

HANOI UNIVERSITY OF MINING AND GEOLOGY
Faculty of Economics and Business Administration

INTERNATIONAL CONFERENCE

ECONOMIC MANAGEMENT IN MINERAL ACTIVITIES - EMMA 5

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KNOWLEDGE MANAGEMENT DEMAND IN ENTERPRISES UNDER VIETNAMESE COAL MINERAL INDUSTRY GROUP

Nguyet Thi Pham^{a*}, Hung Tien Nguyen^a

^aHanoi University of Mining and Geology, 18 Vien street, Bac Tu Liem, Hanoi, Vietnam

*Corresponding author: phamthinguyet@hmg.edu.vn

Abstract: *Knowledge management is important to create the competitiveness of businesses, especially mining enterprises of VINACOMIN. In Vietnam, the concept of knowledge and knowledge management (CG) has not been focused on research and development. Stemming from basic concepts, strategic transformation and growth models, promoting the trend of changing economic thinking and development. New forms of the economy have been formed, such as network economy, sharing economy, knowledge economy ... Accordingly, the mining enterprises of VINACOMIN must also renovate production and business management and corporate governance for consistent with the market economy integration period. In particular, in the era of knowledge and globalization, VINACOMIN mining enterprises also need to apply modern management models like CG to be able to survive and compete effectively with enterprises in the market. From that perspective, the article mentions the need to apply CG in mining enterprises of VINACOMIN in the context of the 4.0 revolution in order to contribute to promoting the training and development of human resources, meeting the requirements of "high competitiveness domestically and internationally" as mentioned in VINACOMIN Development Strategy to 2020, orientation to 2030.*

Keywords: *Knowledge; Knowledge management; Mining enterprises; VINACOMIN*

1. QUESTION

In the period of information, knowledge economy, knowledge becomes an asset and an important factor for an enterprise's success, especially for enterprises operating in technical fields, such as technology or mining industries. According to Susan Rosenbaum, Director of Knowledge Management at Schlumberger, the leading technology company in the oil and gas industry, affirmed: "In Schlumberger, knowledge is valued as the most important asset" [1]. Indeed, 80 – 90 % of the value of products in these professions is composed of intelligence. Therefore, knowledge as an asset and resources of an enterprise should be managed, stored, shared, expanded and promoted, creating value for the enterprise. If not recognized and well managed, knowledge will be lost, business activities will be ineffective when we have to rediscover existing knowledge, re-learn successful solutions, repeat

mistakes and synergy is not promoted, businesses develop unsustainably [2].

From the 90s of the 20th century, developed economies began to shift to knowledge economy. In the knowledge economy, the creation, transmission, storage, development and use of knowledge dominate all economic activities. Science and technology are the direct production forces. The knowledge management theory has gradually replaced the theory of human management. The practice of knowledge management will help businesses and the economy to develop vigorously.

In the 21st century, knowledge is becoming increasingly important for the sustainable development of businesses, economies as well as the nation. Today, knowledge is considered one of the key success factors in modern organizations, and knowledge management becomes an effective competitive strategy. The whole

world has currently entered an era of information and knowledge, where any organization or country that effectively manages and uses its knowledge resources will create advantages. Competition is to ensure the sustainable development of your organization or country. In addition to the development of society and the economy, normal production and business activities have been developing strongly into a sharing economy, a modern economy, etc. Minerals, in general, and mining enterprises, in particular, should also aim to and develop in a sharing and modern economy in the current context.

By 2030, Vietnam's coal demand is forecast to be equivalent to 80.4 million TOE (tons of standard oil), per capita of about 0.77 TOE/person (corresponding to the forecasted population of 104 million people).

According to the forecast in the JEEI Outlook 2018 Normal scenario (October 2017), by 2030 the world's average coal demand per capita (TOE/person) will be 0.5 while that of China is 1.48; Japan: 0.93; Korea: 1.74; Taiwan: 1.75; Malaysia: 0.86; Thailand: 0.35; USA: 0.78; Australia: 1.18. Therefore, compared with the world's per capita, Vietnam's coal demand until 2030 is higher, but compared to many countries still much lower, especially compared to Taiwan and Korea. China, China, Australia, Japan and some countries rich in coal resources.

