

## **Theoretical and methodological aspects of intellectual capital**

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**Introduction.** High competitiveness of domestic enterprises is possible only with the help of systematic improvement of the chain of values. It includes both quality improvement and production costs reduction. Invention of innovative measures is an urgent need for implementation of these priorities. Continual use of labor intellectualization, using intellectual potential, creation and dissemination of intellectual property are some of modern trends of these measures implementation. Intellectual capital, as a source of creating innovations, is a system basis of the mentioned above processes. Management practice shows that intellectual capital management, especially at an enterprise level, has an unstructured character. Definition of the main categories is of the same importance as the assessment of non-material resources and their management. The topicality of the study is in formulation of common approach to the determination of "intellectual capital" economic nature.

The aim of the study is to give a definition of intellectual capital and to study its essential characteristics.

**Results of research.** Intellectual capital consists of two separate words: intellectual, i.e. intelligence (derived from the Latin "intellectus", understanding, "intellegere", - to understand) – understanding, intelligence, ability to think, especially its higher theoretical levels; capital (German "kapital", France "capital" – the main property, the main amount of armor, "Capitalis" - chief) - an economic category, which means the advance amount that brings added value during its motion. The study analyse the term "intellectual capital", determines its essential characteristics, composition and place at an enterprise.

The doctrine of capital and surplus value is the basis of K. Marx theory. But economic theory classics, A. Smith, D. Ricardo, J. Mises, A. Marshall, explored this concept before his economic theory. A. Smith considered capital as a stock used for household needs and bringing profit; D. Ricardo - as a part of wealth that is used in manufacturing and necessary for effective use of labor; J. Mill - as a previously accumulated stock of past labor products; A. Marshall – as a set of things, without which production could be performed with an equal efficiency, but which is not a free gift of nature [2].

On the one hand intellectual capital has common capital properties that allow to define it as a type of capital:

- it generates a stream of values;
- it brings added value;
- it requires constant investment of resources;
- it experiences obsolescence;
- it needs renovation [ 14 ].

On the other hand it has its own characteristics and specific features:

- intellectual capital has no material basis;
- it is not amortized during its use, but it rather loses its value if it is not used;
- intellectual capital is measured by both, value and unvalue; quantitative and qualitative indicators;
- investment in intellectual capital provides its owner more income than investment in tangible assets [16].

The value of intellectual component is emphasized by classical economic theory. W. Petty emphasized the role of people in the accumulation of wealth. A. Smith in his book "The Wealth of Nations" believed that intellectual job is the main one in country development. He linked the knowledge acquired during training and employment with the capital and the cost of education – with investment. D. Ricardo and J. Mill argued that any knowledge increase or improvement of objects; use of labor and nature forces allow to produce more products with the same labor intensity. A. Marshall called an organization the fourth factor of production, which

he considered as a complex of knowledge, providing effective organization of land, labor and capital. The scientist believed that "the economic benefits of a large industrial discovery are sufficient to cover the costs of a city. Ukrainian researcher M. Tugan-Baranovsky linked consumption with the rise or decline in production. But Y. Schumpeter argued that the frequency of innovations causes cyclical economic development [18]. In 1946 P. Drucker raised the issue of intellectual capital in his "Concept of corporation."

In 1960s the formation of the modern theory of human capital took place. Its formation is associated with the development of human capital theory. T. Schultz published his work "Investments in human capital." G. Becker also explored this issue in his work "Human capital: a theoretical and empirical analysis." J. J. Galbraith used the term "intellectual capital" in 1969 in "The New Industrial State". He defined intellectual capital as something more than "pure intelligence", including purposeful intellectual activity [7].

