

# Integrating Japanese Knowledge Creation Theory Into Knowledge Management Initiatives

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## ABSTRACT

The first step to knowledge initiatives in companies is that of finding what people in the company know and taking steps to make knowledge accessible throughout the organization. Such process relates to the capturing and disseminating of explicit knowledge through information and communication technology whereby knowledge is codified, stored and disseminated and updated through computer networks. However, the organization that focuses completely on collecting explicit knowledge and makes little or no effort at linking people with people tends to end up with having merely a repository of static documents. This article gives an analysis and synthesis of the Japanese perspectives as oppose to Western perspectives on knowledge management, followed by an elaborated account on the theory of knowledge creation advocated by Fujiro Nonaka and Hirotaka Takeuchi. This is to stress that it is equally important to link people and by doing so, the flow of tacit knowledge could be enhanced through better human interaction. Such dimensions seem to be the main focus in Japanese knowledge initiatives. However, an organization that focuses entirely on connecting people with little or no effort at linking people with information can also be very inefficient. This article attempts to highlight the point that knowledge management initiatives should be combining the benefit of both Western and Japanese approach to knowledge management. A model was constructed to ensure that the knowledge management programmes to be designed give emphasis on a variety of aspects that will make the programme efficient and effective. From the details given on Japanese knowledge

management perspective, thus it can be synthesized that for a knowledge management programme to succeed, the culture of the organization must support online learning and knowledge sharing.

## Keywords

Knowledge Management Initiatives, Cultural-Behavioural Knowledge Management, Knowledge Management Collecting Dimensions.

## 1.0 INTRODUCTION

In practice, knowledge management often encompasses identifying and mapping intellectual assets within the organization generating new knowledge for competitive advantage within the organization and at the same time making vast amount of corporate information accessible. Knowledge management initiatives allows the sharing of the best practices and technology that enables all the above. There seem to be many opinions on the definitions, approaches, methods and even objectives of knowledge management. Some focus on enhancing on the creation of new knowledge while others emphasize leveraging existing knowledge. In relation to this, there is a need to explain how knowledge is perceived in organizations. Knowledge in organizations is often classified into two types: explicit and tacit knowledge. Explicit knowledge such as instruction manuals, written procedures, best practices, research findings, customers' complaints and technical problems is knowledge that can be captured, recorded in documents or electronically in databases. On the other hand, tacit knowledge like how to make good bread or ride a bicycle are knowledge that people carry in their

heads and that is difficult to write or record in a document form or in a database. Therefore, it can be seen that tacit knowledge is difficult to access as it is not often known to others.

However, the concept of knowledge itself is perceived differently by the West and the Japanese. The difference between explicit and tacit knowledge appears to be the key to understanding Japanese approach to knowledge in organization as opposed to the West. It is a known fact that explicit knowledge can be easily processed by the computer, disseminated electronically and stored in databases. On the other hand, the very nature of tacit knowledge which is subjective and intuitive makes it difficult to be processed and disseminated systematically and logically. Managers in the West seem to emphasize on the importance of explicit knowledge. They believe that an organization is a field for scientific management and information processing. It is this view that becomes the basis in Western knowledge management. Scientific management does not encourage active sharing among employees. On the other hand, to the Japanese, knowledge is not seen as data or information that can be stored in computers because it involves emotion, values and insights. In Japan, companies not only manage knowledge but create it and that all their employees are involved in the knowledge creation process.

## **2.0 HOW JAPANESE PERCEIVED KNOWLEDGE**

Efforts should be made to explore the approach that has been used by firms in Japan on matters relating to knowledge management initiatives. Research conducted by Snowden of IBM Institute of Knowledge Management revealed that 80% of knowledge initiatives in the United States failed (Pluskowski, 2002). This piece of fact had initiated the main author to explore knowledge management initiatives from the Japanese perspectives. Some of the research questions that need some concrete answers include:

- i. How Japanese perceive knowledge?
- ii. What do Japanese firms do with the knowledge?
- iii. Who play the main role in knowledge management initiatives?