Regarding the development orientation of domestic coal exploitation: According to the forecast in QH 403/2016, commercial coal output in the period to 2030 is expected to be (million tons): in 2020: 47-50; 2025: 51-54; in 2030: 55-57.

According to the document [8], based on the status of resources, the remaining explored coal reserves, the planned domestic production of coal has been updated as follows (million tons): years 2020: 44; 2025:

45; in 2030: 53 and in 2035: 55 million tons. Details are as follows (thousand tons):

In order to achieve the above-mentioned coal production level, according to QH403 / 2016 from 2016 to 2030, the coal industry needs a total investment capital of VND 269,006 billion, an average of VND 17.934 billion / year. With the situation of increasing coal prices and limited financial capacity of the enterprise, in the coming time, the coal industry will not only face the risk of loss, but the mobilization of capital to meet the needs of investment development. Development will be extremely difficult.

That said, the pressure to secure coal for thermal power plants, thereby ensuring the goal of "electricity one step ahead" is enormous. And this pressure is trusted by the Government to put "on the shoulder" of VINACOMIN.

2. KNOWLEDGE AND KNOWLEDGE MANAGEMENT

According to the Oxford English Dictionary, knowledge is facts, information, or skills acquired through experience or education; knowledge of an object's theory, or practice. In epistemology, the science of knowledge, knowledge is defined as justified true belief. In simple terms, knowledge is facts, information, or skills, which have been tested for practical correctness and gained user confidence.

The basic feature of knowledge is that it can be exchanged and transferred from one object to another, used many times and brought value added to enterprises.

The knowledge development tower model (Fig 1) of Bender and Fish represents the process of knowledge formation. In particular, data are only numbers, values and phenomena systematically collected. Data that adds value by adding meaning, understanding through human interpretation will become information. Information will

turn into knowledge when reinforced by trust after use. Expertise is acquired when knowledge is enriched, refined, combined with other knowledge, through repeated experience, research, training ... The author Apurva also called this level of knowledge "wisdom" [3]. According to this tower model, the higher you go, the more valuable the knowledge is, but it is more difficult to share and transfer. , more transfer.

There are many classifications, but for ease of application for knowledge management in enterprises, knowledge is often divided into two categories:

- Explicit: can record, present in the form of text, audio, images, digital files, etc., and easily store, transfer and share on IT infrastructure or information. through the process of training, guidance, knowledge sharing activities;

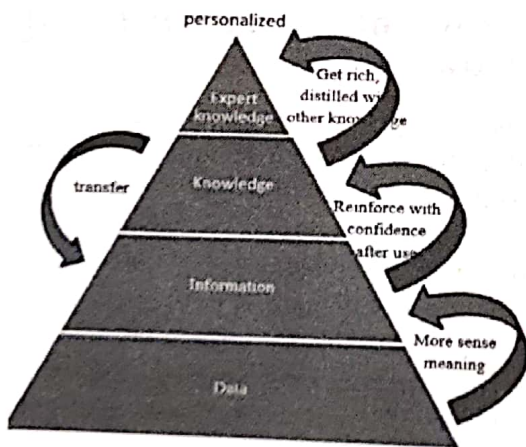


Fig 1. Knowledge development tower (Bender and Fish, 2000).

- Tacit: formed from practical experience, or through in-depth research and stored in a specific human brain (such as beliefs, experiences, know-how, etc.), which have not been recorded, expressed as explicit. Hidden knowledge can be forever hidden and lost with the departure of a particular person. But knowledge hidden in one individual can turn into knowledge hidden in another individual through exchange, cooperation, training.

Hidden knowledge can also turn a part into reality if narrated, recorded in writing, video, audio, and then shared on the business's information infrastructure.

