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INTELLECTUAL POTENTIAL OF UKRAINIAN ENTERPRISES OF FOOD INDUSTRY

The article defines the contents of contemporary views on intellectual potential of industrial enterprises. Theoretical perspectives have been substantiated with regard to the formation of the structure of intellectual potential. Based on statistical data the current state of intellectual potential of food industry enterprises is analyzed. Directions for further development of intellectual potential of the food industry are presented.

Keywords: intellectual potential; intellectual capital; intellectual resources; food industry.

JEL classification: B4; I2.

Світлана О. Степанчук

ІНТЕЛЕКТУАЛЬНИЙ ПОТЕНЦІАЛ УКРАЇНСЬКИХ ПІДПРИЄМСТВ ХАРЧОВОЇ ПРОМИСЛОВОСТІ

У статті визначено зміст сучасних поглядів на інтелектуальний потенціал промислових підприємств. Обґрунтовано теоретичні положення розвитку та формування структури інтелектуального потенціалу. За допомогою статистичних даних проаналізовано сучасний стан інтелектуального потенціалу підприємств харчової промисловості. Представлено основні напрямки розвитку інтелектуального потенціалу підприємств харчової промисловості.

Ключові слова: інтелектуальний потенціал; інтелектуальний капітал; інтелектуальні ресурси; харчова промисловість.

Рис. 2. Табл. 1. Літ. 19.

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ИНТЕЛЛЕКТУАЛЬНЫЙ ПОТЕНЦИАЛ ПРЕДПРИЯТИЙ ПИЩЕВОЙ ПРОМЫШЛЕННОСТИ УКРАИНЫ

В статье определено содержание современных взглядов на интеллектуальный потенциал промышленных предприятий. Обоснованы теоретические положения развития и формирования структуры интеллектуального потенциала. При помощи статистических данных проанализировано современное состояние интеллектуального потенциала предприятий пищевой промышленности. Представлены основные направления развития интеллектуального потенциала предприятий пищевой промышленности.

Ключевые слова: интеллектуальный потенциал; интеллектуальный капитал; интеллектуальные ресурсы; пищевая промышленность.

Problem setting. Research of intellectual capacity at the macro- and microlevels is especially important for Ukraine and Ukrainian companies that are at the low stage of development and use of intellectual resources.

Globalization of economic processes, high competition at the food market, the need for innovative development of national economy shape new demands to contents, organization, forms and methods of intellectual potential management in business.

Recent research and publications analysis. Intellectual capacity and its impact on organizational effectiveness, including particular industries, have been reflected in numerous publications of both domestic and foreign researchers. This might be explained by the increasing importance of intellectual innovation as a crucial factor in ensuring the efficiency of industrial enterprises in today's economic relations. A

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significant number of scientific publications on this topic shows the growing interest in the development and use of intellectual resources, organization and management of intellectual potential.

Theoretical and practical aspects of intellectual potential use by organizations are explored in the works of foreign and local authors. Among foreign researchers are I. Ansoff (1989), A. Brooking (1996), T.A. Steward (1997), L. Edvinsson and M. Malone (1997), W.R. Bukowitz and R.L. Williams (2000), N. Al-Ali (2003), G. Roos et al. (2005), J. Barney (2008), E. Pasher and T. Ronen (2011) and others. Among the national scientists we should mention M.M. Rozumnyi (2003), V.M. Heyets et al. (2007), V.R. Tkachuk (2008), I.V. Fedulova (2009), I.P. Moysyenko (2010), O. Butnik-Siverskyi (2010), G.M. Guzenko (2010), L. Dyba (2011), O.M. Kovalova (2012), A.V. Kornuh (2012) and many others.

However, this issue is insufficiently studied and requires continuing scientific research. Most studies are generic and do not take into account the specific features of intellectual capacity in various industries.

Despite the wide academic coverage of the intellectual capacity category, a range of issues remain unsolved, especially the problem of comprehensive assessment of intellectual potential of industrial enterprises, its effective formation and management using the newest methods of strategic management and enterprise planning. The general issues of formation and management of intellectual potential for those industries, which are characterized by a large number of factors that affect their activities, particularly food industry, are quite topical.

The research objective. This study attempts to find ways to improve the efficiency of the food industry through the development of its intellectual potential of the field, developing theoretical positions and practical recommendations on intellectual potential development in the food industry.

Key research findings. Food processing industry is the priority sector in the national economy of Ukraine. Enterprises of food industry ensure sustainable development, a food business is able to gain short-term competitive advantage in various ways, but in the long term, the choice is sharply reduced.