### **2.1 Exploratory study on Japanese knowledge management practices**

A research that was undertaken by the main author involved an exploratory study based on literature research and through interview and discussions with the experts on knowledge management and creation process, basically Professor Dr. Takeuchi and Professor Nonaka from the Hitotsubashi University and Toyama from Japan Advance Institute of Science and Technology. Detail analysis on the book 'Hitotsubashi on Knowledge Management' (Takeuchi & Nonaka

2004) was carried out to get a better understanding of the various aspects which includes: the concept of knowledge creating company, knowledge creation and dialectics, managing and enabling knowledge, theory of organizational knowledge and interorganizational knowledge creation. The main author has also been fortunate to be given case studies on knowledge management initiatives in Japanese firms which have successfully practiced the knowledge creation theory of Takeuchi and Nonaka. This valuable exposure has definitely given the main author a better understanding of the Japanese perspectives on knowledge management.

### **2.2 Analysis and synthesis of the Japanese perspectives on knowledge management**

While the West emphasized on explicit knowledge, the Japanese believe that the whole idea about knowledge management is whether we can convert tacit knowledge to explicit knowledge. To increase the competitive advantage of companies, it is important to encourage innovation among staff. Nonaka and his colleagues advocate that firms can create knowledge through the interaction between explicit and tacit knowledge which is a process called knowledge conversion. Knowledge creation consists of four modes of conversion processes and they are: socialization, externalization, combination and internalization. The essence in the theory of knowledge conversion emphasizes on the fact that an organization creates new knowledge by converting tacit knowledge into explicit knowledge and vice versa and that new knowledge is created through "synthesis" which is a continuous and dynamic process.. Nonaka's and Takeuchi's theory of knowledge creation is based on the critical assumption that knowledge is created and extended through social interaction between tacit and explicit knowledge. The exchange of knowledge is a social process between individuals and individuals and organization. On the other hand, the West focuses on explicit knowledge, measuring and managing of existing knowledge and only the selected few are responsible for knowledge initiatives activities. According to Takeuchi (1998), what the companies in the West need to do is to give attention to tacit knowledge, create new knowledge and get every employee in the organization involved. By involving all in the organization, only then can be said that an organization is a living organism that can create new knowledge on a continuous basis. Based on the comparison discussed above, companies need to take a more holistic approach to knowledge management that involves both approaches, from the Western and Japanese perspectives.

### **3.0 INTEGRATING WESTERN AND JAPANESE APPROACH TO KNOWLEDGE MANAGEMENT INITIATIVE**

Most knowledge management strategies generally are designed to make better use of the knowledge that already exists within the organization and create new knowledge. It is important for organizations to have knowledge on what the people in the organization know to prevent people in one part of the organization reinvent the wheel or fail to solve the problem because the knowledge they need is elsewhere in the organization but not known or accessible to them. Therefore, it is usually the case whereby the first step to knowledge initiatives in companies is that of finding what people in the company know and taking steps to make knowledge accessible throughout the organization. Such process relates to the capturing and disseminating of explicit knowledge through information and communication technology whereby knowledge is codified, stored and disseminated and updated through computer networks. However, the organization that focuses completely on collecting explicit knowledge and makes little or no effort at linking people with people (so that tacit knowledge own by some personnel within the same organization can be transferred to others) tends to end up with having merely a repository of static documents.

Hence, it is equally important to link people who need to know with those people who do know. This means by linking people with people, the flow of tacit knowledge could be enhance through better human interaction. In this way, knowledge which is embodied in people can diffuse around the organization and not just among the few. Such dimensions seem to be the main focus in Japanese knowledge initiatives. However, an organization that focuses entirely on connecting people with little or no effort at linking people with information (gathering of information) can also be very inefficient (Sveiby, 1996). Knowledge management initiatives should be combining the benefit of both approaches, Western and Japanese, to knowledge management. That is to try and achieve a balance between connecting individuals who need to know with those who do know, and collecting what is learned as a result of this connection and making that easily accessible to others.

### **3.1 A model integrating Japanese knowledge management initiatives in knowledge management programme**

Having analyzed the various approaches and practices to knowledge management based on available literature and discussion with Takeuchi, Nonaka and Toyama, a model was constructed to ensure that the knowledge management programmes to be designed give emphasis on a variety of aspects that will make the programme efficient and effective. Figure 1 shows that the knowledge management programme proposed here focus on developing a knowledge friendly culture and knowledge friendly behaviour among the people in an organization which should be supported by the appropriate processes, and which may be enabled through technology. Thus, the approach applied here is to think of knowledge management in terms of three components, namely people, processes and technology. At the same time, knowledge management programme must have two main dimensions which are basically collecting and connecting dimension.

