

## KNOWLEDGE MANAGEMENT AS A CHALLENGE IN INNOVATION ECONOMY

*In article knowledge management as challenge in modern innovation economy is considered. The notion «knowledge» is elaborated. Essence of econometric models of knowledge management, which is used in Poland, is shown.*

**Key words:** *knowledge management, innovation economy, econometric models.*

J.A. Schumpeter – an innovation theory precursor- defines it as a process of creative destruction and points as a way to gain competitive advantage. In this context companies in neoclassical economics seek their optimal combination of factors. According to resource-based theory they should build their advantage in the market through the difficult and costly to copy factors of production. As one of them knowledge is regarded to create new resources and conversion of existing ones. At the same time it enables identifying and solving the problem and implementing it at the lowest cost, engaging with the knowledge and internal and external experience. In this way it allows to implement the rules of the knowledge-based society in the market nowadays.

Knowledge as a company distinctive resource applies to the market, buyers, partners, institutions, employees and other elements of the environment. Richard Hall, among the company's intangible resources mentioned: patents, technology, trade secrets, databases, knowledge of the public sphere, know – how of people from inside and outside the company and the culture of information processing and reacting to news. The specificity of knowledge lies also in the fact that it is treated as an inexhaustible resource and yet perfectly renewed. What is important is not subject to the economic law of diminishing returns. Moreover, being the primary resource, it can be transformed in a way exactly corresponding to the needs of the organization.

Due to its specificity, knowledge management is the management of a particular resource – both from the perspective of the macro (economy) and micro (company). In the case of the economy – in forms of the impact of macroeconomic policies and economic processes of production and use of knowledge in the economy. For the company – in terms of competitive strategy based on knowledge, using knowledge of organizational structures and instruments of knowledge management. All of the above mentioned activities are appropriate for knowledge-based economy.

The basic for this kind of economy, knowledge capital absorption process must be examined in the production and management. Particular regard shall be the subject of increased absorption of knowledge conditions- both in science and business, the generation and implementation of innovation and research, at the level of whole economies, regions, individual branches of industry, including the high – tech and services. For developing countries knowledge transfer is vital – from direct to carriers, after an intermediate in the import or transfer of knowledge inter industrial. It should finally mention the process of knowledge gathering, database creation, primarily institutional fixed, determining efficient access to knowledge capital.

Effects of absorption of knowledge at the macro level, in terms of growth, are commonly used in international studies, using the characteristics of the total factor productivity concept referring to the rest of the Solow. However, the methodology is

not perfect and the results are highly controversial, especially because human capital is excluded from the concept of total factor productivity. On the other hand, empirical models of economic growth, in addition to describing the mechanisms of operation and growth of the economy, take account of endogenous technical progress – an organizational change in share knowledge and feedback. It allows the knowledge capital to take into consideration. An example is macroeconometric, long-term model W8D of Polish economy. This model, however, requires conversion to a new model for knowledge-based economy, including a group of blocks of equations:

- a) final demand and foreign trade,
- b) factors and process time of technological progress, potential production and employment,
- c) prices, wages and financial flows.

The use and development of long-term macro-econometric model of Polish economy W8D require mainly:

- a) a broad account of the consequences of increased investment in innovation, incurred in the country and transferred abroad, enlarging knowledge capital embodied in fixed assets and the wider implications of the growth of human capital,
- b) development of a model for describing the operation of satellite submodel connected with sector of science and education, including higher education and postgraduate section of industries and high – tech, including IT,
- c) regional disaggregation by single model, which would imply the use of data across the board – in time.

Another difficulty in the examination of human capital investment is to link the human with the expenditure on education. This requires mapping processes of education and incurred expenses in this process. However, the parameters do not take into account the changes in quality of education, training outcomes (learning by doing), the growth implications of the cultural level (eg, by taking the scale of readership into account), the health of the population and migration. The driving force of productivity, economic development, building the competitiveness of enterprises and national economies has become regardless in case of research knowledge. This is undeniable impact on the perception of the role of people in the management of executives and other employees. Moreover, in conditions of globalization, people and knowledge have become a key strategic resource. According to M. Strojny «in the knowledge economy, survival and development of enterprises may soon depend on the choice of effective knowledge management strategy.

