



ORGANIZATION INTELLECTUAL POTENTIAL: ESSENTIAL CONTENT AND STRUCTURE

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ABSTRACT

The competitive advantages of an organization in a modern economy are moving from material resources to intangible assets. According to experts, a significant part of the value of a firm in developing countries is based on intellectual assets, and the source of global prosperity is an intangible component. Forming the intellectual potential (IP) at an organization gets an important role. Despite numerous publications on this issue, it has not been fully studied, and some problems need more in-depth examination. The aim of this article is to study the intellectual potential in the aspect of its definitions and an elemental structure and on this basis to develop a version of the intellectual potential system, including the most important categories. A system analysis of the IP categories, its structure and development of a structural model on this basis. After analyzing the existing definitions, a definition of the category “intellectual potential” was suggested, including a system of theoretical, applied and experimental knowledge, with an appropriate supporting infrastructure that is necessary for effective intellectual activity in comparison with the best practices in this field and innovations that ensure the competitiveness of an organization. The key (basic) elements for the effective functioning of the intellectual potential are a knowledge system, a supporting infrastructure, and innovations. An IP system has been developed that includes the most important categories. It can be useful for management and information support of an organization. The materials of the article may be useful to researchers for further study of the problem of the IP in the regional and sectoral aspects, as well as to the heads of organizations in practical terms to justify and form corporate and competitive strategies of an organization.

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1. INTRODUCTION

We consider that the IP is a necessary and important element in the functioning of an

organization; thus, it is necessary to clarify the definitions of this category based on the analysis of existing definitions, a structure, and model. Consideration of theoretical and practical developments on the IP problem showed that there is a need for further research to determine key categories and to form their system. The article aims to study the IP in the aspect of its definitions and an elemental structure and on this basis to develop the author's version of this phenomenon, including the most important categories.

The tasks of this study:

1. To perform an analysis of definitions of the IP in information sources and to develop the author's version.
2. To analyze the existed options for the structure of the intellectual potential at an enterprise and to determine a priority structure.
3. To develop a system of key categories, structure and informational relations of the IP in an organization.

The emerging knowledge economy has certain peculiarities.

1. In manufactured goods, knowledge has a significant share in the final value.
2. Information activities within the organization are becoming increasingly important.
3. The role of professionals engaged in intellectual activity is increasing.
4. Increase of a role and importance of management of intangible assets [9].

In literature, there is no identical interpretation of the category of intelligence and potential. The dictionary [15] gives the following definitions of these phenomena: "intellect is a thinking ability, ..."; "intellectual is mental, spiritual with a highly developed intellect." The term "potential refers to 1) ... 2) a degree of power in any respect, the totality of some means, opportunities; 3) internal opportunities".

IP characterizes the intellectual sphere of a structure and a source of new knowledge, the ability of a system to find optimal solutions, a measure of the effectiveness of the intellectual capabilities of a system [1].

It is recommended to consider IP as a system of integral elements (intellectual capital and a knowledge management system), relationships and properties (innovation, competitiveness, energy, and information), as well as support (informational, functional and organizational) [28].

The intellectual potential aims in the future and partly at the present. The IP is associated with the following types of capital: human, social, creative, cultural, vital, spiritual [14].

In countries with a significant level of satisfaction with the vital needs of its population, the factors for the formation of the IP and development of the high-tech sector have the most important role. For states without a satisfying level of basic vital needs for the population, the factors of development of the innovation sector of the economy have a main role in the economic growth [7].

The following negative trends in the intellectual sphere of Russian society are highlighted. They include: a poorly developed market of intellectual products; shortcomings of the system for studying the needs of the society and the nature of a technological progress; poor reaction on achievements of a scientific and technical progress; refractoriness to the knowledge in the modern science in the field of social process management; the public's insensitivity to the informatization of all spheres of life activity [5].

IP, as an essential part of the national wealth of the Russian Federation, is not sufficiently involved in the practice of economic entities. Having IP resources, most of the organizations do not have opportunities and experience of their commercialization. The reasons are: absence of clear property ownership on them, the intellectual resources market is not sufficiently developed, and little practice in introducing developments, etc. At the enterprises, the IP is mainly represented as computer application programs. So, a significant part of the IP at firms is not involved in intra-company and inter-firm turnover [17].

The IP and intellectual capital were formed as research topics when competitive advantages were transferred from the company's tangible assets to its intangible assets. The IP is the further development of intellectual capital. A concept is a tool for the strategic management of intangible assets of an organization to increase its long-term revenue opportunities [30]. The problem of accumulation, preservation, and development of the intellectual potential is a strategic priority, both at a federal level and a level of economic entities. Its solution must be ensured, as a degree of development of the intellectual potential is transformed into intellectual capital, which determines a degree of development and a level of competitiveness [20].