#### **3.1.1 People**

This refers to the cultural and behavioural approach whereby getting an organisation's culture right for knowledge management. This component is the most important but the most difficult challenge, mainly because knowledge is actually first and foremost a people issue. Connecting people tends to be the main emphasis in Japanese knowledge programmes. Therefore, to get a clearer explanation on this requires further understanding on the theory of knowledge creation.

Knowledge management an initiative in Japanese firms has shown that the creation and sharing of knowledge can only happen when individual cooperate willingly. According to Nonaka, employees need to be given a lot of space to create and not controlled or monitored. It is this dimension that is being neglected in the scientific management advocated by Taylor. Japanese gives emphasis on the cognitive dimension that sees organization as a living organism and not merely a machine that process information. To increase the competitive advantage of companies, it is important to encourage innovation among staff. Nonaka and his colleagues advocate that firms can create knowledge through the interaction between explicit and tacit knowledge which is a process called knowledge conversion. Knowledge creation consists of four modes of conversion processes and they are: socialization, externalization, combination and internalization.

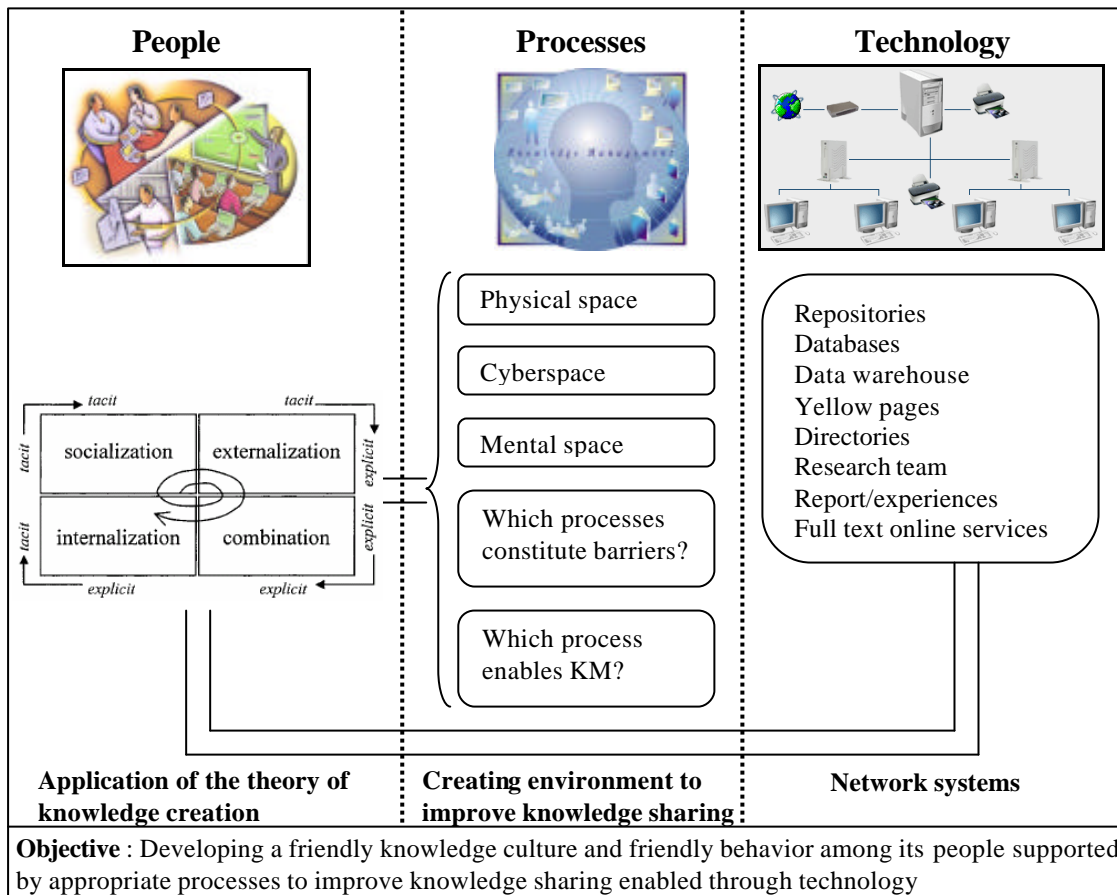


Figure 1 : Knowledge Management Programme

The socialization process enables individual to acquire tacit knowledge by sharing experiences usually of a technical in nature. Through observation, imitation and practice, one can learn new knowledge and skills that may not be possible by merely reading manuals that may not be successful to make one to fully understand the skills that one may want to acquire. Japanese firms create a context in which people can share and view ideas. Interaction between individuals through meetings and discussions provide shared context in which individuals can interact with each other. For knowledge to be created, it needs a physical context to exchange views and ideas. The Japanese refers such a place as 'ba'. According to Nonaka and Toyama (2004), leaders can built 'ba' by providing physical space such as meeting rooms, cyberspace such as computer network, or mental space such as common goals to foster interactions. However 'ba' is not only limited to a single organization but can be created across organizations. It is the sharing of experiences and continued dialogue between parties concerned that can result in new products being developed. Nonaka and Takeuchi (2004) emphasized on the importance of 'ba' to create the context in which people can share tacit knowledge and create new perspectives and come up with new solutions. It is also stressed that there has to be many 'ba' and that one ba alone is not enough. Knowledge creation needs many

'ba' which can be multi level. These 'ba' need to also be connected as the various 'ba' need to be interacted to determine the quality of knowledge creation.

The next mode of knowledge conversion according to Takeuchi and Nonaka involves the transfer of knowledge from individual to group known as externalization. It is the conversion of tacit knowledge into explicit knowledge so that others can share knowledge. It is at this mode that knowledge conceived by an individual is formalized and communicated to others. It is a process where tacit knowledge is converted explicitly and one way is by writing. Tacit knowledge not only involves know-how. It also includes beliefs and mental models. When one transfers tacit knowledge to explicit knowledge, it involves the process of articulating one's vision of the world – what is and what it ought to be (Takeuchi & Nonaka 2004:35). Very often it is not easy to express experience and know-how in words. Therefore the Japanese use metaphor as a way to express tacit knowledge to explicit knowledge as personal experience may sometimes be inexpressible. In the Honda City example, the metaphor that was used "Automobile Evolution" succeeded in developing a car that allocates minimum space for mechanics and maximum space for passengers. Unlike the West, in Japan, knowledge is created by the interaction of frontline employees, middle

