



International Journal of Research in Finance and Management

P-ISSN: 2617-5754
E-ISSN: 2617-5762
IJRFM 2019; 2(2): 70-74
Received: 04-05-2019
Accepted: 06-06-2019

Dr. Nguyen Hoang Tien
Saigon International
University, Ho Chi Minh City,
Vietnam

Vo Mai Truong Phong
Sacombank, Ho Chi Minh City
Branch, Vietnam

Le Doan Minh Duc
Thu Dau Mot University,
Thủ Dầu Một, Vietnam

Knowledge management in enterprises in the context of industrial revolution 4.0

Dr. Nguyen Hoang Tien, Vo Mai Truong Phong and Le Doan Minh Duc

Abstract

This article presents the context of the industrial revolution 4.0, the opportunities and challenges posed for Vietnamese enterprises. The article emphasizes the importance of knowledge management and related areas and issues of management, the interaction between them, as a core success factor for enterprises in today's business.

Keywords: Industrie 4.0, knowledge management

1. Introduction

1.1 Industrial revolution 4.0

The term "industrial revolution 4.0" or "fourth industrial revolution" was first mentioned in 2011 at the Hannover fair to introduce industry programs 4.0, to promote automation and Traditional mechanical engineering of Germany. The Industry 4.0 Expert Group presented a series of recommendations on the realization of Industry 4.0 for the German federal government. Members of this expert group have been recognized as the founding fathers and the driving force behind Industry 4.0^[3].

According to Gartner, the Industrial Revolution 4.0 stems from the concept of "Industrie 4.0" in a report submitted to the German government in 2013. "Industrie 4.0" connects embedded systems and intelligent manufacturing facilities to create integration digital capacitors between industry, business, functions and internal processes^[3].

The first industrial revolution began in England in the second half of the 18th century. To date, there is a unified view of the three industrial revolutions that have occurred, each of which is characterized by substitution changes in the nature of the production process and this change is caused by breakthrough breakthroughs of science and technology^[4]. The first industrial revolution (1.0) used water and steam energy to mechanize production. The second industrial revolution (2.0) took place thanks to the application of electricity to mass production. The Third Industrial Revolution (3.0) used electronics and information technology to automate production processes. Currently, the fourth industrial revolution is arising from the third revolution, which combines technologies together, blurring the boundaries between the physical and digital worlds (the virtual world) and the biological world (the world of life).

According to Mr. Klaus Schwab, the breakthrough speed of Industry 4.0 has no historical precedent. When compared to the previous three industrial revolutions, Industry 4.0 is progressing exponentially rather than linear speed. Moreover, due to the interdisciplinary nature and with information and communication technology under the ground, it is now disrupting most structures of industries in every country. It foreshadows the transformation of both the breadth and depth of the entire production, business and management system on a global scale. Table 1 presents in detail the content of the aforementioned revolutions

Correspondence

Dr. Nguyen Hoang Tien
Saigon International
University, Ho Chi Minh City,
Vietnam

Table 1: Industrial revolution in the world

| Revolution | Timeline | Content |
|------------|-----------|--|
| 1.0 | 1820-1870 | Transportation. Steam engine (also called internal combustion engine). |
| 2.0 | 1870-1913 | Traditional industries (agriculture, heavy industry, mechanics, chemicals, mines, metallurgy) in developed countries. Electric motor. |
| 3.0 | 1913-1950 | New technologies such as energy, aviation, space, biotechnology, military engineering, information technology and communications. Computerization, automation. |
| 4.0 | 1950-now | Integrating technologies together based on information and communication technology. (Social Network) (AI – Artificial Intelligence, Machine Learning) (IoT – Internet of Things) (Big Data) (3D Printer) (VR – Virtual Reality) (Cloud and Cognitive Computing) (Driveless cars), (Drones) (Smart robot, factory and city) (E-Learning, Telemedicine) |

Source: ^{[1], [2]}

Currently the industrial revolution 4.0 is taking place in developed countries such as the US, Europe and some Asian countries. Besides the new opportunities, Industry 4.0 also

presents mankind with many challenges. Table 2 presents some of the outstanding opportunities and challenges related to Industry 4.0 for society and the economy.