Research has revealed that the profit on investments in the human potential is almost three times higher than on investments in material resources. Thus, a study of the dependence of labour productivity on a level of education showed that a 10% increase in a level of education of employees increases labour productivity by 8.6%, but with a similar increase in a stock capital of an organization, this indicator grows by 3–4% [10]. A study conducted at 300 UK companies showed that there is a significant positive relationship between the intellectual capital and financial performance of the firm [36]. To succeed in the modern economic environment, a company should not only recognize its intellectual capital but also learn to manage it [23].

The scientific literature suggests different interpretations of the concept of intellectual potential. The term “intellectual potential” is not clearly defined, and this discourages the effective management of it. Thus, the clarification of the essence of this category seems relevant. The research aims to analyze the definitions and a structure of this indicator, to characterize this phenomenon for its identification, measurement, and management. According to Kiselyova [9], knowledge of the IP degree helps to solve the following tasks in organization's activities: to assess the company's ability to fulfill its strategic goal and objectives, to restructure a company, to form databases on the potential of each employee for effective management. The study of the organization's IP, its status is an important scientific and practical task [26].

2. MATERIALS AND METHODS

The aim of this study is a systematic review of scientific literature on the IP at an organization. A computerized search was made for the necessary information sources in Russian and English. For searching the term “intellectual potential” was used. The subject areas were not limited. There was a review of information (Internet, monographs, thesis abstracts, journal articles in open access in bibliographic databases: Scopus, Higher Attestation Commission in the Russian Federation, Web of Science (Russian Science Citation Index, Elibrary) to identify key aspects of the organization's intellectual potential.

Then, the information sources were selected according to the following criteria: by a subject, by a title, by a reason of an abstract, by a full text. Potentially relevant articles and abstracts were those which examined a topic of the intellectual potential, its structure, and models.

In the process of work with the sources we aimed to answer the following questions:

1. What is the current understanding of a definition of the competitive potential of an organization and identification of major and minor factors influencing its formation?
2. What is the current understanding of factors which determine a structure of the competitive potential of an organization?
3. What is the current understanding of a system of elements which forms a structure of the competitive potential of an organization?

The method of generalization was used. It is based on determination and registration of relatively sustainable properties of the object under study. As a result, the most typical characteristics of all or the majority aspects of the phenomenon under investigation were selected.

The analytical method was used. The analysis involves a division of the object of study, the IP, into its constituent elements, the discovery of some peculiarities. When analyzing the object, a significant number of factors (peculiarities) were examined; the most significant ones were distinguished by subjective ranking and elimination of minor factors that did not have a significant effect on the IP.

The systematization method was used; it was based on the construction of a unified system of the intellectual potential and related processes. A logical study of the collected facts was carried out, and views were worked out. Along with this, early opinions were compared to new views. The essence of this comparison was to determine particular similarities and differences between the properties of the intellectual potential. The logical methods of similarity, difference were used.

At the final stage of the research, an integrated approach was used; it considered the object of study as a set of the IP components to be studied with appropriate methods.

The main goal of the study is to examine and analyze the IP in terms of its definitions and an elemental structure and, on this basis, to form the author's version of a structural and information system of this phenomenon, including the most important categories.

The subject of research is a terminological apparatus and elements that form the intellectual potential, as well as a structural system.

3. RESULTS AND DISCUSSION

There is a significant range of opinions regarding the term of the IP at an organization in information sources. The authors consider different ideas about this phenomenon. When determining the category of the IP, it is necessary to rely on the most priority factors that form it. The IP is, first of all, a system of information: theoretical, applied and experimental. The level of knowledge at each subsequent stage and its result is largely determined by a previous stage.

The appropriate supporting infrastructure is necessary for the effective functioning of a system: information, communication, computer, etc. The potential implies a certain level and opportunities for development. This requires a comparison with the best practices in this area: a region, an industry, a country, the world community. Knowledge should be transformed into innovations, which can be

both potential and real, and form a high level of enterprise competitiveness.

A rational definition of the IP at an organization is as follows. It is an evolving knowledge system that is ensured with supporting infrastructure and is aimed at the development and introduction of innovations.

The IP at an organization consists of the following categories: a subject and an object of management, management principles, forms of personal development, diagnostics, a personal life cycle, levels of intellectual activity, measurement methods.

There are different interpretations of the concept and the terms “intellectual potential” and “intellectual capital”. This makes it difficult to research this problem and further application of the results in practice. Thus, clarification of the essence of this category seems relevant. Table 1 shows a list of definitions of the IP by various authors.