A detailed study of the intellectual capital theory began in 1990s [5]. In 1994 L. Edvinsson and M. Malone for the first time used indicators of intellectual capital as assets in the annual Scandia report. This innovative step saved the company and became the impetus for intellectual capital theory development and its application. Introduction to scientific consumption concept of "intellectual capital" reflects a fundamentally new approach to the analysis of market economy, competitive advantage and business leadership, based on the effective use of unique by nature intangible factors that can trigger innovation development mechanism [4]. According to L. Edvinsson and M. Malone, the emergence of intellectual capital is an entirely natural phenomenon. Intellectual capital is the main criterion for evaluating companies and institutions, so that it can only reflect the dynamics of organizational sustainability and value creation process. It is the only factor suitable for the evaluation of modern production changing so rapidly that only due to the talent of its employees, commitment and the quality of the tools they use it is possible to estimate its value [16].

Domestic scholars were interested in the topic at the end of the 20th century and there are significant achievements in study of intellectual capital concept. However, the issue needs further research.

Despite the fact that the term “intellectual capital” is widely used there is no common idea about its content. Morphological analysis of the category is shown in Table 1.

Table 1.

Approaches to the interpretation of category “intellectual capital”

Basic category	Author	Main category	Definition
1	2	3	4
An asset able to get profit	D. Klein, L. Prusak [1]	Intellectual capital	An intelligent material, formalized and recorded, used for the production of more valuable property
	A. Kendyukhov [10]	Intellectual resources	The business intelligence with an ability to create new value, presented by human and machine intelligence and intellectual products which are created by it or with the parties involved as the means of creating new value
	N. Havkalova, N. Markova [4]	Intellectual resources	Intellectual resources embodied in academic, professional and general knowledge of employees, their experience, skills, which create intellectual activity products. It can be owned by an inventor, and other entities and be used to produce surplus value
	Y. Gava [18]	Private resource, intellectual material	Personal recourse, intellectual material, that are formalized, recorded and used to increase the value of company’s assets
	J. Tees [17]	Knowledge assets	Applies synonymous to intellectual capital concept of "knowledge assets", thus focusing attention on the need of gaining economic benefits from an individual and organizational knowledge as a strategic asset
	V. Leontief [13]	The value of assets	Cost of all existing intellectual assets
	L. Melnik [4]	The combination of assets	A set of tangible and intangible assets used in the process of intellectual work
	K. Taylor [20]	Intangible assets	Intangible assets that are not quantifiable, as opposed to tangible assets. The intellectual capital of employees is knowledge gained through products and services development, as well as its organizational structure and intellectual property
	E. Brooking [3]	Intangible assets	Intangible assets, without which the company cannot exist nowadays, it includes market, human and infrastructure assets and intellectual

			property
An asset and competitiveness factor	J. Topilnytska [18]	The combination of intellectual property	The company's actual assets based on intellectual abilities of employees, implemented in the innovation to achieve the firm's objectives as a cultural phenomenon
	S. Komarov [12]	The strategic business asset, implicit and explicit knowledge	The strategic business asset of any organization consists of two main elements: explicit and implicit knowledge that can be used to generate competitive advantage and to create immaterial value
	V. Golubkin [5]	Assets	Those intangible (incorporeal) assets that are not listed in company's financial documents but can be codified, evaluated and managed by a company. This term is used broadly to refer to intangible assets that are critical for the success and competitiveness
	O. Barveno [20]	Actual assets of a company	The company's actual assets based on intellectual abilities of employees, implemented in the innovation to achieve the firm's objectives as a cultural phenomenon.
Competitiveness factor	A. Chukhno [18]	Capital	Capital, accumulating academic, vocational and technical knowledge of employees, combining intellectual labor and intellectual property, accumulated experience, communication, organizational structure and networks - that is everything that defines the company's image and its business content
	V. Inozemtsev [9]	The collective brain	Intellectual capital described as a "collective brain" that accumulates scientific and daily knowledge of employees, intellectual property and experience, communication and organizational structure, information networks and company's image
	V. Petrenko [15]	Intelligent products	Complex of all company's intellectual products, which are used by it and provide its competitiveness in the marketplace
Process	S. Albert K. Bradley [20]	Process	The process of the conversion of knowledge and intangible assets into resources that give competitive advantages to a person, firm or state
	L. Edvinsson, M. Malone [4]	Resources	All the types of modern enterprise resources that cannot be assessed traditionally. Knowledge that can be converted into income and assessed
Inseparable from man knowledge, skills	B. Sadowskiy [18]	Knowledge, skills, experience	Knowledge, skills, experience that are inseparable from a carrier - a human being
	S. Klimov [11]	The combination of individual skills	The combination of individual human capabilities. It is a microeconomics category that describes the quality of workforce
	B. Leontiev [13]	Legal rights	The combination of existing employees' legal rights on the results of their creative work, their natural and acquired intellectual abilities and skills, accumulated knowledge and useful relationships with other individuals.