Table 2: Opportunities and challenges due to industrial revolution 4.0

| STT | Opportunities | Challenges |
|-----|---|--|
| 1 | Many new professions, start-up opportunities and new jobs appear | Unrest, inequality, imbalances in the labor market. |
| 2 | Increase labor productivity and production. Economic growth is based on a new business model. | The issue of training a new human resource in terms of converging skills and appropriate competence. |
| 3 | Personalization is at a high level, connecting society in new ways. | Change in the way of production, distribution and consumption. |
| 4 | Promote the initiative and creative spirit of individuals and businesses | Developing countries will lose the advantage of cheap labor. |

Source: ^[3, 4]

2. The objectives, roles and functions of knowledge management

Knowledge management is one of the important concepts of modern management. The role of knowledge management is increasing because administrators have gradually become aware that knowledge is one of the most important assets of an enterprise, its formation, impact and contribution. In building and strengthening the strength (competitiveness) and value of businesses in the market in the knowledge economy today. From the above characteristics of knowledge management, we can clearly see its close relationship with other categories in governance, specifically as follows ^[6]:

Knowledge management and business strategy - knowledge management needs to be systematically and strategically approached, associated with corporate governance practices, goals and business strategies.

Knowledge management and information technology - advances in information and communication technology will make knowledge management work better. Information technology provides effective storage, transfer and sharing of knowledge widely and widely applied by businesses.

Knowledge management and creative culture - people, or more precisely managers, are subjects of knowledge use and are the subjects of creativity seeking new knowledge. The creative culture in the business will help the stakeholders inside and outside the business (near and far partners) share the content of ideas, deploy their applications and commercialize them effectively.

Knowledge management and human resource management - people and organizational learning mechanisms at different levels are at the heart of knowledge management and at the same time, human resource management, in particular. In training and development, it is one of three main functions (of human resource management).

Knowledge management and value management - knowledge management, an intangible and extremely valuable asset of an enterprise, contributes greatly to the consolidation and enhancement of expected values for businesses and for stakeholders to be able to develop sustainably.

Knowledge management and management of innovation and change (innovation and change management) - businesses cannot create and innovate and change to develop without relying on appropriate knowledge sources. Argument analysis shows the close relationship between the nature of knowledge and the nature of creativity and innovation. The correlation relationship between them affects the efficiency of the process of innovation and restructuring business model. Innovation here is not merely related to products, using new technologies in production. Innovation also needs to be understood such as creating within a specific creative work environment, where decisions are made more quickly, and innovation processes are more effectively implemented.

Knowledge management and project management - can use knowledge management tools in project management. The role of knowledge in project management is very large,

especially from the perspective of distributing and sharing knowledge to be able to implement projects successfully. Deploying knowledge management methods in project management will bring certain benefits, issues arising during the project implementation process can be quickly solved together by the parties involved.

The emerging problem of the vast majority of organizations today is related to the "memory of the organization", which means how to store the knowledge in it and how to prevent it from becoming lost and forgotten over time. Information, knowledge and skills are often closely related to each specific activity of the business, each organizational department or even an individual, but they do not exist at the whole organization level. Therefore, businesses waste a lot of time and effort searching outside the knowledge that one part of them needs, while this knowledge is located in other parts. Instead of taking advantage of previous experience (previous projects, joint ventures with previous partners), businesses often repeat old mistakes. Because no formal solution exists to allow the storage, aggregation, updating and dissemination of information, knowledge, experience and skills related to the projects that have been implemented. Businesses have not yet implemented mechanisms to prevent uncontrolled leakage of knowledge that is already owned. When key employees often come along with great loss not only of the knowledge and experience he has gathered in the process of working, but the business will lose a customer network due to him. For small businesses, this can lead to operational stagnation and even dissolution.

Information in today's world is the most valuable commodity and is an advantage compared to competitors. Therefore, information management, the way companies find, transfer and use these knowledge resources is considered a key point in corporate governance. Using sources of information owned in the management process can significantly affect its effectiveness. An effectively managed organization can learn from itself, using employee experiences and insights from outside. The properly controlled creation process will make the implementation of new projects quick, effective leadership of highly creative people will help to make the best use of their intellectual capacity. Knowledge management methods, organizational problem-solving principles, new ways of thinking, arguments from personal experience and knowledge management of employees are management issues that knowledge management is responsible for clarification.

From this fact and from the goals set out of knowledge management, we see its importance for businesses today. In the age of knowledge economy, the quick and effective use of knowledge will determine the survival (to be or not to be) of the business. In the opinion of many experts in the field of management, in the future it is only possible to distinguish businesses into two categories, namely:

- Enterprises that apply knowledge into their knowledge (knowledge intensive) processes such as decision making, handling of situations, solving problems
- Enterprises with all processes of operation are based on knowledge (totally knowledge based).
- Knowledge management helps businesses:
- Innovate, create good ideas, harness the intellectual potential of the organization;

- Gather experiences and turn them into useful knowledge for each individual in the organization to use when needed;
- Promote cooperation, knowledge sharing, continuous learning and lifelong progress;
- Understand the value and contribution of intellectual property to growth, organizational efficiency and resonance power;

The ultimate and most fundamental goal of knowledge management is the formation of an ongoing learning structure, in which individuals will work closely with each other, continually learning and dividing sharing knowledge to improve the intellectual capacity of the organization to new heights in the ever-changing business environment today. There are many views and models of knowledge management, but the ultimate goal that knowledge managers aim to is: creating, sharing, preserving, developing and optimizing the use of knowledge resources in the functional team.