There are many definitions from different perspectives on the concept of knowledge management. According to Petrash (1996), knowledge management is bringing knowledge to the right people at the right time, helping them make the best decisions. Reid Smith, Schlumberger's Vice President of Knowledge, said that knowledge management is to create a working environment for knowledge and experience to be shared easily, and then applied by individuals to make optimal decisions in real-time [4]. Amin (2001) has a simpler definition, highlighting the purpose of knowledge management is to turn information within an enterprise into the ability to act effectively [5]. The most comprehensive view is that of Dalkir (2005), arguing that knowledge management is systematic, deliberate coordination of human, technological, process, and organizational factors to increase value by reusing and creating new knowledge. This coordination process includes creating, sharing, applying knowledge, and receiving feedback with lessons learned, good practices, memory enrichment, and sustaining the business's ongoing learning process.

Thus, knowledge management is the life cycle of knowledge management (Fig 2): creating/capturing knowledge; standardized for storage under an accessible, accessible scientific structure; share to enrich knowledge and enhance the capacity of individuals; creating conditions for individuals to use, creating added value for enterprises; at the same time, receive feedback in the process of using to validate knowledge or update/refresh to help knowledge enter new life cycle.

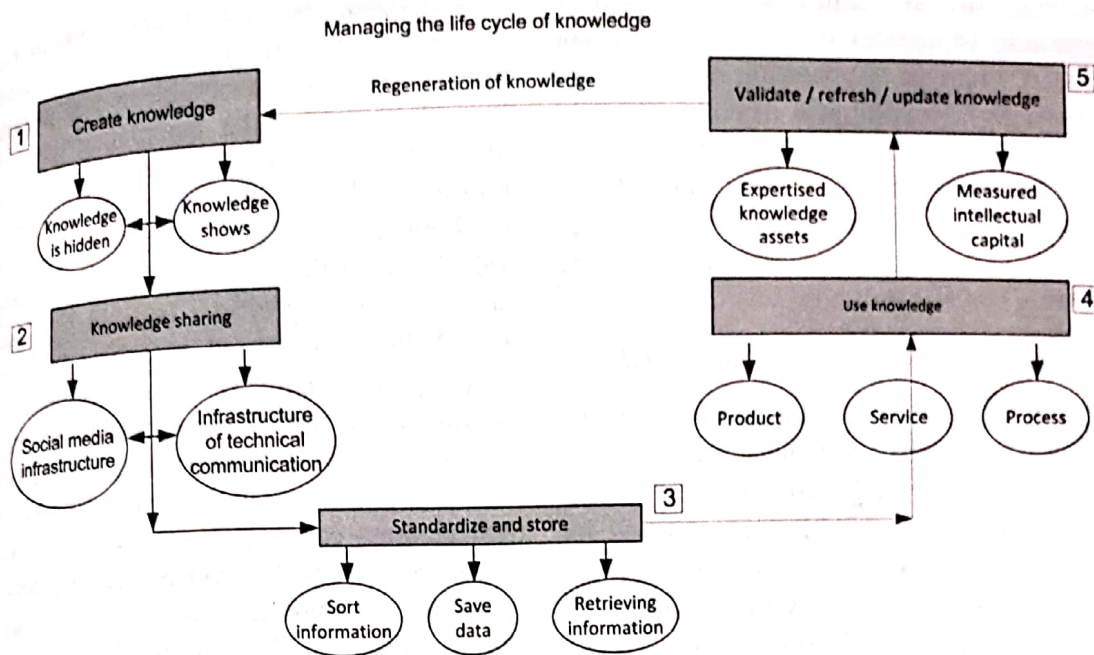


Fig 2. Life cycle of knowledge in knowledge management.

3. DEMAND FOR KNOWLEDGE MANAGEMENT IN VINACOMIN'S MINING ENTERPRISES

3.1. Knowledge management in enterprises of Vietnam Coal and Mineral Industry Group is an objective, practical need

In a knowledge society, mining businesses must then compete with other businesses based on their knowledge and the ability to turn that knowledge into value through products or services. In an era of knowledge and a globalized economy, mining businesses will have to adapt to new conditions to survive and thrive. Because the wave of knowledge age is coming and will affect all organizations and countries evenly, mining businesses cannot avoid that influence. Therefore, the CG will become important for mining enterprises in particular and the mining industry in general. This requires the mining enterprises to proactively apply the CG to cope effectively with those changes.