managers and top management. In fact, in Japan, middle managers play the key role to knowledge creation process and they facilitate all four modes of knowledge conversion. They take the lead in converting tacit knowledge to explicit knowledge by synthesizing the tacit knowledge of frontline employees and top management and make it explicit and then incorporate it into new technologies, products, services and systems.

Internalization is the fourth mode in the knowledge creation process developed by Takeuchi and Nonaka. In this mode, explicit knowledge is being transferred to the individuals. Internalization actually refers to learning by doing which involves the conversion of explicit knowledge to tacit knowledge.. All the experiences through socialization, externalization and combination are internalized into individual's tacit knowledge. The tacit knowledge acquired can be in the form of mental models or technical know-how and they definitely become valuable assets. To help individual internalize explicit knowledge, several media can be utilized and this can include through oral media, documents, manuals and digital documents. All these media help facilitate the transfer of explicit knowledge to other people thus helping others to experience what they have experienced indirectly. Takeuchi and Nonaka further discussed that internalization can also occur even without having actually to "re-experience" other people's experiences. From the reading about the past experience, the present employees internalize the experience and values, enabling them to share the past tacit knowledge that may become part of the organizational culture. In Japan, there are many books written by former employees on their leaders in order to instill strong corporate culture in Japanese firms. While the Western beliefs reflect the bias towards explicit knowledge which can be stored into a database and transmitted online, and that knowledge management primarily deals with explicit knowledge, Takuechi and Nonaka stressed that acquiring explicit knowledge is just the tip of the iceberg.

To enable knowledge to be created in the organization, the conversion between tacit and explicit knowledge would involve a spiral process. The combination of discrete pieces of explicit information help transform into a whole new knowledge resulting to a new product, system or service being created. Finally through the experience of creating a new product, the members in a team enrich their tacit knowledge base. It is through learning from others or from the knowledge that has been made explicit, that one extends one's knowledge base. This spiral may start all over again, but this time at a higher level.. In Japanese firms, they have creative routines (such as morning meetings and discussions during lunch at Canon) that is unique to the company that help them to get the spiral in order to enhance the knowledge creation process that ultimately lead the path for continuous innovation for companies to stay competitive.

From the details given on Japanese knowledge management perspective, thus it can be synthesized that for a knowledge management programme to succeed, the culture of the organization must support on-going learning and knowledge sharing. People should be motivated and rewarded for creating, sharing and using knowledge. There should also be a culture of openness, mutual respect and support and that should an organization be very hierarchical where knowledge is hierarchical, then people are reluctant to share.