Currently, the benefits of physical conditions of production (capital assets, raw materials, geographic location etc.) are no longer the key factors of competitiveness. Financial resources in today's world are also available and are not an obstacle to enter the competition for a new market or segment. New products are subject to copying, and provide only a temporary competitive advantage.

The principal competitive advantage consists of the skills acquired, experience, innovation capacity, know-how, market understanding, databases, customer and vendor information, exchange systems, i.e. elements of intellectual potential. How effectively an organization uses its intellectual potential, predetermines not only its success and sustainable development, but also the very ability to survive under tough competition (Rozumnyi, 2003: 90).

In Ukraine the attention to intellectual potential emerged relatively not long ago, at the end of the 1990s.

The global trend of transition to knowledge economy emphasises the necessity for considering intellectual component of enterprise potential as a powerful source of value creation (Heyets, 2007: 16).

Intellectual potential of a company provides opportunities which can be used to solve problems. However, this does not mean that these opportunities will be used at any time.

Current development of food production is largely determined by the effective use of the intellectual potential, therefore, it is important to describe the economic category "intellectual potential" in the specific context of the food industry.

Intellectual potential of food industry is a set of explicit (used) and implicit (unused) collective knowledge, experience, information, cognitive and spiritual abilities of personnel, intangible assets, which in interaction with other resources of an organization provide long-term competitive advantage and sustainable development.

Structure of intellectual potential in the context of the food industry consists of 4 interrelated elements: human, organizational, consumer potential and intangible assets (Dyba, 2011).

The typical structure of intellectual potential in food business is shown in Figure 1.

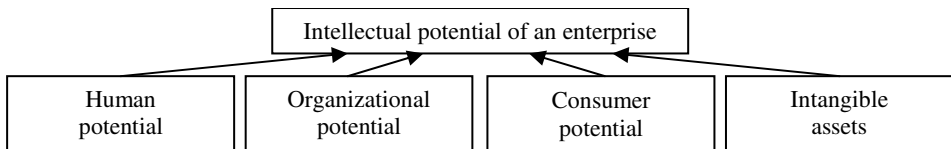


Figure 1. The structure of intellectual potential of an enterprise (Dyba, 2011)

Under human potential we understand the cumulative possibilities of an individual or total personnel of the enterprise as to economic and social activities and own development. The concept of human development includes such properties as needs and interests of a person, standards of living, wellness, general and professional knowledge, skills, motivation activities, attitude to work, initiative and entrepreneurial spirit, ways of behavior. The methodological basis for analysis of the processes of human potential reproduction is often the theory of human capital, which is concentrated around human development, based on the needs of social production, and explores perfectionism as a production factor (Guzenko, 2010: 9).

Organizational potential is determined by a range of potential opportunities of functional subsystems in marketing, manufacturing, research, finance, and management of organizational development (Ansoff, 1989: 75). Organizational capacity of an industrial enterprise is a system of unique resources of knowledge economy, presented by scientific and technical developments, innovation and education in order to develop intellectual, human and social capital in the process of corporate management and their mobilization in capacity building with the influence of the environment.

Consumer potential is connected with the assessment of purchasing power. It determines the level of consumer demand by the volume of goods and services per capita (Tkachuk, 2008: 10). Evaluation of consumer potential is based on the characteristics of market opportunities both at macro- and microlevels. Calculation of consumer potential of an enterprise consists of determining the number of industrial and consumer units, calculation of specific capacity (purchasing power) according to production and consumption, elasticities characteristics of supply and demand on prices, population income and other market factors, the market share that according

to the calculated estimates competitors will get is taken into account (this is calculated to determine the specific capacity on the macrolevel).

Intangible assets of a company are non-monetary assets that have no physical form and can be determined by the state standard of accounting of Ukraine. Intangible assets include: the right to industrial property objects; copyright; the right to use land and other natural resources; the right to use other intangible resources; organizational costs of creating an enterprise, goodwill. Intellectual property rights include: invention ownership, utility model, industrial design, trademarks for goods and services, plant varieties, trade name, computer programs, databases, scientific and technical information. The objects of the right to use the environmental resources include: the use of land, mineral resources, geological and other information about the environment and resources. Economic, organizational and other benefits include: economic benefits from the market monopoly status, the right to use tax, economic and other privileges and the use of property.

Goodwill is a set of measures aimed at increasing business profits without a corresponding increase in active operations, including the use of best management abilities, dominant position at the market of goods (works, services), new technologies. Figure 2 presents the formation of intellectual potential of the food industry, also showing the structural load of intellectual potential.