Knowledge management strategy is the bridge between the different objectives of the organization. The result of organizational strategy, integrates the various elements of the cell including the knowledge management system.

According to M.T. Hansena, N. Ohri and T. Tierney, knowledge management is now increasingly recognized by managers as part of business management, but as a daily practice, due to the lack of proven models and procedures, with no wider application. It should be noted, however, that more and more common in consideration of the efficient use and development of knowledge within the business and its performance in the market, it is a sign of a reevaluation of traditional organizational structures. Knowledge management thus requires a new approach to strategy, structure and organizational culture, including the principles of communication and people management. It also calls for other managerial skills, which are designed to concentrate on making better use of knowledge stored in corporate and environments. Managers are interested in the efficient use of existing knowledge which is treated as a corporate asset, not its creation and stimulating innovation. The interpretation of knowledge as a resource refers to resource able approach to strategic management, popularized by G. Hamel and C.K. Prahalada who tell why the strategy should be based on the core competencies, how to identify and manage them. The pilot studies conducted by R. von der Spek and G. Carter shows that most companies take steps to determine the

impact of knowledge management initiatives in the business. Among those companies that do not perform measurements, half of them plan to introduce such measures in future. To those achieved in the framework of knowledge management initiatives, the results of the respondents have received:

- Improve practices and processes (41%)
- Improving the capacity and employee satisfaction (33%)
- Increase customer satisfaction (30%)
- Increase the attractiveness of the company for candidates to work (22%)
- Development of business (22%)
- Increased innovation (19%)

Knowledge-based strategy is to use existing knowledge, enriching and supplementing it, so that the trader can eventually gain the advantage of the extraordinary specificity of the knowledge possessed by the company. Particularly valuable in this regard is the knowledge of invisible, difficult to copy, unique, a blend of organizational skills, resources and processes. In highly developed countries teams are made up for better use of available knowledge and knowledge management software included with the strategy of companies. The uniqueness of knowledge is a resource which requires rapid and flexible adjustments to changing conditions, achieve competitive advantage. Companies seek to maintain and develop only their core competencies, the mean & lean organization tone able to transform them and take on new challenges.

It is also a skillful use of knowledge from the company's environment. Valuable source of knowledge is to engage employees in initiatives of other organizations, their active participation in conferences, the work of industry associations, networking with interesting people on the occasion of postgraduate training of the people with customers, suppliers and distributors of the company, reading specialist press.

Knowledge management, understood as the creation of knowledge, is focused on creating products based on knowledge. It is closely related to the concepts of creativity, inventiveness and innovation. The task of innovation management and creation of knowledge is the targeting of individual creativity of employees and giving them the right conditions to develop new and useful business solutions. Only innovation can be a source of economic success of the company – a lot of interesting inventions is directed to production due to its lack of profitability and limited opportunities, in turn, individual creativity can be wasted on creating ideas, useless in practice.

Economists and policymakers, as defined by the OECD describes as the creation of knowledge creation, dissemination and use of knowledge and information. Schumpeter was among the first stressed the special role of innovation as a source of economic growth, arguing that they are one of the main factors, in addition to business and credit, determining economic development. In turn, the Nobel Prize winner – R. Solow and P.M. Romer presented empirical evidence that economic growth depends on the quality of human capital. In the knowledge economy the priorities for the state investments are to support knowledge creation, including spending on education and learning, the dissemination of modern technology and stimulating innovation in enterprises. However, the American sociologist R. Florida explained the mechanism of knowledge-based economies in different regions and countries through the development of so-called creative class consisting of representatives from many professions who formed part of their job «something new» and found statistical confirmation that the construction of a knowledge-based economy can not solely rely on increasing educational, research and development costs. According to Florida a balanced development of the three «T»: technology, talent and tolerance is needed.

Innovation is thus an essential element of knowledge management. There are the three basic types: product, process, social. Innovation combining two previously known products or processes is defined as a hybrid. Indicated the division it is clear in theory but in fact it is a bit artificial. Empirical separation of the effects associated with the introduction of product and process innovation is in fact impossible – process

and product innovations are intermingle, especially when the analysis is conducted on a macroeconomic level, at the same time any changes in production processes that are the result of the introduction of new methods of organization and management of production and marketing can be described as organizational innovation. It is assumed that innovation, technology news (as a result of R & D) and human capital are the source of technological progress. Empirical research on the macroeconomic level on the effects of technical progress (as the change in productivity) associated with the activities of domestic research & development (due to the size of investment in R & D or the cumulative amount of expenditures on R & D), the effects of R & D (number of patents and the resource information technology) and human capital. It was also significant knowledge and technology transfer from abroad.