However, it was mentioned earlier that by entirely focusing on the connecting dimension, that is connecting people, the knowledge management programme can be very inefficient. To achieve a balanced knowledge management programme, the collecting dimension involving linking people with information is just as important. The collecting dimension stress on the knowledge sharing aspect which involves the next important component in knowledge management programme, that is Processes.

### **3.1.2 Processes**

In order to improve knowledge sharing, organization need to make changes to the way their internal structure are structured and sometimes even the organizational structure itself. Organizations should look at the many aspects of how things are done in their organization and ask the following: Which processes contribute to barriers to, or enablers of, knowledge management? How can these processes be adapted or what new processes can be introduced to support people in creating, sharing and using knowledge. Some practices on this aspect of knowledge management in Japanese firms can help organization to think of ways to improve knowledge sharing and thus to make necessary restructure to an organization's internal processes.

Several Japanese companies' resorted to creative routines as a way to get everyone involve in dialogue and debate which the 'ba' becomes where knowledge can be shared and new knowledge created. Creative routines have to be unique to the organization for it to work effectively. In Honda for instance, people are constantly discussing and this is made possible as the top management floor is an open space that enhance the discussion on issues, openly. Such meeting was also utilized to identify problems and debate issues from multiple perspectives.

Unlike the West, in Japan, knowledge is created by the interaction of frontline employees, middle managers and top management. In fact, in Japan, middle managers play the key role to knowledge creation process and they facilitate all four modes of knowledge conversion. They take the lead in converting tacit knowledge to explicit knowledge by synthesizing the tacit knowledge of frontline employees and top management and make it explicit and then incorporate it into new technologies, products, services and systems. The other players in

knowledge creation are the top management who provides the direction on where the company should be. By adapting the processes elaborated above, organization can introduce these new processes to support people in creating, sharing and using knowledge. Another crucial enabler of knowledge management that helps connect people with information and people with each other is technology. Technology is the third component in an effective knowledge management programme.

### 3.1.3 Technology

It is a misconception that knowledge management is mainly about technology. It is not just getting an intranet, linking people by e-mail, compiling information databases, etc. It is vital that any technology used, fits the organization's people and processes. Otherwise, it will simply not be used. Through information communication technologies, explicit knowledge can be captured and disseminated. Such collection of content enables what is learned by people in an organization be made accessible to others in the organization and used in the future. This collecting dimension is thus the main emphasis in Western knowledge management initiatives. With these comprehensive collection of information sources, and when effective use of these sources by knowledgeable and skilled interpretation and subsequent alignment with the local context, effective results can be achieved.

## 4.0 INTEGRATING JAPANESE APPROACH TO KNOWLEDGE MANAGEMENT SYSTEM

The above discussion shows that the essential elements to successful knowledge management involve drawing on a whole arsenal of people, process and technology-related changes. The first priority in terms of people is to recognize and formulate the roles of "knowledge workers". The work on process should focus on knowledge creation as greatly emphasized by Japanese companies and to define ways in which individual knowledge becomes an organizational asset. The technology effort should focus on how to impose better organization on knowledge and enable connections among people and information. Several organizations have taken the initiatives to integrate these 3 elements which seem to be more holistic in approach and have proven to be successful (<http://www.businessinnovation.ev.com>)

### i. The Monsanto Company (Junnakar)

Realizing that knowledge is created through socialization, externalization, combination and internalization, Monsanto has closely adopted this process laid out by Nonaka and Takeuchi in meeting the knowledge management challenge: to stay in an upward spiral. Monsanto has made "to facilitate those connections involved in the knowledge creation process"

as the objective of its knowledge work. To support all these processes so that the organization enjoys an upward spiral of knowledge creation, Monsanto implemented new IT capabilities to create knowledge repositories, cross link them for easy navigation and support decision making. People are connected more effectively through networks or Communities of Practice". To sustain a vibrant network, Monsanto engaged some key supporting roles that they call "stewards," "topic experts" and "cross-pollinators". The role of "knowledge steward" can be stated in terms of Nonaka and Takeuchi's emphasis on the upward spiral of knowledge creation. Sustaining that spiral requires focus and resources and this is the responsibility of the steward. In Monsanto the knowledge stewards, "topic experts" can come from all walks of the organization: They are the knowledge workers whose perspectives help the network "make sense" of the information before them by recognizing patterns and providing the context.. To support all these functions at Monsanto, a web of knowledge teams was given the task to create and maintain yellow pages guide to the company's knowledge. Monsanto has grown profitably and their success has been in particularly on the exploding field of biotechnology. The investment that Monsanto made in knowledge management initiatives seem to correlate with better performance in new product and business development.

