# Intellectual capital as a factor of competitiveness increasing

### V.P. Ivashchenko

Doctor of Technical Sciences, Professor, First Vice-Rector, National Metallurgical Academy of Ukraine

### G. E. Dotsenko

external PhD student of the Finance Department of National Metallurgical Academy of Ukraine vidov61@mail.ru

### V.A. Petrenko

Doctor of Technical Science, Professor
Department of Intellectual Property
National Metallurgical Academy of Ukraine
petrenko\_v@email.ua

#### Abstract

The article studies the content and interrelation of the concepts "intellectual capital" and "competitiveness". It is determined that outstanding world scientists have studied the theoretical and practical problems of the formation of intellectual capital and its development. The study of the importance of factors in the formation of competitiveness allowed us to emphasize the influence of intellectual capital. It has been found out that intellectual capital should be considered as a significant factor in the formation of the enterprise's competitiveness because the intellectual capital becomes an indispensable source for scientific researches and innovations, which are the basis for creating unique competitive advantages of the enterprise and its products. Scientists argue that the effectiveness of innovation depends on the availability and accessibility of knowledge for a wide range of users, which should be created, first of all, by state scientific organizations, higher educational institutions, own research departments of large and medium-sized enterprises. Thus,

the use of intellectual capital for innovation is a factor of competitiveness increasing, which allows modern innovative enterprises to acquire unique competitive advantages.

Keywords: INTELLECTUAL CAPITAL, ENTERPRISE COMPETITIVENESS, INNOVATION, PRODUCTION EFFICIENCY

#### **Problem statement**

In the modern world, not only material, energy and human resources are considered to be the most important resources for the development of society. Intellectual capital is another important resource, which plays a leading role in the modern production process and is its basis and competitive advantage. Intellectual funds increasingly have a greater share in the structure of productive assets in modern enterprises.

Scientists of the National Institute of Strategic Studies believe that increasing the effectiveness of innovative processes in the economy and using the potential of science in the process of economic modernization require the activation of the use of intellectual and scientific-technical resources in the industrial processes of industry, which allows consolidating the positive dynamics of the post-crisis period and providing the preconditions for long-term growth on an intensive basis [1].

### Analysis of recent research and publications

The theoretical and practical problems of the formation of intellectual capital and its development were studied by outstanding scientists of the whole world such as E. Brooking, E. Dichtl, J. Galbraith, F. Kotler, K.E. Lynn, J. Myers, T. Nilsson, D. Ogilvy, T. Stewart, G. Bagiev, V. Bazilevich, A. Gevko, A. Galchinsky, S. Ilyashenko, V. Inozemtsev, D. Kozeychuk, A. Kozyrev, A. Laut, A. Leonidenko, N. Moiseeva, S. Moskalyuk, V. Pertsia, A. Stas', A. Shevchenko, T. Yakubova and others.

The majority of domestic and foreign scientists consider the formation of an innovative model of society's development as one of the most important systemic factors of competitiveness increasing, which provides the technological modernization of the national economy, the growth of production of innovative products and the formation of an innovative culture [2].

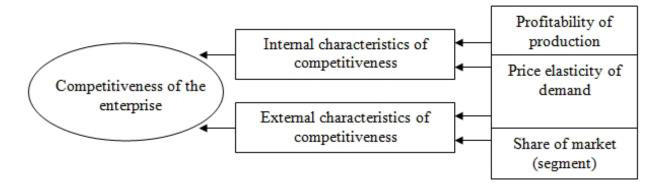
Researcher K. Khubiev believes that the present requires a tough fight for the most important resources, first of all, they are not reproducible raw materials, which reserves are limited, as well as reproducible technological and intellectual resources on which the competitiveness of a modern enterprise depends [3].

Determining the importance of factors in the formation of competitiveness allowed one to distinguish the influence of intellectual capital. The works of such scientists as A.M. Mitina and O. S. Murtazina were carried out in this direction.

The objective of the article is to study the influence of intellectual capital in the formation of competitiveness.

#### Presentation of the main material

Competitiveness is a complex economic category expressing the result of the interaction of all elements of the system of internal (industrial, economic, scientific, technical, etc.) and external (life-making, adaptive) relations between industrial enterprises about the possibility of implementation of this type of product in a particular market or its segment. This is a complex concept that as a result of a tight connection with the category of "competition" covers many aspects, factors and conditions of enterprise rivalry for the adherence of consumers to the goods of certain producers (Fig. 1) [4].



