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DOI: <https://doi.org/10.32782/2522-4263/2024-2-8>**Klius Yuliia***Doctor of Economic Sciences, Professor,
Head of Department of Accounting and Taxation
Volodymyr Dahl East Ukrainian National University
ORCID: <https://orcid.org/0000-0002-1841-2578>***Kharkovyna Oleksii***Postgraduate
Volodymyr Dahl East Ukrainian National University
ORCID: <https://orcid.org/0009-0001-4224-3743>***Клюс Ю.І.***доктор економічних наук, професор,
завідувач кафедри обліку і оподаткування
Східноукраїнського національного університету ім. В. Даля***Харковина О.Г.***докторант
Східноукраїнського національного університету ім. В. Даля*

FORMATION OF AN INNOVATIVE ECONOMY THROUGH THE PRISM OF INTELLECTUAL CAPITAL

ФОРМУВАННЯ ІННОВАЦІЙНОЇ ЕКОНОМІКИ КРИЗЬ ПРИЗМУ ІНТЕЛЕКТУАЛЬНОГО КАПІТАЛУ

ANNOTATION

The article presents a comprehensive analysis of the functional role of intellectual capital within the framework of an innovation-driven economy. The study emphasizes the paradigm shift from the predominance of tangible and financial resources toward the growing importance of intangible assets, among which intellectual capital emerges as a critical determinant of sustainable development and competitive advantage. It is argued that modern economic systems increasingly rely on knowledge, creativity, professional competencies, organizational culture, and relationship networks, which collectively constitute the foundation of national and corporate intellectual potential. The conceptual essence of intellectual capital is clarified, and its structural components are examined in detail: human capital (knowledge, skills, experience, and competencies of personnel), structural capital (internal processes, technologies, databases, intellectual property, and corporate culture), and relational capital (external relationships, stakeholder trust, client loyalty, and reputation). The article substantiates that the synergy among these elements fosters innovation capacity, accelerates the transformation of knowledge into marketable outcomes, and ensures the adaptability of economic agents to technological and institutional changes. Special attention is paid to the challenges of intellectual capital development in the context of digital transformation and globalization. Key barriers to its effective deployment in the Ukrainian economy are identified, including insufficient investment in human development, weak integration between research institutions and business structures, and the underdevelopment of innovation infrastructure. Strategic approaches are proposed to enhance intellectual capital management, including the creation of digital platforms, educational reforms, and incentives for innovation culture development. The article concludes that intellectual capital is not only a driver of innovation processes but also a core element in constructing a knowledge-based economic growth model. Further research directions involve the development of applied tools for evaluating intellectual capital performance and mechanisms for its integration into enterprise and regional governance systems.

Keywords: intellectual capital, innovative economy, components, functions, enterprise, development.

АНОТАЦІЯ

У статті здійснено комплексне дослідження функціональної ролі інтелектуального капіталу в контексті формування та розвитку інноваційної економіки. Акцентовано увагу на зміні пріоритетів економічного зростання: від домінування матеріальних і фінансових ресурсів до визнання ключової ролі нематеріальних активів, серед яких інтелектуальний капітал посідає провідне місце. Показано, що сучасні економічні системи дедалі більше орієнтуються на знання, творчість, професійні компетенції, інституційну пам'ять та комунікативні зв'язки, що в сукупності формують основу інтелектуального потенціалу країни, регіону або підприємства. У межах дослідження уточнено зміст поняття «інтелектуальний капітал» та охарактеризовано його структурні компоненти: людський капітал (сукупність знань, умінь, навичок і досвіду працівників), структурний капітал (внутрішні системи, технології, бази знань, культура управління) та реляційний капітал (зовнішні зв'язки, партнерства, довіра споживачів і стейкхолдерів). Обґрунтовано, що взаємодія цих компонентів формує синергетичний ефект, який сприяє зростанню інноваційної активності, підвищенню ефективності управлінських рішень і забезпеченню сталого конкурентного розвитку. У статті проаналізовано особливості функціонування інтелектуального капіталу в умовах цифрової трансформації та глобалізаційних викликів. Виокремлено ключові проблеми, що стримують його ефективне використання в Україні, зокрема недосконалість інституційного середовища, слабкий зв'язок між наукою й бізнесом, низький рівень інвестицій в людський капітал. Запропоновано стратегічні підходи до підвищення ефективності управління інтелектуальним капіталом, які включають розвиток цифрових платформ, удосконалення системи освіти та стимулювання інноваційної культури. Зроблено висновок, що інтелектуальний капітал є не лише джерелом інновацій, а й основою для формування нової парадигми економічного зростання. Перспективами подальших наукових досліджень визначено розробку прикладних механізмів оцінювання та інтеграції інтелектуального капіталу в управлінські практики на рівні підприємств, регіонів і національної економіки загалом.

