerial learning and learning about the R&D process as a whole before applying it (Moenaert et al., 1992). Decision support systems with multidimensional databases, analytical models, and expert systems modules can be very useful in applying knowledge and post-application analysis.

Knowledge management is the foundation of organizational learning. Knowledge management is viewing all organizational activities as knowledge generating and transforming the firm into a learning organization. Robey et al. (2000) developed five key characteristics that define organizational learning. To be successful in facilitating organizational learning, knowledge management activities should focus on some characteristics. Those characteristics are: 1) Organizational learning takes place at the organizational level, which is different from individual, group, and social levels. Knowledge management should address organizational level issues such as creating new or revising old processes to generate knowledge, developing incentives to promote knowledge sharing, and redefining organizational structure to support knowledge management, 2) Organizational learning is a process, not a structure. Knowledge management should be thoroughly integrated with business processes and not designed as a specialized tool, technology, or structure, 3) Organizational learning guides organizational action. Knowledge management should provide relevant knowledge to help knowledge workers make appropriate decisions to determine organizational actions.

The Role of Organizational Learning in Innovation Process

As mentioned before, knowledge management is the foundation of organizational learning. It is viewing all organizational activities as knowledge generating and transforming the firm into a learning organization. Through the process of learning, knowledge ultimately provide the creative potential of innovation organization will find the ways to improve the innovative performance. The relationship amongst these variables described in Figure 2.

Organizational learning is a process or a set of organizational processes that involving individual, group, organizational and inter-organizational level and will be influenced by the strategy of the firm. Learning is concerned with three stages: acquisition, communication and exploitation of knowledge. Acquisition and exploitation will occur again at the different levels suggested above and will be influenced by several factors coming from these same levels. The more complex, the more tacit and the more systemic knowledge is, the more difficult it will be to acquire and exploit it. As for any other organizational features, organizational learning processes will be influenced by the strategy of the firm.

Organizational learning should be positively related to innovation. If a company is good at acquiring new knowledge and articulating existing knowledge with new knowledge or existing knowledge in a different way, this company should be good at producing innovations not only in product innovation but also process innovation. The better the organizational learning

process, the greater the capacity to develop radical innovations, both product and process innovation. Organizational learning is not necessarily related to innovation's success. Innovation and innovation's success are two different dimensions. A successful learning organization leads to the capacity to innovate, which is the ability of the organization to adopt or implement new ideas, processes, or products successfully. Specifically, if the innovation is not in line with the strategy and the firm's environment, the innovation may fail and thus the learning-innovation link will not be related to performance.

Learning more does not imply that you learn what you have to, in order to perform better than your competitors. A company could be learning oriented (willing to learn and makes it a learning organization), but one that is poor in terms of processes that lead to learning, that is organizational learning. Thus, questions remain concerning the bridges between knowledge and organizational learning, organizational learning and the learning organization, the learning organization and innovation, and innovation and performance as described in Figure 2. Specifically, what are the constituents or variables that favor or impede a successful passage from one level to another. If several researches have studied effects of single individual, organizational or environmental variables on innovation, links between organizational learning and innovation are still to be studied.

As for innovation, learning may occur at the individual, group, organization and industry levels. As new outputs, innovations may come from new knowledge as well as from the combination of existing knowledge to create architectural innovations, using combinative capabilities. Radical and incremental innovations refer to high and low degrees of new knowledge, involving high and low degrees of organizational transformation

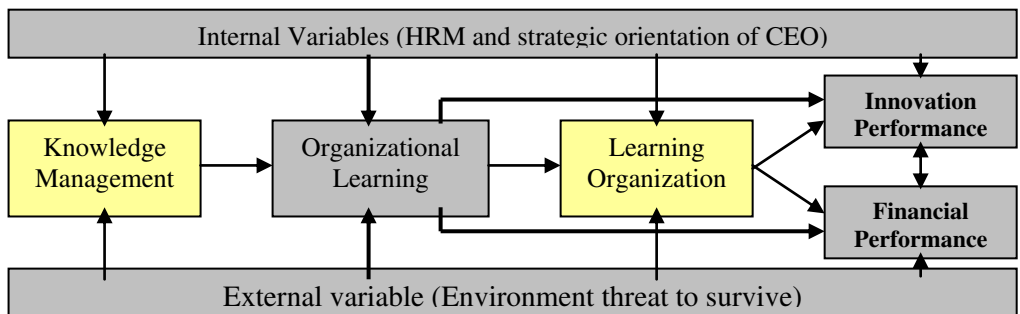


Figure 2. Learning and Innovation Framework
Source: Modified from Therin (2002)

How to Create Innovation as the Core Competency of Organization?