3. The need for knowledge management in Vietnamese enterprises

a. The need for knowledge management in human resource management

From the perspective of human resource management, the increasing need for communication, sharing and creativity in working groups related to many different fields is one of the reasons leading to the need for knowledge management. Businesses, due to the fierce competition in the market, tend to work together to consolidate and increase competitiveness. Therefore, employees of different businesses often have to work together. Moreover, to develop a product, it requires a close combination of ideas from many different fields (innovation, design, production and marketing). In other words, the members of a working group are often employees of different departments, even of different businesses. They often only know their area of expertise and are very ignorant in other areas. Differences in organizational culture can hinder communication and make group collaboration difficult. Therefore, it is essential to increase the ability and effectiveness of teamwork, including sharing and exchanging experience of team members. Knowledge management can help businesses solve this problem through the use of discussion-promoting tools to come up with new ideas and share knowledge within the team and also within the organization^[6, 7].

In addition, the need to increase the ability of employees to handle complex situations and to retain knowledge when working groups, project teams disintegrate or re-establish also makes building management systems. Tri's knowledge becomes urgent. Currently, working groups are often set up to solve problems and projects within certain time limits. After the task has been completed, these groups will be disbanded and members return to their regular work or join other work groups, where their expertise is of greater value rather than value. The data collected in other areas of the projects they were previously involved in. Shortly thereafter, this knowledge is not stored to become an intangible asset of each employee and the entire organization. Knowledge management can help businesses solve this problem effectively, such as through the process

of preserving and visualizing these hidden knowledge during the exchange and cooperation ^[6, 7].

In the era of fierce market competition, time is the decisive competitive factor among all businesses. Businesses face unexpected changes, innovations and innovations from competitors, and unpredictable and unpredictable moves in the market. Businesses, if they want to survive and grow, must keep up with the changes taking place in the external environment. Therefore, the reaction and decision making of employees before certain situations need to be done quickly and accurately. This requires staff awareness levels to be developed at a higher level, with timely information provided. If knowledge management is good, this problem can be solved.

b. The need for knowledge management in enhancing business values

All tangible assets of an enterprise are depreciated over time, which is the exact opposite of knowledge. The laws governing knowledge are different from those that govern the physical world. A legal asset may be used by more than one person at the same time and its value increases with time of use. It is one of the rules relating to intangible assets of an enterprise. The growing gap between market value and total assets of successful companies such as Facebook, Coca-Cola, and Samsung is a manifestation of the power of knowledge assets and the boundlessness of it. Unlike the limited resources such as land, capital, energy, materials and labor, intellectual property (intellectual resources) are unlimited resources that can contribute to the production of profits. Those profits are greater for businesses and society if they are combined to use effectively ^[6, 7].

Knowledge helps businesses to have multi-dimensional and comprehensive recognition and interpretation of the same problem, phenomenon and market situation. From there, businesses can propose countermeasures and solutions. To do so, businesses must constantly be creative and innovative to keep up with the general trends of the times. Just like that, the treasure of human knowledge is expanding and expanding faster and faster, becoming rich in diversity and computers. Knowledge management helps businesses systematize the knowledge that they own, discover new knowledge, thereby building for themselves a sustainable competitive advantage, creating market values. It is undeniable for himself and his subjects ^[6, 7].

c. The need for knowledge management in technology development

The strong developments of information technology helps businesses collect and store large amounts of information easily, conveying them to necessary places for those who are in need quickly. More and more jobs in the organization are handled by computers. The importance of technology is undeniable, but technology itself does not create competitive advantages for businesses, because it is easy for competitors to create similar technologies or buy them in the transfer market. Then the competitive advantage of the business will be lost. In today's knowledge economy, the technological race is getting shorter and technology itself is no longer considered a sustainable competitive advantage ^[6, 7].

Technology can help businesses collect, store and transmit information very effectively. In order to turn information into knowledge, into the right business decisions, businesses need people, their knowledge, skills and experience.

By effectively combining technology and knowledge management, businesses can create new competitive advantages and enhance their sustainable competitiveness in the market. Thanks to the rapid development of technology, the tasks, processes and procedures are implemented more quickly and effectively. The product life cycle from the moment the idea is formed, which goes through the stages of research and development, production, distribution and after-sales, is therefore shortened. Products are constantly being improved, perfected and upgraded, and the market and consumer trends are constantly changing ^[6, 7].