Ключові слова: інтелектуальний капітал, інноваційна економіка, складові, функції, підприємство, розвиток.

Formulation of the problem. In today's innovative economy, intellectual capital is becoming a key factor in ensuring competitiveness, sustainable development and technological leadership. Unlike traditional material resources, it is knowledge, creativity, professional competences, social relations and organisational culture that play a crucial role in generating new value. However, despite the growing focus on intangible assets, the problem of defining the functional role of intellectual capital in economic dynamics remains underdeveloped.

A significant challenge is also the lack of common approaches to the valuation and effective management of intellectual capital in various sectors of the economy, especially in the context of digital transformation, which requires new analytical tools, methodologies and strategic decisions. This necessitates a comprehensive scientific understanding of the role of intellectual capital as a driver of innovation processes and the transition to new knowledge-based models of economic growth.

Analysis of basic research and publications. Foreign scientists have taken an active part in the study of intellectual capital: E. Brooking, S. Pike, J. Ruus, T. Stewart, D. Taylor, J. Tice, L. Fernström, J. Schumpeter, L. Edinson. In Ukraine, the issue of intellectual capital has been the subject of research by a number of leading scholars, including: O. Amosha, S. Ilyenko, S. Knyazev, L. Loiko, O. Osaulenko, O. Pasternak-Taranushenko, L. Tarangul, L. Shipilova, I. Chumachenko, V. Chumachenko, V. Chumak, and L. Shypilova. Chumachenko, V. Cherevko, M. Skurativskiy, T. Tereshchenko, Y. Lysenko, I. Krykavskiy, L. Herasymenko, V. Redko, and others [1-14]. Different approaches to understanding intellectual capital are determined by different perceptions of the essence and content of this phenomenon from the standpoint of economics, management, philosophy, law and sociology. The essential characteristics of intellectual capital include its consideration as capital-resource, capital-potential and capital-result, which are certain stages of capital production and reproduction. A common point of view is the study of intellectual capital as an activity or process in a static state, available in an organisation at a given time and expressed in terms of value.

At the same time, the issue of testing the obtained results in practice was not yet fully considered at that time.

The purpose of the article is to define the essence and structure of intellectual capital, substantiate its functional role in ensuring sustainable development of the innovation economy, and formulate theoretical and methodological foundations for improving the efficiency of its use at enterprises in the context of digital transformation.

Materials and results of the study. In the context of innovative development of the modern economic system, one of the key priorities is to increase efficiency and search for new forms and methods of managing the intellectual activity of individuals, which ensures the development of the «mental reserve» and the transformation of intellectual capital into a leading resource of social development. In this regard, it is important to define the concept of «intellectual capital», identify its substantive characteristics and main functions in the context of basic management theories and modern practice of managing socio-economic systems [2].

The analysis of various approaches to the concept and content components of the studied socio-economic category allowed us to form a comparative characteristic of theoretical and methodological approaches to defining the essence and specific characteristics of intellectual capital (Table 1).

In general, the whole variety of Western and domestic concepts of intellectual capital shows its place and role in the development of the socio-economic system, reveals the content, structure, technologies and mechanisms for managing the reproduction of intellectual capital, and focuses the attention of management structures on the importance of human capital based on the aggregate [8].