**Figure 1**. Structure of the concept of enterprise competitiveness [4]

Based on these characteristics, it can be concluded that the enterprises are competitive if they can:

- create competitive science intensive products;
- ensure maximum protection of their business in commodity markets;
- effectively influence the structure of commodity markets with a preponderance in favor of their own enterprise [5].

For the solution of the first of these tasks, it is necessary to intensify research activities or buy the rights to inventions and other scientific and technological achievements.

The second task is solved by fixing the rights to the results of creative activity embodied in the final product.

The third task can be solved only due to the availability of competitive advantages of products, the availability of which gives unique properties to products produced at a particular enterprise.

Thus, in view of the above tasks, it follows that the use of the creative potential and, therefore, the intellectual capital of the enterprise contributes to the competitiveness of the enterprise. We specify the notion of intellectual capital: it is a capital embodied in knowledge, skills, experience, qualifications of workers, as well as in intangible assets, which include software, patents, databases, trademarks that are productively used for getting profit.

The problems of formation and use of intellectual capital are interrelated with the effectiveness of introducing innovative projects at the enterprise. The implementation of innovative processes that involve the development of new technologies and new types of products requires not only financial costs, but also the use of special organizational and economic instruments.

Thus, intellectual capital becomes not only a necessary resource for the implementation of innovations and preservation of competitive advantages, but also an effective tool for the development of the enterprise and increasing its competitiveness. This statement is valid for science-driven industries.

Intellectual capital is the basis of research and development and the source of value for RTD. Intellectual capital is a combination of intangible resources and activities that allow an organization to transform a combination of material, financial and human resources into a system capable of creating additional value. As shown in Figure 2, intellectual capital becomes an indispensable source for research and innovation.

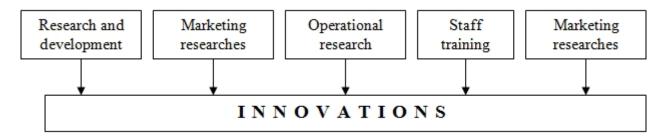


Figure 2. The basis for innovation implementation

It is necessary to characterize each of the blocks:

- research and development are performed to further use of their results in production;
- marketing researches are necessary for market analysis to understand existing needs and desires, with the purpose of developing new products, processes and services that are valuable to customers;
- operational researches are necessary to track how each aspect of the business is performed in order to adjust the business process to achieving a strategic goal;
- staff training is necessary to give the opportunity to people to learn and apply new knowledge, experience, skills in activities that benefit the enterprise.

Development of relations is the construction, preservation and maintenance of a positive image in front of clients, partners and other intermediaries in order to build profitable and long-term relationships. Development of relations includes also the development of brand and image through marketing.

Effective implementation of innovations depends on the availability and accessibility of knowledge for a wide range of users, which are necessary to create, first of all, by state scientific organizations, higher educational institutions, own research subdivisions of large and medium-sized enterprises. An important role here is played by the existence of a clear connection between science and production, as well as the ability to adopt new technologies.

For example, the oldest metallurgical enterprise of Ukraine - PJSC EVRAZ-DMZ needs to be substantially updated, which will concern not only the technical and technological sphere of the main and auxiliary industries, but also all other spheres. To

implement effective measures that will increase the competitiveness of this production, it is necessary to implement a set of targeted actions, such as market research, research of modern technologies and means of production, modern products of the metallurgical complex.

This set of measures will be fully based on new knowledge, i.e. the intellectual capital of the enterprise. Directions for reducing production costs, saving material and energy resources, ensuring product quality, increasing its competitiveness in the domestic and foreign markets are actual for the PJSC "EVRAZ DMZ" enterprise [6]. The solution of all set tasks is possible only when using the existing intellectual capital of the enterprise, and it is also desirable to

strengthen it at the expense of new competent personnel in the management and production units.

Figure 3 represents the mechanism for implementing intellectual capital under the conditions of a real production enterprise with the aim of carrying out innovations as one of the main factors for increasing the competitiveness of the enterprise.