### ii. Bechtel Corporation (Armstrong)

Bechtel Corporation is a huge engineering and consultancy corporation. Given the company's recent competitive challenges, Bechtel realized that it needed to get more leverage out of its knowledge assets. Bechtel's management came to understand that the real payback opportunity lay in learning how to leverage its complex knowledge. An example of complex knowledge is the knowledge of how to manage a large scale project. And this type of knowledge is broadly applicable. At Bechtel, project teams working on multi-year engineering and construction jobs were inevitably generating huge amounts of new knowledge. Unfortunately, much of the new knowledge is not known to others in the organization. As a result, wheels were being re-invented. Part of the solution has been to create new organizational roles specifically tasked with knowledge management. A Chief Knowledge Officer is being created with overall responsibility and accountability for promoting learning and knowledge. Other key-players are knowledge stewards who hold the responsibility for a portion of Bechtel's Knowledge Bank and in seeing appropriate content is collected and disseminated. The Knowledge Bank not only acts as a simple repository for lessons learned but has expanded its mission to include "quick access" to information both internal and external sources.

### iii. Hoffmann-Laroche (Seemann)

The knowledge initiative undertaken by Hoffmann-LaRoche has made a significant difference in the

profitability of new products. The initiative was a fairly modest one as it does not involve engaging huge information system or an army of information processes. For Hoffmann-LaRoche, as an international pharmaceutical company, like many other similar companies, one of the problems is that the development of a new drug takes an average of five to eight years and cost over US\$250 million. In the case of Hoffmann LaRoche, the firm's track record on new drug applications (NDA) was mixed. There were times when new products sailed through the approval process and enjoyed a prolonged marketplace advantage. Other times, NDA approval process was held up due to inadequate information. It is the NDA's process that posed to be a challenge to the company's new Director of Knowledge System. A knowledge management initiative was designed with two objectives to be achieved: 1) to help product teams prototype the knowledge required for new drug application; and 2) to produce a comprehensive "map" of the knowledge sources in the company that might contribute to their completion. To get that insight, a group of ex-regulators who had real insight into the approval process was assembled. The team compiled the various guidelines and a prototype from the efforts. The prototype that emerged represented the total accumulation of knowledge required for each NDA. Apart from the prototype, to clarify the sources and flows of knowledge related to Hoffmann-LaRoche's new drug development, a knowledge map which points people who need access to knowledge to the places where it can be found. Such map recognizes both explicit and tacit knowledge. Thus, the knowledge map includes yellow pages and incorporated features that will tie the map directly to the completion of an NDA and makes it a better tool for accelerating the launch of new drugs. A second feature added to Hoffmann-LaRoche's knowledge map was a specification of "Knowledge Links" which are road signs that show with whom and at what point a person or group share knowledge. Several indicators showed that Hoffmann-LaRoche's new knowledge management effort was succeeding: With the new knowledge tool, the application for a new indication of a drug just took 90 days compared to what used to be 18 months. The approval from the US Food and Drug Administration (FDA), projected at three years came within nine months.

## 5.0 CONCLUSION

The theory of knowledge creation discussed earlier in this article and the instances of the integrated approaches to knowledge management as practiced in the organizations mentioned above, is an effort by the main author to understand and analyze the workings of knowledge in organizations. The cases on successful knowledge management initiatives elaborated in the three organizations proved that there is much to be gained through knowledge management. In the case of Hoffmann-LaRoche, the new Director of Knowledge

System has taken the challenge to make the knowledge requirements of new drug approval more explicit. In return, the time taken to market their new product was substantially reduced and has earned the company millions. Several initiatives at Monsanto that concentrated on the construction of knowledge base has enabled new and important insights to be instantly accessible. The creation of Chief Knowledge Officer and "knowledge stewards" at Betchel highlighted on the important roles played by the key players to support rapid transfer of complex knowledge and quick access to internal and external information to help manage specific knowledge to make informed decisions. Successes like these indicated that there is definitely the need to manage knowledge. In fact, the challenges of globalization may alert more firms to enhance the knowledge creation process that ultimately lead the path for continuous innovation for companies to stay competitive.

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