Thus, D. Klein and L. Prusak understand intellectual capital as an intellectual material used for the production of more valuable property. O. Kendyukhov treats it as intellectual resources, he describes its components (human and machine intelligence, intelligent products). N. Havkalova and N. Markova also emphasize the ability to bring added value. Definition of Y. Gava is very similar to D. Klein's and L. Prusak's definition. J. Tees uses synonymous concept of "knowledge assets", by this author wants to emphasize the role of knowledge as a strategic asset and stresses on the need of obtaining benefit from it. V. Leontiev understands intellectual capital as a value of intellectual assets, in his opinion it has a purely economic nature and only appreciated assets may be attributed to it. L. Melnik talks about the material and non-material component of intellectual capital. K. Taylor emphasizes that it is not measurable, his interpretation includes knowledge, organizational structure and intellectual property. E. Brooking emphasizes the role of intellectual capital, says that without it the company cannot exist. In his opinion it is a synonym for intangible assets. Y. Topilnytska considers intellectual capital as a cycle of intellectual value which brings additional value and provides competitive advantages. S. Komarov focuses on the strategic role of intellectual capital and its ability to create value. B. Golubkin also stresses on the strategic role of intellectual capital. A. Barveno argues that intellectual capital is a combination of company's assets that serve to the company objectives. A. Chukhno understands it as a capital, which creates the image and content of business firms. V. Inozemtsev uses the identical concept of "collective brain". V. Petrenko understands intellectual capital as a set of intelligent products that can ensure the firms competitiveness. S. Albert and K. Bradley treat it as the process. The pioneers of intellectual capital researches, L. Edvinsson and M. Malone, use process approach in interpretation. V. Sadowski and S. Klimov emphasize the inalienability of intellectual capital from a human being. B. Leontiev includes intellectual property rights in knowledge and abilities system.

This diversity of intellectual capital definitions may be explained by its ambiguity. That's why further researches are required. To gain this the decomposition of the definitions have been made. The features comparison has been used (Table 2).

Table 2

Morphological decomposition of "intellectual capital" definition

Sign of comparison	Structural components
1	2
The essence of a concept	Formalized and registered intellectual material [1], intellectual resources [10] personal resource [18], knowledge assets [17], the value of intellectual assets [13], business intelligence [4], intangible assets of an enterprise [20], intangible assets [3], a set of intellectual property [18], a strategic business assets of an organization [12], intangible assets [5], a set of current assets of the firm [20], capital, accumulating academic, vocational and technical knowledge of employees, combining intellectual labor and intellectual property, accumulated experience, communication, organizational structure and networks [18], "collective brain" [8], the collection of all intellectual products of a company [15], process [20], all types of enterprise resources [5], knowledge, skills, experience [18], a set of individual human capabilities [11].
The content	Human and machine intelligence, intelligent products established by an enterprise itself or from parties involved [10], a set of scientific, professional and general workers knowledge of employees, their experience, skills, which create products of intellectual activity, may belong to their inventor and to other entities [6], formalized and registered intellectual material [18], staff knowledge gained during the product development and service delivery, organizational structure and intellectual property [20], market, human and infrastructure assets and intellectual property [3], circulation of intellectual property [18], implicit and explicit knowledge [12]; academic, vocational and technical stuff knowledge, intellectual labor and intellectual property, accumulated experience, communication, organizational structure, information networks and image of a company [8], conversion of intangible assets and knowledge into resources [20], knowledge that can be turned into profit and evaluated [4], the legal rights on the results of human creativity, natural and acquired intellectual abilities and skills, the knowledge base [13].
The ultimate goal	Production of more valuable property [1], a new value creation [10], obtaining of surplus value [4], an increase in the value of assets [18], economic benefits [17], bringing added value and providing competitive advantage [18], obtaining competitive benefits and value [12], the success and competitiveness of a company [5], gaining the objectives of a business as a cultural phenomenon [32], the definition of the firm's image and business content [18], ensuring the competitiveness in the market environment [15], competitive advantage [20], profit [4].