In a modern knowledge-based economy, successful innovation requires a variety of intangible investments. These investments create intellectual capital. The value of intellectual capital as a factor in increasing the competitiveness of enterprises depends on intellectual investments, i.e. investments in specialist training, research and development, transfer of knowhow, acquisition of licenses for the innovation.

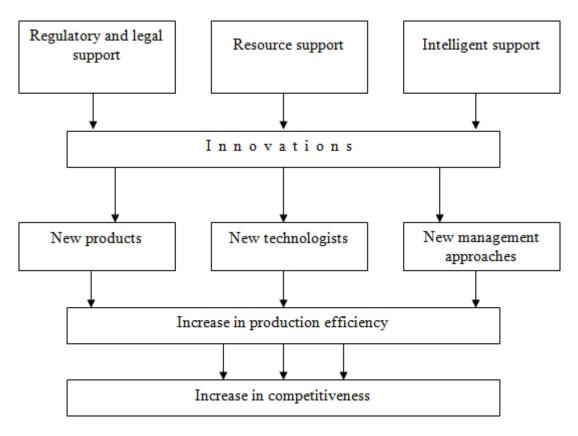


Figure 3. Intellectual capital as a factor of increasing the competitiveness of an enterprise

The appearance on the market of a new high-tech product and the introduction of new technological processes in production lead to an increase in production efficiency.

#### **Conclusions**

In general, the increase in production efficiency is characterized by a decrease in resource intensity, increased energy efficiency, increased productivity and reduction in the production cost. New and improved products that have appeared on the market lead to the creation of new market niches or to the conquest of a larger share of the already existing mar-

ket of these products, which leads to the formation of sustainable competitive advantages of a particular enterprise over competitors, which in turn is the basis for increasing competitiveness.

Thus, at the present stage of economic development, the use of intellectual capital for innovations is the factor of increasing competitiveness, that allows modern innovative enterprises to ensure their survival and development under conditions of fierce competition through the acquisition of unique competitive advantages.

#### References

- 1. "Shliakhy aktyvizatsii vykorystannia intelektualnykh ta naukovo-tekhnichnykh resursiv u vyrobnychykh protsesakh promyslovosti Ukrainy". Analitychna zapyska. ["Ways of activation of the use of intellectual, scientific and technical resources in industrial processes of Ukraine industry." Research note]. Available at: http://www.niss.gov.ua/articles/516
- 2. Zharinova A. G. (2013) Intelektualnyi kapital yak faktor konkurentospromozhnosti pry formuvanni ekonomiky znan [Intellectual capital as a factor of competitiveness in the formation of knowledge economy]. *Elektronne naukove fakhove vydannia «Efektyvna ekonomika»* [Electronic scientific specialized edition of "Effective economy»]. No 1, Available at: <a href="http://www.economy.nayka.com.ua/?op=1&z=2291">http://www.economy.nayka.com.ua/?op=1&z=2291</a>
- 3. Khubiev K. (2008) *O soderzhanii «novoy ekonomiki»* [On the content of the "new economy"]. *Economist*. No 5, p.p.63-70.

- 4. Yankov O. G. (2013) 4. Konkurentospromozhnist pidpryyemstva: otsinka rivnya ta napryamy pidvyshchennya [Competitiveness of the enterprise: assessment of the level and areas of improvement]. Odessa: Atlant. 470 p.
- Vovk I. (2011) Klasyfikatsiya resursiv pidpryyemstva. Suchasni pidkhody [Classification of enterprise resources. Current approaches]. Sotsialno-ekonomichni problemy i derzhava [Socio-economic problems and the state]. No. 1 (4).
- 6. Available at: http://sepd.tntu.edu.ua/images/stories/pdf/2011/11vippsp.pdf.
- 7. Mazov M. M. (2014) Sovershenstvovanye tekhnyky y tekhnolohyy, yspolzuemыkh v uslovyyakh metallurhycheskoho proyzvodstva PAO «EVRAZ DMZ ym. Petrovskoho» [Improvement of Technics and Technology used in conditions of metallurgical enterprise PJSC "Petrovsky Evraz DMZ"]. *Metal i litie Ukrainy* [Metal and casting of Ukraine]. No 5-6 (252-253), p.p. 16-19.