On the other hand, globalization also makes the world flatter and the knowledge-

based competitive trend will quickly spread around the world. In countries around the

world, countries with developed industries, mining enterprises are also seen as sources of innovation and ensure sustainable development. Governments also enact policies to support the innovation of technology, products and services in these areas, thereby enabling these businesses to compete effectively in the knowledge economy. Therefore, to survive and develop, mining enterprises in a developing country like Vietnam are forced to apply CGs to compete with enterprises from developed countries based on the knowledge strength and innovating ability.

However, compared to other enterprises in the market, mining enterprises have specific characteristics, so investment in research, development, application of new technologies, or the CG system's implementation faces many difficulties. Therefore, it requires a great effort from the staff of the mining enterprises, the mining enterprises themselves and the government's support to turn mining enterprises into

knowledge-driven businesses. It is important for mining businesses to know their current situation, improve IT maturity, and adopt an appropriate CG approach. Having so, new mining enterprises can enhance their competitiveness and innovation capabilities. Besides, the application of CG in enterprises of TKV also comes from and based on the following specific grounds:

** Derived from human resource needs*

From a human resource perspective, the need for increased exchange, sharing, and creativity in working groups of diverse fields of expertise is one of the main reasons for governance development. In addition, the need to increase the ability of employees to handle complex situations and retain knowledge when working groups disintegrate or re-establish also makes building a CG system necessary.

- *Firstly*, the need for promoting exchange, sharing and creativity in operational groups is getting bigger. The reason is that companies are tending to work together to increase competitiveness and increase resources for businesses. Therefore, employees in different companies often have to work together. Moreover, developing a product requires a combination of many different areas (design, engineering, information technology, security, internal marketing, etc.). In other words, members of a working group must come from different departments, which they usually only know about their area of expertise without the necessary knowledge of other areas. Cultural differences can also make it difficult to work in a team. Therefore, it is essential to increase teamwork's ability and efficiency, typically the team members' sharing and communication. Knowledge management can become the optimal solution to this problem because it fosters discussion and knowledge sharing in groups and organizations.

- *Second*, the workgroups were formed and dissolved. Currently, working groups are often formed to solve problems and projects in a short time. After completing the task, these groups are often dismissed, members return to their daily work or join other working groups, where their expertise is more valuable than the knowledge gained in other areas of the project. Importantly, such knowledge is not stored, becoming "personal property" of employees. When the employee is gone, the company's knowledge also loses, or when the group disintegrates, it also brings the group's knowledge away. Knowledge management can help a company solve this problem effectively because it involves a process of "capturing" hidden knowledge - through direct exchanges and the storage of hidden knowledge. as shown.

In addition, in the era of fierce economic competition, the demand for skills and ability to make employees' decisions is increasingly higher. Today, time is the key competitive factor for every company. You may face unexpected changes, creations from your competitors, and unstable market movements. Your company will most likely not be able to keep up with the advances of the external environment. Therefore, responding and making decisions before an employee's situation needs to be accurate and as fast as possible. This requires an employee's knowledge level to be higher and information to be provided more quickly and accurately. With good knowledge management, you can completely solve these problems.

** Stemming from economic needs*

The old economic theory suggested that all assets are vulnerable to depreciation, but this is not true of knowledge. The laws that govern knowledge are different from those that govern the physical world. For example:

- At the same computer, when person A uses it, the others cannot use it anymore.

- After the user A uses and transfers it to another person, the computer quality is considered to be worn and reduced in value.

But with knowledge, when one person is using, others can also use it. And the more knowledge is used, the more valuable it becomes. Economists call this the rule of increasing profit: the more you use it, the more it provides value - thereby creating a self-reinforcing cycle.