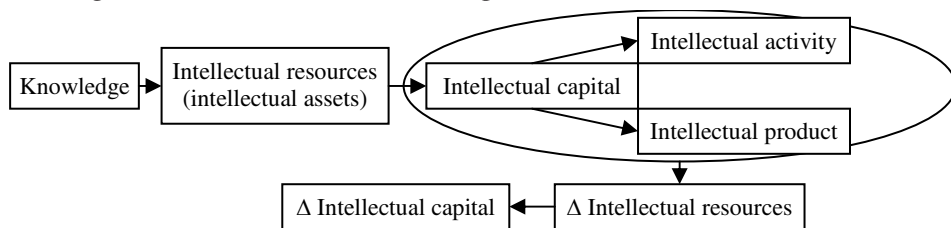


Figure 2. **Formation of intellectual potential of an enterprise** (Fedulova, 2009)

Thus, knowledge is transformed into intellectual resources (intellectual assets), which, in turn, are transformed into intellectual capital. Intellectual capital with intellectual work and intellectual product is an intellectual resource for the next turnover of capital in the production process and creates a new intellectual capital (Fedulova, 2009: 8).

Intellectual assets are a set of information and intellectual products that can be alienated from their creators and have a real commercial value for a company and contractors. Information and intellectual resources from a set of scientific, industrial, financial, organizational, administrative, personnel, information and technology ideas, methods, tools, techniques, and various forms of information being received from intellectual work of employees, which results in the emergence of competitive advantages. These resources may be partially or completely alienated from their creators. Intellectual resources, intellectual products, intellectual assets are created by human resources as a result of creative processes. Human resources, in turn, are intellectual resources, but only those engaged in creative activities in the field of innovations, intellectual property rights and intellectual products. Thus, the key mechanism that combines all these categories is the creative process.

One intellectual resource can have a number of capabilities that differently affect the value and create some competitive advantages. The combination of resources and their capabilities can be the basis of only one competitive advantage. This multivariate and significant relationship between resources contributes to a synergistic effect that multiplies the created value (Butnik-Siverskiy, 2006).

Under intellectual capital most contemporary scholars see the ability to create new value of intellectual resources and intellectual products. Intellectual capital has the following types: human, structural, client and social. Human capital purposefully used in production process, promotes productivity, thereby causing revenue growth of the person and the enterprise where this person works. This capital is inalienable from its individual carriers.

Structural capital is all that remains at the enterprise after staff goes home from work. It includes intellectual property (patents, certificates, selection achievements, know-how etc.), information systems, and system of financial relationships, organizational structure, technical libraries, instructions, regulations, standards, awards, certificates and prizes which were granted to the enterprise. This part of intellectual capital, unlike human capital, is the property of the enterprise, and may serve as the object of sale.

Customer capital is the system of stable, reliable, long-term, trusting and mutually beneficial relationships of the enterprise with its customers which take place during its work at a market. This includes brand, clientele, brand name, distribution channels, licensing agreements, trade secrets and expansion of clientele.

Social capital is the value created by the enterprise through social relationships both within the enterprise and externally. Objects of social capital are inseparable from the enterprise and cannot be traded, but they are able to generate additional profit, as they may increase confidence in the enterprise not only of its customers but also the state, NGOs etc., and reduce time spent to conclude agreements of different nature. And because the main function of intellectual capital is to increase profits, social capital should be part of its composition.

An integrated approach to intellectual potential development at food industry enterprises is in formulation and implementation of such basic blocks as evaluating intellectual capacity, formation and use of knowledge within the human potential and use of knowledge within the organizational capacity of the enterprise, using knowledge on external relations of the organization, monitoring the development of intellectual potential (Moyseyenko, 2010: 12).

Our study was conducted on the current state and effectiveness of intellectual innovative activity of food industry and forecasting the cost of innovation in the food industry.

In order to analyze the impact of intellectual innovative activity of the food industry and determine its place in the economic development of the industry, we have analyzed the dynamics of intellectual innovations of food enterprises (Table 1).

The level of intellectual innovation activity of food industry enterprises can be characterized as low and having a tendency to decrease. Thus, the number of enterprises that implement innovations and those who offered their innovative activity in 2007–2013 decreased by half. The same trend is typical for enterprises that have implemented innovative products. The volume of sold innovative products in the food

industry in 2007–2013 increased by almost 2.5 times, but was only 5.3% in 2013 of the total volume of all sold industrial output and 11.3% in the total sales of innovative products of the industry. These amounts do not indicate an impressive innovative activity in the field.