According to most scholars, intellectual capital is considered an important category of microeconomics, a new form of capital that exists in market conditions for the creation of specific intellectual products and services that generate income and ensure the competitiveness of enterprises, firms and organisations. As the most important resource for economic development, intellectual capital reflects certain relationships between economic entities in the use of intellectual products, based on the key role of the intellect, knowledge, competencies, skills and abilities of employees, and their inherent qualities that enable the implementation of innovative communication technologies. At the same time, the concept of «intellectual capital» is often equated with concepts that are similar in meaning: «intellectual potential», «human capital», «intellectual property», «intangible (elusive) assets». Intellectual capital differs from intellectual potential in that it acts as a means of achieving a goal, while intellectual potential encompasses certain opportunities that can be used to achieve set goals and objectives. In this case, we can talk about the absence of any guarantees for the achievement of the set goals and objectives in the present or foreseeable future. The differences between intellectual and human capital lie in the structural relationship, the presence of client, organisational and other types of capital in intellectual capital. Intellectual and human capital differ in the physiological

Table 1

Comparative analysis of approaches to defining the essence and specific characteristics of intellectual capital [author's developments based on the study of scientific works of domestic and foreign scholars]

Area of research	Components of intellectual capital	Method of expression	Essence of capital
Defining intellectual capital as a set of intangible assets	Intangible assets	Competitive advantage	Potential
	Knowledge, skills and qualities of employees, a set of intangible assets	Generating revenue and competitive advantage	Potential
	Non-monetary and intangible resources	Values	Potential
Valuation of intellectual capital through the cost characteristics of intellectual assets	Individual and organisational knowledge	Strategic assets	Result
	Structured knowledge and capabilities	Cost	Result
	Intellectual assets	Cost	Result
Analysis of intellectual capital through the system of economic relations in the context of ensuring its sustainable and rational reproduction	Goods, services, income	Economic interests of subjects	Attitude
	Intellectual (creative) activity	Economic relations	Attitude
Research on intellectual capital as a structural element of human capital	Human capital	Investing in people	Resource
	Knowledge, skills, intangible assets	Developing an innovative economy	Potential
Characterisation of intellectual capital through organisational and managerial assessment of employee performance	Quality of the labour force of the total workforce	Labour activity	Resource
Definition of intellectual capital as a set of employees' knowledge that provides an advantage over competitors	Knowledge	Competitive advantages	Resource
	Information and knowledge	Production process	Resource
	Sum of knowledge of the company's employees	Values	Resource
	Intellectual wealth	Intelligent and innovative products	Resource

characteristics of employees related to their health. Intellectual capital includes indicators of the health of a person engaged in intellectual activity (ability to perform mental operations, concentration, memory), while human capital corresponds to indicators of general health. There are differences between intellectual capital and intellectual property. Intellectual property is a component of intellectual capital, since the person themselves, their abilities, skills and experience are part of intellectual capital, and the results of a company employee's intellectual activity can be distributed between them and the company in different proportions, with the company being the sole owner of these results.

There is also no consensus on the relationship between intellectual capital and intangible (intangible) assets. There is a view that intangible assets are a certain part of intellectual capital as people's knowledge, their creativity, intellect as carriers of mind, and the results of employees' activities, protected by copyright. Another view considers intellectual capital to be an element of intangible assets that exists in the form of copyrights, patents for inventions,

trademarks, reputation, and business connections of a company. However, in this case, there is no account of the intellectual and business qualities of employees, which cannot be used separately from their carriers. From our point of view, it seems legitimate to evaluate the term «intellectual capital» as an economic category that includes a relatively stable system of interrelated elements that are integral to any economic entity, existing in the context of its basic component – the totality of knowledge possessed by employees and the organisation itself. Based on this hypothesis and taking into account the research of domestic and foreign scientific sources, we propose our own refined definition of the concept of «organisational intellectual capital»: organisational intellectual capital is the totality of knowledge, information resources, intellectual assets, information and communication technologies, professional and universal competencies, organisational culture and staff motivation, which are applied in the process of integrated management to generate added value and ensure the competitive advantages of the organisation in the context of the innovative development of the socio-economic system and effective adaptation to the requirements of the

digital economy based on the principles of a systematic approach.