Table 1: Definitions of the intellectual potential

Author	Definition
[Bogdashev, 2005]	The IP is a characteristic of a degree of changes of intellectual, constructive possibilities, resources of the country, industry, personality.
[Lapayeva et al, 2011]	The IP in the narrow sense is the ability of a system to reproduce and introduce innovations. The IP in the broad sense is the total abilities of a country, territory, enterprise, employee to form unique achievements in science, technology, and spiritual and moral sphere.
[Zakharov, 2018]	The IP is a total of theoretical knowledge, practical experience and personal abilities of employees who carry out the innovative activities.
[Vovkanich by Lapayeva et al, 2011 p.308]	“The IP is a possibility to form and use new knowledge, projects, ideas, models and other semantic information that can become the intellectual property ...”
[Stuart by Lapayeva et al, 2011 p.308]	The IP refers to the amount of knowledge of all employees at a company, which ensures its competitiveness.
[Kiselyova et al., 2012]	The IP at an organization is a total of the abilities of its employees with the help of which an innovative development is done.

The authors highlight the priorities of the IP. An assessment only by means of knowledge reveals some limitations of this indicator, as knowledge quickly becomes outdated, and here a certain dynamics of modernizing it is required. On the other hand, the ability to get new knowledge is an important assessment of the IP, but at the same time, it does not reflect the level of existing knowledge. Consequently, the definition should involve these two criteria mentioned above. There are also different categories: theoretical, applied and experimental knowledge, which should be engaged in the definition.

Then. To determine the indicator, it is necessary to specify the areas where the IP should be implemented. The researchers distinguish the following positions: knowledge, spiritual and material values, semantic information, science, technology, spiritual and moral sphere, organizational capabilities, and communication channels. When assessing the IP, it is essential to emphasize the focus of this category. This may be the creation of new spiritual or material values, development, and application of new knowledge, projects that ensure competitive advantages.

We give a characteristic of the IP, based on the above analysis. The IP is a system of theoretical, applied and experimental knowledge, with an appropriate supporting infrastructure, which is necessary for effective intellectual activity in comparison with the best practices in the industry, and

innovations that ensure competitiveness. Table 2 presents a large variety of IP structures.

Table 2: The structure of the intellectual potential

Author	Structure
[Bogdashev, 2005]	The IP has five components: personnel, material and- technical, effective, socio-informational, organizational-and-legal.
[Martynov, 2011]	The components of the IP are personnel, material-and-technical, effective, informational, organizational-and-legal.
[Yafizova, 2011]	The IP at an organization is a level of education and qualification of personnel, information support, investment in the human potential, intangible assets and modernization of service quality.
[Ezhova, 2011]	The information-and-intellectual potential involves knowledge, professional skills, progressive technologies, organizational culture, brand and other elements of the intellectual property.
[Minchenkova, 2006]	The IP involves innovative, managerial, marketing, informational, educational potentials. A certain element of the IP has its own particular goals of application and formation.
[Kiselyova et al, 2012]	The IP at an enterprise is the organizational intellectual potential (a number of documents for efficiency proposals and inventions, etc.; a share of new products in total production; a number of proposed and implemented innovations to a number of employees; motivation of employees; teamwork), an intellectual personnel (a composition of employees by age and gender, work experience, a system of stimulation and development of employees, etc.).

We make a list of elements, which should be involved in the IP, according to the materials given in the table. The researchers consider the following indicators: organizational, an intellectual personnel, a creative and professional qualification potential, a human, organizational and client potential, innovative, managerial, marketing, informational, educational potentials, a level of education and qualifications of employees, an enterprise information support system, investments in the human potential, intangible assets and modernization of a service quality, means, conditions, opportunities, personnel, material-and-technical, effective, informational, and organizational-and-legal potential.

It is obvious that the researchers have no common understanding of the IP structure. This can partly be explained with differences in approaches to the assessment of this phenomenon. At the same time, the diversity of structural elements does not contribute to the assessment of this phenomenon. Probably it is necessary to be guided by the key positions without which the IP cannot take place. According to the author's definition, it follows that the key (basic) elements of the IP are knowledge, a supporting infrastructure, and innovations.

A model of the intellectual resources at an organization was developed, which acts as a combination of four components: human, organizational, informational, and communication resources [18]. A model of the organizational potential of an enterprise was suggested [16].

These models suffer from some limitations, but at the same time, they form a basis for considering a wider number of factors affecting the organization's IP. We have improved the model [16] on expanding the categories which form it (Table 3).

Table 3 shows the system of key categories for assessing the IP in an organization, which allows effective management. The presented model of the IP includes a study object, a subject, and object of management, a management system, levels of management, diagnostics, principles, life cycle, measurement methods. Such a system of the intellectual potential allows the formation of information

flows within the organization. The emerging communication system makes it possible to mobilize and distribute changes in the IP.