According to many economists, the key factor of production is human capital, since the possibility of the economy to generate technical progress, the use of existing assets is closely reliant on it. On the other hand, intellectual capital is the sum of human capital – its knowledge, skills and experience relating to structural capital, without which it would not be possible to use the method of operation, structure and system. Managers of well-performing companies do not realize the importance of the described resources until they do not lose as a result of unforeseen events, such as the departure of key employees, or theft of knowledge by competitors. Knowledge can also be irretrievably lost in the results of irresponsible, short-sighted decision. Hence the importance for companies is to create an organizational memory which aims to wean the company from individual employees and allow all to use the knowledge at work. An analogous problem also concerns the macroeconomic scale of emigration of professionals in the form of depriving the indigenous knowledge economy and reducing its capacity for innovation.

Companies carrying out a model of human capital development are mainly focused on the use of knowledge which manifests itself in supporting the ideas raised by staff for improvement and collaboration with suppliers and customers to improve services or products. These companies emphasize the alignment of structures and hierarchies. In these organizations to know where to look for specific information about and how to connect with teams of specialists, there are many sources of knowledge or information and knowledge itself is identified, obtained, classified and disseminated by employees assigned specifically to create jobs. In this process, great importance is attached to the training focused on improving the quality and efficiency.

Nowadays, all divisions of a company shall cooperate in the creation of knowledge – an effective new product development requires the cooperation of employees in marketing, sales, production and supply. Each employee can contribute to the creation of new knowledge. Furthermore, as mentioned earlier, these processes are increasingly being included in external actors – suppliers, partners, customers. Each of them can provide valuable expertise and support the creation of innovation. The intense competition motivates companies as soon as possible to develop new solutions, because in the global race usually wins, who first offered them moreover, in the era of knowledge economy development of human resources, should move towards creating a learning organization. This can be achieved by:

- Assisting employees in the process of creating and using knowledge
- Networking
- Involvement in the process of double loop learning

In conclusion, high-gained new knowledge, sharing it among employees, mutual learning and applying it in practice, can contribute increasing innovation in the enterprise, as well as to streamline many business processes. The knowledge economy consists of two complementary: the creation of knowledge and its effective implementation. As a result, knowledge-based company actively creates knowledge and can use it in its daily operations. Until recently, this applied only to companies dealing with modern technologies.

---

Nowadays, however, it is known that an analogous manner to create innovation and knowledge can be benefited from any market participant. Since most commercially available products are based on knowledge, knowledge itself is not a source of competitive advantage.

Consequently, only a company comparison with its competitors allows the assessment of the value of its knowledge and finds the relevant parameters. Question is, what unique innovations and know-how we have or may know as much as the average market participant?

Calculations made by Fuente [2004] seem to confirm the fundamental role that can be attributed to the quality of statistical data for assessing the impact of human capital on economic growth: the higher credibility of the source data rates, the higher the precision of estimates and statistical significance of such effects. In light of the results of the positive impact of human capital on long-term growth should be regarded as indisputable. But still the answer on the specific mechanisms and strength of this relationship is ambiguous. An excellent summary of the article is the A. Toffler and H. Toffler's statement: «The key to the advanced state of development today can not rely on whether a country has the capacity to produce information technology (and others, especially those with innovative), but whether it can make creative use of it. There will be a new economy without a new society and new society – with new institutions.»

The question is – how these institutions should support the «new» society and the «new» economy?

*У статті розглянуто управління знаннями як виклик сучасної інноваційної економіки. Уточнено поняття «знання». Показано суть економетричної моделі управління знаннями, яка використовується у Польщі.*

**Ключові слова:** управління знаннями, інноваційна економіка, економетрична модель.

*В статье рассмотрено управление знаниями как вызов современной инновационной экономики. Уточнено понятие «знания». Показана сущность эконометрической модели управления знаниями, которая применяется в Польше.*

**Ключевые слова:** управление знаниями, инновационная экономика, эконометрическая модель.

*Надійшло до редакції 15.04.2011.*