Knowledge management offers the unique opportunity to turn knowledge into a system that helps the company create a time advantage of keeping the competition constant, creating undeniable economic and market value.

** Technology and demand for a knowledge management system*

The strong development of information technology has completely changed the job. We can now collect and store large amounts of information easily, transmitting them quickly. The number of jobs being completed based on technology, especially computers, is increasing. The importance of technology is undeniable. However, technology does not create a competitive element for your company. You have just owned a completely new technology, helping your company to surpass its competitors. Later, when an adversary makes the same tool or buys the same technology, your competitiveness will be lost. In the current technological age, the time for such a technology race is getting shorter and shorter, so we cannot treat technology as a long-term competitive element.

Meanwhile, the technology with the two main benefits of storing and transmitting information allows us to build effective information storage and distribution system. Technology has become effective storage, distribution and exchange of knowledge. By effectively combining technology with

knowledge management, the company can create new competitive elements and enhance its long-term competitiveness.

Besides, thanks to technology development, the processes and processes are completed more quickly and efficiently. The life cycle of the product, from research, production, to sale and after-sales services, is thus shortened. Products are also regularly upgraded and improved, and the market is constantly changing. As product time becomes a vital factor for the company, decisions must be made more quickly and accurately. So what makes the company do this? Technology can help us collect, store and transmit information exceptionally effectively, but in order to turn information into knowledge and decision making, people, knowledge and experience are needed.

Knowledge, not technology, directly helps employees who own it make decisions. With the help of technology, knowledge management can help employees of the company work more effectively, make more informed decisions on their own, reduce mistakes, and satisfy customer requirements.

** Organizational structure and demand for a knowledge management system*

Like technology, organizational structure changes too quickly. These organizational changes put us in the position of not having an effective knowledge management system.

Imagine that you are in charge of a large project and suddenly encounter a problem. After a while searching for solutions, a team member remembered that the same problem had arisen and was solved quite effectively in a previous project. You go through a pile of high-profile resumes trying to find a process or at least a hint, but all you find out is that the project team members work everywhere - branches of companies worldwide.

Today, companies work on project-oriented. Each member is picked up from

different functional departments to create a unique team. Teams, after finishing a project, often move to a higher project or scatter to other projects. The knowledge, experience, skills acquired during product and service development are not transferred to the project teams in charge of developing the following versions during the evolution of that product service. Besides, with the team and project organizational structure, the skills developed during the collaboration process will often be lost when the team disintegrates and the process knowledge acquired by the team will not be available for future reuse. In this case, a knowledge management system will help your company capture project knowledge, allowing you to reuse it in the future.

Globalization creates a flat playing field, more competitive than ever. Twenty years ago, neither you nor I would have thought India could become America's backyard with a series of call centers scattered across the country, providing services to customers worldwide, Especially customers from Europe and America. Today, Microsoft does not necessarily have to be involved in all stages of creating software. They can move the "less gray" outsourcing to other countries for wages that are only half the price paid to a programmer at Redmond. At the same time, to produce a laptop, Dell has a collection of more than 40 suppliers - companies, workshops, factories around the world specializing in manufacturing assembly components. Globalization with esoteric formulas, business strategies, designs, etc. That's why we need knowledge management.

Besides globalization, competition is becoming more fierce as countries are gradually lifting regulations, leaving the market to adjust itself according to its inherent rules. Suppose you have a price advantage over your competitors because your supplier in Korea and the Korean government have removed the regulatory barriers that make your input cheaper.

Meanwhile, in India - where tariff barriers still exist, your opponents struggle to buy inputs at a higher price. Suddenly, India decided to remove all tariff barriers. What happens next? Both you and your competitors now start from the same point. You lose your competitive advantage. The only thing you can do is cut costs. You start fiddling with a layoff, leaving a little bit here and firing a bit there. You forget that when you push someone out of the company, you also push away the hidden knowledge he has in mind. Meanwhile, your competitors choose a different approach, build a knowledge management system and skills to avoid reinventing what you already have, achieving the goal of reducing costs and long-term competitive advantage.