Knowledge, not technology, directly helps employees make effective decisions in business. Exam management, with the help of technology, can help businesses operate more efficiently, make smarter business decisions, minimize mistakes and satisfy customers at the highest level.

d. The need for knowledge management in business restructuring

Like technology, with current developments in the business environment, today organizational structure changes so quickly that businesses need an effective, flexible knowledge management system to respond to changes.

Today, businesses are organized and operate in a project-oriented manner. Each member of the project is recruited from different functional parts of the organization to form a unique task force. These teams, after fulfilling the mission, are usually dissolved so that members can participate in carrying out other projects with other members. The knowledge, experience and skills acquired during the development of products and services within the previous projects are not passed on to the next project teams in charge of the following versions of the product and service evolution. In addition, with the operational organizational structure to serve the projects, the skills developed in the cooperation process will often be lost when the team dissolves and the acquired knowledge will not have the opportunity for future reuse ^[6, 7].

A knowledge management system in this case will help businesses capture the knowledge of completed projects, allowing it to be reused in the future. Corporations around the world, in order to produce products and provide services, often cooperate with their affiliates and partners around the globe, so their knowledge is scattered throughout the world. Therefore, they also need an effective knowledge management system.

4. The importance and awareness of the importance of knowledge management

The values and competitive advantages of businesses in the world are gradually changing. The era of information technology and knowledge has really taken shape. The factors that create a competitive advantage and strength of each business are no longer machines, equipment, land, energy, raw materials, financial resources but the knowledge and usability (manage them most effectively). Knowledge management is becoming a global trend, with its position increasingly confirmed by the success of the world's leading

corporations in applying the concept of knowledge management. Knowledge management is a process of promoting innovation, generating ideas, fully exploiting intangible intellectual property resources in the organization. Knowledge management is also a process of sharing, developing and storing knowledge continuously in order to provide them to the right place, at the right time, for the right users to make quick business decisions and the most appropriate actions for the market situation's unpredictable evolutions. Knowledge management is a way to prevent "brain drain" in the business. When the key personnel of the business leave, they bring with them the experiences, business secrets, relationships and then to become the personnel and knowledge sources of the competitors. Knowledge management helps unlock hidden intangible assets in the minds of talented people to become existing knowledge through sharing and restructuring so that everyone can update and refer. The result of this process is to create an "existing treasure of knowledge" that every employee in the business can use. Thanks to that form of sharing, the value and power of knowledge in businesses will constantly increase. Knowledge management is the creation of a continuous learning structure with high adaptive capacities. Overcoming the limitations of traditional management methods, exam administration helps each individual in the organization to constantly learn, continually create new knowledge, create a culture of sharing among members, promote the sense of self-study of each individual and form a lifelong learning mechanism of the enterprise. In such an environment of knowledge culture, employees' capacity is increasingly strengthened, increased, and the quality of knowledge is constantly being improved. The consequence of this process is a dynamic team of employees, working through knowledge sharing in an organization that is highly adaptable in economic integration conditions. Knowledge management contributes to the organization's decision-making ability. In today's information age, information is no longer exclusive to anyone but it is the ability to use and turn it into new knowledge, new products, new technologies, which are the key factors for success of the business. Knowledge management will address issues such as lack of information, knowledge constraints and lack of experience in decision making. Knowledge management is the best way to turn customers into loyal friends of the business through best meeting their needs. In knowledge management, through the CRM (Customer Relationship Management) model, relationships with the organization's customer network are shared with all members. Customer's opinions about the quality of products and services are kept. All are sources of intellectual property of the business. Based on this source of knowledge, businesses have the basis to constantly improve the quality of service. Knowledge management has become an indispensable trend in the knowledge economy and information society. Up to 80-90% of the value of each organization or enterprise lies in intangible assets that are human factors, knowledge, experience, initiatives and business ideas ^[6].

5. References

1. Lectures and learning materials International Economic internally circulated by PhD. Nguyen Hoang Tien teaches International Economics in the year, 2015-2017.
2. The section on starting a business in international business in the lecture and learning materials "International Business" internally circulated by Dr. Nguyen Hoang Tien teaches International Business in 2014-2017.
3. <https://news.zing.vn/cach-mang-cong-nghiep-40-la-gi-post750267.html>
4. <https://vnexpress.net/tin-tuc/khoa-hoc/hieu-ve-cach-mang-cong-nghiep-lan-thu-4-3574624.html>
5. Nguyen Hoang Tien. Challenges and opportunities for Entrepreneurs in the World of the 4th Industrial Revolution. Conference on Accounting, Auditing and Vietnam Economy in the Face of 4.0 Industrial Re-volution, 2017.
6. Nguyen Hoang Tien. Knowledge Management. TP. Ho Chi Minh, 2016.
7. Jean Brillman, Modern concepts of management. PWE Publisher, 2002.