Morphological decomposition revealed that all the diversity of definitions is associated with different approaches to the intellectual capital definition. These are

the following: an asset, a factor of competitiveness, an asset and a factor of competitiveness, a process and knowledge and skills. Basic approaches to the definition of "intellectual capital" are shown in Figure 1.

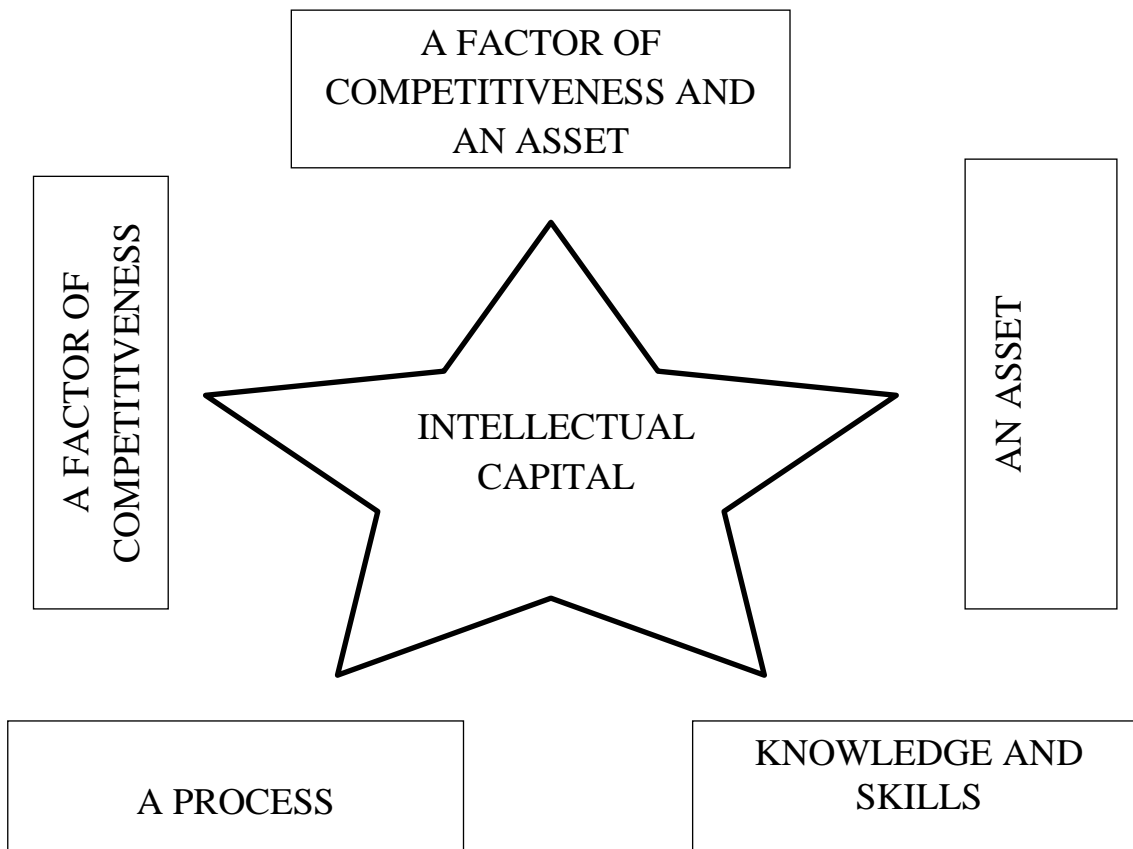


Figure 1. Approaches to the definition of intellectual capital

The first approach is an interpretation of intellectual capital as an asset that can generate income. The second approach defines intellectual capital as a result, i.e. emphasizes its ability to ensure competitiveness. The third one is a combination of first and second approaches, it defines intellectual capital as an asset and as a factor of competitiveness at the same time. Some authors understand it as a process, stress on its ability to reproduce, the possibility of intellectual capital involvement in its production and consumption cycle. Within the fifth approach intellectual capital is regarded as knowledge, experience, intellectual property rights - everything that is inseparable from a human being.

Thus, based on the foregoing, we noted that modern researchers of intellectual capital analyse it from different angles, which is the basis for generalization of everything main approaches to the the essence of this concept (Table 3).



Table 3

## Features of main approaches to the definition of intellectual capital

Approach	Essence	Feature	Drawbacks	Researchers
1	2	3	4	5
Asset	Intellectual capital is considered as an asset able to generate income.	Narrowing the value of intellectual capital meaning to profit and ignoring it as a potential factor of competitiveness	Pays insufficient attention to the external value of intellectual capital	D. Klein, L. Prusak, O. Kendyuhov, N. Havkalova, N. Markov Yu Gabaa, J. Tees, W. Leontief, L. Miller, K. Taylor, E. Brooking
Factor of competitiveness	Intellectual capital is considered as a result capable to ensure enterprise competitiveness	Defining the external role of intellectual capital, its strategic importance	Not taking into account the internal value of intellectual capital	A. Chukhno, V. Inozemtsev, V. Petrenko
Asset and competitiveness factor	Intellectual capital is considered as an asset able to generate income and as a factor of competitiveness	Combining two approaches allows to eliminate incompleteness of both	Fully reflects the role of intellectual capital, does not reflect it's nature (as a process)	S. Komarov, B. Golubkin, A. Barveno