In such a competitive environment, you cannot say "Do I have a good product? So why should I care about marketing?" Developing a new product or service requires a perfect combination of many different fields, from marketing, research, design, manufacturing to finance, etc. When there are too many people from these fields, different expertise involved in a project is very likely to cause misunderstandings and disagreements about benefits. Knowledge management answers questions about knowledge assets, ownership, beliefs before and after work.

3.2. Actual status of knowledge management in enterprises of Vietnam National Coal - Minerals Group

Along with the country's renovation and economic development, mining enterprises in Vietnam, in general, and VINACOMIN, in particular, also have strong development in mining technology, techniques. However, according to the survey of the author and recent studies, despite the development and innovation in technology and technology, are still very weak in many aspects, such as lack of cohesion with enterprises in and abroad.

weak competitiveness, little innovation, unstable personnel, and not ready for integration. In addition, the mining enterprises in general and the mining enterprises of Vincomin in particular also receive the government's attention and support as some support policies for the sustainable development of mining enterprises. With that support, the application of CG in mining enterprises will be gradually promoted and deployed more. However, at present, mining enterprises of VINACOMIN are conducting information management in spontaneous and small specific ways such as: managing the existing knowledge in documents, documents ... of which department That manages and stores; of which Company it manages ...; Information management activities are organized by organizations based on seminar activities, visits, sharing and learning experiences, exchange activities, etc., without a system to store current knowledge and not yet having an IT application program to do Information Management. Therefore, the effectiveness of CGM operations is still low. The application of CGs in mining enterprises is still very few, even not implemented. The number of successful cases of implementing CGs in practice has not been recorded.

Currently, with the rapid development of information technology applications in enterprises, such as SCM, CRM, ERP, social networks, etc., the deployment of the CG system at the present time is appropriate. The sooner the deployment of CG solutions, the sooner the mining enterprises will create competitive advantages and ensure their sustainable development. However, the successful implementation of a CG system is a difficult problem for mining businesses in many aspects, such as awareness, resources, technology, implementation process, etc. It takes determination. The right strategy from the business side and the encouragement and

support from the government can overcome the difficulties and successfully apply CG.

5. REFERENCES CONCLUSIONS AND RECOMMENDATIONS

Knowledge management plays an important role in creating the competitiveness of enterprises. Knowledge has become an important asset of mining enterprises, in general, and VINACOMIN's mining enterprises, in particular, because this is a high-tech industry, the complexity, interdisciplinary of technical activities, the area spreads. The effective knowledge management system has contributed to the success of companies that directly explore, exploit and consume.

VINACOMIN needs to build a system of CG to enhance operational efficiency, enhance competitiveness, towards sustainable development. To achieve that, VINACOMIN can gradually build a system of CG in the following schedule:

- Phase 1: Awareness raising, training experts on knowledge management and pilot implementation. VINACOMIN invites knowledge management experts from Vietnam and worldwide to teach and share experiences, send potential staff to attend training courses, or recruit, have a team of qualified experts, and practical experience in knowledge management. It is possible to select 2 units (a research and training unit; a production and business unit in the upstream domain) to conduct a test of knowledge management; disseminating experience in deploying knowledge management through annual workshops. In this phase, VINACOMIN assigned the Strategy Board to initially deploy the knowledge management information system, supporting practical activities at the units. The system may initially include online modules and tests for career development-oriented content, initial intensive training and management and basic skills training.

- Phase 2: Replicating an effective knowledge management model throughout the Group; focus on building knowledge management habits into the core culture of the business through maximizing support for communities of knowledge management practices. The Board of Strategy was assigned to continue strengthening the construction of central database and knowledge bases for the whole Group.

- Phase 3: Promote knowledge creation, promote added value from knowledge management. Connecting database, knowledge base, building an InTouch-style centralized knowledge management system, focusing on sharing support for the implementation of domestic and foreign projects, promoting deployment and application, applying new technologies, training experts, training highly qualified human resources.

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