Table 3: The main categories of the IP

Categories	Definition
1	2
Study object	Relations in the production, distribution and financial activities of an organization about the approaches and methods of assessment, planning, implementation and formation of the IP.
IP management	Information management in an enterprise on grounds of a functional characteristic can be shown in the form of individual parts. The first part is designed to make necessary resources by employee training, development of qualification and professional competence, and development of a corporate culture aimed at intellectual creativity. The second part is aimed at the use of information technologies in order to form the information environment. The third part is a research one and is designed to conduct research and development and experimental work in areas in which the company is interested. Development of practical and theoretical knowledge of employees, its introduction and distribution among staff members. The fourth part provides legal protection of intellectual property objects and their introduction into the production process [6]. Knowledge management is a basis of the IP in an enterprise, which is built on a functional basis and includes the following elements: planning, organization of business processes, monitoring and staff motivation [6].
Ways of staff development	Training and professional development, making a business career, formation of personnel reserve, staff rotation and motivation of intellectual activity [12].
IP principles	The principals are: <ul style="list-style-type: none"> • regularity, optimality, and efficiency; • unity of diversity; • easy movement of ideas at the stages of a “research - development” process; • a reasonable ratio of cooperation and competition among participants of the process; • diversification; • network interaction [3].
IP subject	Linear and functional managers in an organization.
IP object	Intangible assets of an organization, employees.
Diagnostics	The system of indicators for the assessment of the IP in an organization includes the following criteria: <ul style="list-style-type: none"> - abilities and desire of employees to make innovative developments; - the capability of an enterprise to develop the latest types of goods and services; - a size level and positive changes in capitalization of an enterprise; - a price of intangible assets of an enterprise; - amount and dynamics of transaction costs; - a positive image of an organization [3].
The life cycle of personnel	The development of the intellectual potential of the organization's personnel is carried out according to the following cycle: formation, accumulation, realization, improvement, and diffusion of value [21]
Levels of intellectual activity	The first level - passive - is characterized by a fact that an employee, while performing his duties, remains within a given way of performing operations, and the cognitive activity is encouraged with external stimuli. The second level is heuristic; it is when an individual demonstrates intellectual initiative, examines his own activities critically and performs perfect ways and methods of posing and solving existing problems. The third level is creative; an employee studies the essence of the phenomenon, sets tasks and solves problems, and for this, he can ignore the proposed activity from outside, and does activities motivated from inside [4].
Measurement methods of intellectual capital and potential	The Skandia Navigator, a model developed in cooperation with the Delphi computer program. It contains 164 metrics of measurement, which are divided into intellectual (91) and traditional (73) [31]. The analysis of the intellectual capital with the use of Kaplan & Norton's Balanced Scorecard model [8]. A performance evaluation is carried out on the following activities: customers - how they treat us; business processes within an organization - what should be improved; training and development - what should be done to increase the value of an organization, finance - investment attractiveness for shareholders. Sveiby Intangible Assets Monitor [32, 33]. The cost of an organization is analyzed as a set of material and financial assets, as well as the intellectual capital, which is evaluated according to the indicators of an internal and external structure, and abilities of the organization's personnel. Direct Intellectual Capital methods (DIC) include methods to identify individual assets or components of the intellectual capital, then a monetary evaluation and integral assessment are carried out. Market Capitalization Methods (MCM). This indicator is calculated as the difference between the market capitalization of a company and its share capital. The result is the value of its intellectual capital. Return on Assets methods (ROA) is a ratio of the company's average income before taxes for a fixed period of time to tangible assets. Then a comparison is made with a similar indicator for the industry, region, and country. Scorecard Methods (SC). Different parts of the organization's intangible assets are determined, and then their value as scoring is calculated. These will be indicators. An assessment of the results is made in a comparable relative form.

They occur under the influence of environmental factors and internal structural management decisions that suit the resources of an enterprise to the development prospects. When making strategic decisions on the development of the mission and goals of an organization, it is possible to use the system of intellectual potential.

4. CONCLUSION

Having analyzed the existing definitions, a definition of the category “intellectual potential” was suggested, including a system of theoretical, applied and experimental knowledge, with an appropriate supporting infrastructure that is necessary for effective intellectual activity in comparison with the best practices in this field and innovations that ensure the competitiveness of an organization. The key (basic) elements for the effective functioning of the intellectual potential are a knowledge system, a supporting infrastructure, and innovations. Thus, the IP is a complex phenomenon, and at the same time plays a significant role in the activities of an enterprise. In the Russian economy, the IP is not used effectively. In the course of this study, it was possible to classify the definitions and a structure of the IP, to develop a system of categories for characterizing the IP. Further research in the field of the intellectual potential suggests approbation of the proposed system as in the region as in the sectoral aspects.

5. CONFLICT OF INTERESTS

The authors confirm that the presented data do not contain a conflict of interest.

6. DATA AVAILABILITY STATEMENT

In this work, data was gathered from the Internet and bibliographic databases, no result data has been generated.

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