The above definition of intellectual capital implies the existence of a set of its system-forming components, interconnected in such a way that a certain synergistic effect arises as a result of their stable interaction. It should be emphasised that the author's definition presented above includes not only economic but also managerial orientation, which allows intellectual capital to be analysed in conjunction with the key postulates, principles and categories of management theory, making it possible to determine its managerial impact on the functioning and strategic development of any socio-economic system and to form new directions for scientific and applied research in this economic category.

Intellectual capital, included in the general system of economic relations, is interrelated with other types of capital and has both common and specific properties. The common properties of intellectual capital, similar to other types of capital, include the following:

- is an important and system-forming factor of production that ensures profit;
- ensures repeated and unlimited use by professionally trained employees;
- is formed and used for the production of goods and services as a result of investments in financial, organisational, material resources, knowledge, and employee qualifications;
- is characterised by the presence of goals, objectives, and an overall strategy, the achievement of which is the focus of its functioning;
- brings income and profit to its owner;
- is objective in nature, distinguished by impartiality and objectivity of existence as a separate entity;
- is selective and orderly in passing through the stages of its development from inception to depreciation and obsolescence;
- requires significant expenditure for its maintenance and development, as it is subject to wear and tear.

At the same time, intellectual capital differs significantly from other types of capital in that it has specific and distinctive features. These include:

- acts as a creative component of employees' intellectual work;
- the mandatory presence of innovative components in intellectual products that ensure novelty, originality, industrial applicability and efficiency;
- investment in intellectual capital is conditioned by historical roots, ethnic, religious, national traditions and cultural characteristics;
- the accumulation of significant potential in terms of knowledge, skills, abilities and practical experience of many generations of people;
- ensuring the synergistic effect of the interaction of structural elements of intellectual capital;

- the need for significant financial investments, ensuring the rights of legal entities and individuals to the results of intellectual activity;

- includes a high degree of uncertainty and risk, and, at the same time, the possibility of significant profits;

- is distinguished by the complexity of quantifying the results of intellectual activity;

- is future-oriented, inexhaustible, universal in terms of the products of intellectual activity and its organic connection with all branches of production;

- the inability to use the organisation's capital in full, since intellectual capital is owned by both the owners of the firm and its employees;

- active influence on social processes, the complex nature of the assessment of scientific, social, moral and cultural positions;

- connection with the direct inclusion of scientific developments and research into the productive forces of society, ensuring the circulation of knowledge in the form of information in a closed cycle.

In general, intellectual capital should be considered at the individual, organisational and state levels [6].

Individual intellectual capital is the sum of an employee's individual abilities, the accumulated stock of general cultural, specific and special knowledge, professional competencies, which are realised in intellectual property objects that are productively used, and copyrights, that allow the employee to receive additional income and other benefits. Individual human capital is fully realised when it is transformed into part of the intellectual capital of an enterprise, where it finds not only a source of income, but also opportunities for development in the form of various forms of objectified knowledge.

From our point of view and taking into account the need to assess intellectual capital from the perspective of management theory [12; 13] and others, we propose to identify the following main functions of intellectual capital:

- generative, related to the interaction and interpenetration of the structural elements of this capital, which allows creating a positive effect, increasing the efficiency and effectiveness of comprehensive company management;

- value-adding, which contributes to ensuring an increase in net profit and increasing the value of the company through the formation and implementation of the necessary intellectual resources that allow the creation of competitive advantages generated by the system of intangible values;

- informational, which allows for the accumulation, systematisation and transfer of knowledge, skills, abilities, information about phenomena and processes in the surrounding world;