Process	Intellectual capital is understood as a process of transforming knowledge into intangible assets	Emphasising the intellectual capital as a process (its nature)	Ignores the role of intellectual capital	S. Albert, K. Bradley, L. Edvinsson, M. Melloun
Knowledge, skills	Knowledge, experience, intellectual property rights inseparable from a human being	Identification of intellectual capital only with its carrier – a human being.	Does not reflect neither the nature of intellectual capital, and it's role	V. Sadovskiy, S. Klimov, B. Leontiev

Majority of domestic and foreign sources interprets intellectual capital as an asset of a company. This approach has the following disadvantages: defining only one component of intellectual capital, that is cutting its economic content (it only considers intellectual capital as an asset, although the nature of intellectual capital is much wider - it is essential for the competitiveness of an enterprise, it is a complex process of knowledge transformation). Other definitions have following disadvantages: the assimilation of a term to the related categories of knowledge, intellectual capacity, human capital; incomplete or inaccurate determination, etc. Therefore, according to the authors, there are three most widely used approaches to the intellectual capitals determination – process approach, result approach and understanding of intellectual capital as an asset of a company.

Summarizing data approaches authors offer the following definition: intellectual capital is an intellectual asset, that consists of human and machine intelligence and intelligent products, has economic value and can be used in production and exchange to generate income, ensures the competitiveness of enterprise. This interpretation combines three main areas of intellectual capital definitions - an asset , a process and a result. The definition clearly describes its components, emphasizes the intangible nature of intellectual capital, stresses the complexity of intellectual capital's strategic importance, ability to generate revenue and process perspective.

**Conclusion.** The analysis is systemic. These results can be used to further theoretical developments and have an applied value. The correct definition of intellectual capital makes it possible to manage it in a right way. It is necessary to resolve the relationships between the components of intellectual sphere and to explore the ways of intellectual capital evaluation and management in future.