Table 1. The dynamics of intellectual and innovation activity of food industry enterprises in Ukraine

Indicators	Years						
	2007	2008	2009	2010	2011	2012	2013
Implementation of intellectual resources of food industry outside Ukraine in the total sales of innovative food products, %	6.4	9.5	18.4	12.4	18.0	12.8	10.4
Implementation of intellectual resources of the industry outside Ukraine in the total sales of innovative products of the industry, %	30.50	35.10	37.10	42.50	50.00	41.4	36.5
Costs of intellectual innovation of the food industry, % to the volume of sold industrial production	0.32	0.53	0.25	0.21	0.27	0.18	0.29
Costs of intellectual innovative activity of the food industry, % to the volume of sales of innovative products in the food industry	14.06	23.92	34.10	25.15	28.72	21.59	38.29
Costs of intellectual innovative activity, % to the volume of sold innovation products of all industries	19.10	23.94	23.75	24.14	23.01	19.94	27.04
Volume of sold intellectual and innovative food products, % to GDP	1.70	1.77	0.62	0.80	0.85	0.70	0.77
Utilization factor of costs for intellectual innovative activity of food industry enterprises	7.11	4.18	2.93	3.98	3.48	4.63	2.61
Utilization factor costs for intellectual innovative activity of all industrial enterprises	5.24	4.18	4.21	4.14	4.35	5.02	3.70

Source: State Statistics Committee of Ukraine.

The overall results of the analysis show a low contribution into the development of innovative component of the national economy by all industries and food industry in particular. This is not only due to lack of appropriate funding, but also because of the lack of state support for innovative activity, including education, science, research and development; many unresolved issues in patent licensing regime; imperfect economic mechanisms in motivation for inventions; lack of appropriate legal and institutional framework for innovative business development.

The conducted factor analysis of the innovation costs revealed the sensitivity of individual factors to the total amount of expenditures on innovation. Changes of total expenditure on innovative activity have shown the following rate of sensitivity: with growth of the corresponding factor by 1%, the rate of change in expenditures on R&D is 0.6%; the rate of change of the cost of acquisition of new technologies is 0.06%; the rate of change in industrial design costs – 1.08%; the rate of change of the cost of pur-

chasing machinery, equipment, installations and other fixed assets – 0.96%; the rate of change in the costs of marketing and advertising – 0.88%; rate of change in other expenses – 0.21%; the share of the cost of creating and acquiring new knowledge – 1.31%; the cost of purchasing machinery, equipment, installations and other fixed assets – 1.73%; spending on marketing and advertising – 2.43%.

The analysis of innovative activity of the baking industry in particular leads us to the following main conclusions: 16.6% of innovatively active enterprises of baking industry were involved in innovations in 2013; the volume of realized innovative products of the industry steadily declined in the absence of innovative changes; the share of innovative products in the total volume of industrial production of the baking industry in 2013 was 3.1%; in the structure of innovative products in 2013 the products that are new to the market constituted 56.7% of the total output, but this volume tends to decrease; modest spending on innovative activity was focused primarily on purchasing machinery, equipment, facilities and other fixed assets, and this does not provide a truly innovative reproduction in the sector; there are almost no costs spent on R&D; the main problems that hinder innovative activity in the field are related to the lack of financial resources for enterprises; the main results of innovation, which the enterprises direct their efforts at, is expanding the range of products, preservation and expansion of traditional markets, ensuring compliance with current regulations and standards.

Under these conditions the innovative development of the baking industry is impossible and the problem is not so much in the lack of funding, but in the absence of incentives for scientific-technical development.

Efficient system of intellectual potential at food industry enterprises requires the establishment of a corporate training center or an institute (for large food industry enterprises), department of training and development (for medium-sized food industry enterprises), corporate training projects of varying duration (for small enterprises).

In today's society intellectual potential is the determining factor for the competitiveness and sustainability of any organization, ensuring the effective functioning of food industry enterprises not only in the short-, but also in the long-term perspective.

In many food companies most part of the resulting effect is a the result of the application of special knowledge, skills, serious training, collaboration with suppliers and customers, which together form the intellectual potential of the organization.

Conclusion. For Ukraine, seeking the way to overcome the economic, social, political and moral crises of the society, awareness of the importance of intellectual potential and untapped opportunities for its further development in the interests of up building a competitive economy including the food industry is extremely important. Raising awareness seems possible only on the basis of the systematic research of intellectual capacity, which has to affect drastically the theory and practice of its formation, use and development, especially the demand for and implementation of intellectual potential of the employed population, particularly in food production.

Prospects for further research in the field of development and use of intellectual potential of the food industry include the development and practical implementation of relevant socioeconomic state policy concerning further development of intellectual potential of the food industry enterprises, providing high employee motivation in

the industry for the development and implementation of intellectual potential of enterprises in both public and private sectors with maximum economic, social and innovative effects.

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