- innovative, creating the prerequisites for the innovative development of the company, its technological and organisational advantages over competitors, as well as the need for constant acceleration of net profit growth through the formation and implementation of knowledge, technologies and systems that ensure effective production and economic activity;

- stimulating, strengthening the potential for economic, technological and innovative activity, ensuring effective reproduction, profit generation and competitiveness of the company, and focusing on research in all areas and fields of knowledge with the aim of creating new intellectual products;

- accumulative, allowing the accumulation of knowledge, skills and experience of many generations of people, their implementation in the process of learning and internal organisational interaction, the development of intellectual property, and the creation of a significant direct and indirect impact, long-term and integrated economic and social effect;

- transformative, which transforms knowledge into new results of intellectual activity (technologies, inventions, products, services, information, etc.), changing the content and nature of technological innovation in production and its products, which become the main competitive advantage in the market;

- regulatory, contributing to the formation of new and preservation of existing traditional norms and rules governing the behaviour of actors in the process of innovation;

- cultural and historical, generating intellectual development, character and types of investment, taking into account the national, historical, religious, cultural characteristics and traditions of a given region and state;

- axiological, which provides assistance and support to individuals in realizing the significance of the intellectual products, works, and services they create, choosing a course of action based on value orientations;

- creative, which promotes the affirmation of innovative thinking among managers and employees, their desire to implement innovative ideas and modern models of economic and social development;

- innovative and communicative, developing the innovative nature of digital technology implementation and expanding the possibilities of internal and external communication interaction based on the capabilities of artificial intelligence.

The functions of intellectual capital can be viewed through the prism of the following organisational and management processes:

- the existence and development of intellectual property;

- the formation of a new type of employee with a modern creative mindset, capable and ready for entrepreneurial activity and personnel management, who forms and implements

innovative models for the reproduction of each specific economic system and their aggregate;

- expanding the scale of development and dissemination of intellectual capital in the activities of corporations and firms through systems of innovation and education clusters, intellectual centres, gradually covering the entire set of factors of production, distribution, exchange and consumption.

In Table 2, we present a generalised description of the functions of intellectual capital in the context of the development of the theory of management of socio-economic systems and processes.

The functioning of intellectual capital is currently limited by the following conditions:

- the expansion of the scale and frequency of crises affecting both the economic and other spheres of society;

- the insufficient preparedness of management and personnel to carry out innovative and intellectual activities;

- the need for large financial investments in the creation of intellectual potential;

- significant growth in the scale of information resources, including information sources that have a negative impact on humans;

- lack of long-term and systematic structural development in organisational management;

- rapid obsolescence of information due to the law of dynamic time compression;

- the formalisation of scientific research and development processes, manifested in a high degree of uncertainty (entropy) in their results.

Thus, the study of the content and essential characteristics of intellectual capital shows that this economic category has a multifaceted and multidimensional nature, appearing as the intellectual wealth of a company that ensures the creation of intellectual products and services, its innovative development and competitiveness in the new economic environment.

Conclusions and proposals. The results of the study suggest that intellectual capital is not only a key intangible resource of the modern economy, but also one of the leading factors in the formation of innovation potential and ensuring the competitiveness of national and regional economic systems. Its functional role in the innovation economy is the ability to transform knowledge, experience, creativity and social ties into new economic value, which contributes to sustainable growth and increase the efficiency of economic activity. The author summarises that the structural components of intellectual capital – human, structural and relational – should be considered as interconnected elements of a single system, the management of which requires a strategic approach focused on innovation, digitalisation and partnership. Effective use of intellectual capital is possible only if there is a developed institutional environment, modern educational and scientific infrastructure, and

support for innovation activity at all levels of government. It is determined that one of the key challenges is the lack of effective mechanisms for assessing the effectiveness of intellectual capital and insufficient integration of its potential into the management processes of enterprises, institutions and government agencies. In this context, the prospects for further research are the development of practical tools and models for managing intellectual capital that will allow to effectively realise its potential in the context of digital transformation and growing global competition.

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