References:

1. Prusak L. Working Knowledge: How organizations manage what the know // Harvard Business School Press. – 2004.

2. Бутнік-Сіверський О.Б. Інтелектуальний капітал: теоретичний аспект // Інтелектуальний капітал – 2002, № 1.-С.16-27.
3. Брукинг Э. Интеллектуальный капитал / Э.Брукинг; пер. с англ, под ред. Л. Н. Ковалик. – СПб.:Питер, 2001. - 288 с.
4. Гавкалова Н. Л., Маркова Н. С. Формування та використання інтелектуального капіталу. Наукове видання. Харків, ХНЕУ, 2006 – 205 с.
5. Голубкин В. Н. / В. Н. Голубкин, Л. П. Клеева, Л. В. Патока // Бизнес-образование. – 2005. - № 1 (18).
6. Ефремов В. С. Бизнес-системы постиндустриального общества / В. С. Ефремов // Менеджмент в России и за рубежом. – 1999. – № 5. – С. 18 – 26.
7. Зьолко О.О. Сутність інтелектуального капіталу: підходи до визначення Гуманітарний вісник ЗДІА. 2013. № 53 С. 13-20.
8. Иноземцев В. Л. Теория постиндустриального общества как методологическая парадигма российского обществоведения / В. Л. Иноземцев // Вопросы философии. - 1997. - № 10.
9. Иноземцев В. Л. К теории постэкономической общественной формации / В. Л. Иноземцев. – М. : Academia, 1995. – 452 с.
10. Кендюхов О. Гносеологія інтелектуального капіталу // Економіка України. – 2003 – № 4. – С. 28 – 33.
11. Климов С. М. Интеллектуальные ресурсы организации. – СПб.: ИВЭСЭП, Знание, 2000. – 168 с.
12. Комаров С. В., Мухаметшин А. Н. Вестник Южно-Уральского государственного университета. Серия: Экономика и менеджмент. Выпуск № 3. Том 7. – 2013.
13. Леонтьев Б. Цена интеллекта // Журнал для акционеров. – 1996. – № 6. – С. 39 – 40.
14. Никифоров А. Є. Інтелектуальний потенціал та інтелектуальний капітал: критерії розмежування / А. Є. Никифоров // Проблеми науки [Текст]. — 2011. — № 6. — С. 2—6.

15. Петренко В. П. Інтелектуальні ресурси соціально-економічних систем: аспекти інноваційного управління : Монографія /В. П. Петренко. – Івано-Франківськ: ПП Курилюк В. Д., 2009. – 196 с.
16. Поліщук О. Поняття і роль інтелектуального капіталу в розвитку сучасних підприємств Матеріали студентської конференції «Соціально-економічний розвиток України на початку ХХІ століття». Електронний ресурс. – 2012 р. Режим доступу: [http://feu.kneu.edu.ua/ua/confere\\_nce/conf\\_social\\_dev\\_ukr\\_12/section4/polischuk/](http://feu.kneu.edu.ua/ua/confere_nce/conf_social_dev_ukr_12/section4/polischuk/)
17. Тис Дж. Получение экономической выгоды от знаний как активов: «новая экономика», рынки ноу-хау и нематериальные активы / Дж. Тис // Российский журнал менеджмента. – 2004. - № 1. – С. 12 – 17.
18. Топільницька Я. Інтелектуальний капітал та інтелектуальний потенціал: взаємообумовленість та розмежування категорій // Збірник наукових праць “Ефективність державного управління ” с. 353-362.– 2012. – № 33.
19. Трофимова О. Стандартизована система “інвестори в людей” // Стандартизація, сертифікація, якість. – 2001. – № 1. – С. 59 – 61.
20. Ястремська О. М., Ріпка Д. О., Воліков В. В. Інтелектуальний капітал підприємства: проблеми визначення та оцінки // Теоретичні і практичні аспекти економіки та інтелектуальної власності’ 2010 – Електронний ресурс. Режим доступу: <http://repository.hneu.edu.ua/jspui/bitstream/>