The important of an organization to become more innovative has probably never been greater. Today's concepts such as the new economy, new technologies, and hyper-competition are used to explain that the dynamics of competition and markets has never been greater. Therefore, there is a large focus on the concept of innovation management in firms. This coincides with the emergence of "knowledge intensive firms" such as firm activities, products/services and value on knowledge of their employees and external partners. The real issue now is how to create the desired innovations? Innovation oriented R&D processes are knowledge intensive that not only use existing knowledge, but also create new knowledge, which provides competitive advantages to the firm.

Drucker (1993) declared that most innovations, especially the successful ones, result from a conscious, purposeful search for innovation opportunities. Innovation is not just an outcome, but a process. We call set of managerial activities that together attempt to control the process of innovation as innovation management. Thus, innovation is reserved for the results of innovation process that managed by innovation management. Robert (1981) clarified that innovation is not more than just invention, it emphasize that ideas is need to be put into practice and inventions need to be commercialized in order to speak of innovation. In broad perception of innovation to cover more than just product innovation, the idea or inventions need to be implemented in the products, production or administrative competencies of the firm.

Many researchers suggest some activities to be implemented in innovation management processes. There are five activities needed in creating innovation as core competency o organization includes: technological integration, the process of innovation, strategic technological planning, organizational change, and business development. The first three activities define innovation management, while the last two define the context of innovation management. The explanation of each activity will be discussed below:

- 1) *The process of innovation* refers to the cross-functional business process of activities that create innovations across the departments of the firm. Obviously, not only one department that has responsible for innovation management activities but all departments in organization that has responsible on it, so that it is necessary to see how departments together create innovations.
- 2) *Technological integration* refers to the integration between technologies and the product-markets of the firm (Iansiti, 1997). It also emphasized on the importance of satisfying the customer with the innovations. To achieve the organization's objective, technology development production and administration needs to be integrated with product development process (Drejer, 2001).
- 3) *Strategic technology planning* refers to the planning of technology and competence projects with the aim of maintaining a balanced portfolio of technologies and/or competencies (Drejer and Riis 2001).

- 4) *Organizational change*. Innovation is closely related to organizational change that will affect the organization needs for new knowledge, new markets, new employees and so on. Therefore, it is difficult to implement innovation strategy without considering organizational change.
- 5) *Business development*. Innovation in organization should be seen as a means for creating new and improved business for the company. Innovation can both drive and be driven by business development as the second very critical contextual element of innovation management.

Innovation management is not just innovation management. It needs to be done differently in different situations. To understand this statement, we will also discuss how innovation should be managed in today's business environment that characterized by sustainable change situation. In this situation, the innovation process formalized into a procedure that organization must focus in the procedures. Activities are clearly bound by available time. Technology integration is difficult when it comes to establishing a new integration that must be created with each new generation of products. Products are seen as configurations of technologies that change over time, thereby affecting the market. The process is also concerned with getting knowledge workers involved in an organizational process of sharing knowledge about technologies and their use. Organizational change is going on at employee level because of the constant change in knowledge and technologies over time. Business development is related to the constant change of the technology integration balance, where it is crucial to make sure that each new generation of products is in line with rival products and the needs of the market. In the situation of sustainable change, it is necessary to innovate faster and constantly. Organization should focus on product innovation and process innovation and not on administrative innovation. In the next session we will discuss Innovation strategy at IBM, to better understand how innovation should be manage in today's business competition that is characterized by the unpredictable change.

IBM Case: Taking Innovation to the Next Level

Globalization, massive economic and demographic shift, and unpredictable changes have become the driver of the implementation of innovation strategy. More and more CEOs in today's business competition are adopting an innovation agenda. In this section, we will see many arguments from CEOs about the important of innovation in their organizations. Sunnil Mittal, Chairman of Bharty Enterprises said "we need a very, very innovative business model. We presented two years back a strategy which said: we will be the only customers, we will give everything else away..." Howard Stringer, chairman and CEO from Sony said "we will fight our battles not on the low road to commoditization, but on the high road of innovation. Moreover, Prime Minister from Japan, Junichiro Koizumi, and Tony Blair, Prime Minister of United Kingdom, clarify the important of innovation as competitive strength to stay competitive. Koizumi assert "continuous innovation and the full, unfettered

expression of human capacity are indispensable to Japan's economic rebirth and revitalization." While Blair said "Government support for scientific research is not enough. We also need to make sure that scientific innovation gets translated into applied uses in business."

According to those statements, it can be concluded that innovation is the only solution for CEOs to drive growth while they want to cut business cost. They have to focus on product, services, and market; business model through building relationship with outsiders; and operation (innovation must be orchestrated from the top). To become world class performer, organizations have to realize that they are at a historic turning point and there have never been so many new possibilities. If in the last year, the world produced more transistors (and at lower cost) than grain rice, today, exceptional talent is everywhere—from the quality engineering and design, to customer care, to human resource, to supply chain and more. In this circumstance, organizations should find their distinctive competence that will make their company special, whether in their product, services, financial strength, customer base, supply chain, management systems, business model, history, brand, or their expertise. Whatever it makes their organization unique, they must infuse it with the new enablers of innovation, so that they can get higher profit, penetrate new markets, and drive productivity. In other words, they should differentiate themselves from their competitors.

Betty Alisjahbana (the President Director of IBM Indonesia) explained the three innovation strategies at IBM include innovating the corporation, mobilizing the whole organization to innovate, and become the innovator's innovator. In order to develop changes through innovating the corporation, IBM undertook a major financial, competitive, and cultural transformation. In 1993-1998, market planning, product development, procurement, customer relationship management, and fulfillment was driving common processes across line of business. Start from 1998, IBM changed their orientation to enabling e-business which required end-to-end integration across the value network include customers, partners, suppliers, and employees. As a result, IBM Corporation today becomes the world's largest IT Company and the world 10th largest corporation that conducts business in 170 countries.

In order to mobilize the whole organization to innovate, IBM developed a collaborative online global forum to surface and refine innovative ideas called IBM Innovation Jam. Communities are creating community innovation circles, linking to ThinkPlace, and implementing ideas. The objectives of this global forum are (Alisjahbana, 2007): 1) Generate understanding and excitement about IBM's most promising emerging technologies, inventions, capabilities, 2) Demonstrate power of collaboration to advance both idea discovery and implementation, accelerate IBM's ability to innovate and deploy integrated offerings, 4) showcase what sets IBM apart— the core capabilities, ability to innovate, and willingness to collaborate.

Become the innovator's innovator is the third innovation strategy at IBM. To achieve this objective, IBM developed a strategy to collaborate with

academia, business and government to innovate. It is important to develop research partnership between the academia-industry-government in order to ascertain the success of innovation strategy implementation. The pooling of knowledge, information, and expertise amongst this tripartite network would be a platform to better understand the real problem of the industry to provide practical solutions to the problems and eventually to formulate appropriate policies and strategies based upon real experience (Anatan, 2007)

Conclusion

Knowledge is recognized as an important weapon for sustaining competitive advantage and many companies are beginning to manage organizational knowledge. The adoption of the diffused competitive knowledge is essential to develop company's abilities to compete successfully in the market place. To get more benefit from knowledge as source of competitive advantage, it has to be managed through knowledge management that concern with the acquisition and communication of knowledge and it become the foundation of organizational learning. Organizational learning is a process involving individual, group, organizational, and inter-organizational levels which concern with three stages: acquisition, communication, and exploitation of knowledge. Through the process of learning, knowledge ultimately provides the creative potential of innovation, so called "core competency" and organization will find the ways to improve the innovation performance. There are five activities needed in creating innovation as core competency of organization includes: technological integration, the process of innovation, strategic technological planning, organizational change, and business development. The first three activities define innovation management, while the last two define the context of innovation management.

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