The transformation of the organization's intellectual capital: from resource to capital

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Abstract

Purpose – Over the last three decades, the role of intellectual capital (IC) in ensuring an organization's competitiveness has increased significantly. The purpose of this paper is to analyse and evaluate the evolution of the concept of (IC) by showing its transformation from resource to capital, while offering a new perspective on the structure of (IC).

Design/methodology/approach – The formation and development of (IC) is studied on the basis of literature review, logical and comparative analysis. The new structural components of (IC) are defined upon studying the relationships of the relevant concepts and the content of the concept at organizational level today.

Findings – In the scientific literature, (IC) is mainly viewed as a resource or set of resources an organization uses for creation of competitive advantage and value. Using the information gathered about different views on (IC), this study shows the development of the sources of the organization's competitiveness: from resource to (IC).

Research limitations/implications – This study offers the authors' view on the nature of the concept of (IC) showing (IC) as a business asset. The analysis of the concept is focused at organizational level.

Originality/value – The study explains the differences between the interrelated concepts: knowledge, competence, performance and (IC). The authors offer an improved definition of (IC) by showing the evolution of its content and offer their own approach to the structure of (IC) that might facilitate tracking this asset in the organization's accounts and promote effective management of the asset.

Keywords Value, Intellectual capital, Intangible assets, Human capital, Resource, Capital

Paper type General review

1. Introduction

The concept of intellectual capital (IC) is complex and multifaceted. There are different opinions about IC, its elements and structure as well as its role in an organization. This concept consists of two socially significant words: "intellect" from the Latin *intellectus* – mind, intellect, intelligence, thinking ability, comprehension and "capital" from the Latin *capitalis* – dominant, chief, basic.

The term "IC" first appeared in a letter written by John Kenneth Galbraith in 1969 to Michael Kalecki, the economist chief editor. Later Stewart (1991) studied this concept and offered one of the first definitions. He defined IC as "knowledge, information, intellectual property, experience – that can be put to use to create wealth". In the 1990s, many authors actively focused their research on the nature of IC, its structure and role in an organization's activities. Various authors tried to formulate a definition of IC

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through different approaches – by including some elements characterizing the concept, by using the structure of IC and by broadening the concept of knowledge, etc. Edvinsson and Malone (1997) defined IC as knowledge that can be converted into value. Whereas Roos *et al.* (1997) believe IC is the most important source of sustainable competitive advantages in organizations. Unlike many researchers, Bontis *et al.* (2000) are of the opinion that IC is a concept under which all organization's intangible resources, as well as their interconnections are classified. Andriessen (2006), while studying the nature of IC, concluded that the "two dominant metaphors that form the basis for the concept of IC are "knowledge as a resource" and "knowledge as capital" and he also "highlights that IC is a metaphor". In the context of the German approach of intellectual capital statement (ICS), the term IC is defined as the "existing knowledge of an organization that is critical to success" (Federal Ministry of Economics and Labour, 2004).

In the scientific literature and in organizational practices, different views exist on what IC is and, as in many matters, researchers and entrepreneurs share no common wording of the definition and structure of the concept; there is no consensus on the nature of IC. Some researchers define IC as a resource, some researchers believe that IC is an intangible resource, but some researchers view it as knowledge. However, at organizational level the nature of this concept has not been explained.

Due to changes in the socio-economic environment and the views on the management, the view on IC has also significantly changed – from a static to a dynamic. Within the static approach, IC is viewed as knowledge or a set of knowledge (Bratianu, 2006; Bontis and Fitz-enz, 2002; Inozemtsev, 1995; Stewart, 1997). Within the dynamic approach, IC is viewed from the aspect of value creation (Bailesteanu and Burz, 2008; Gogan *et al.*, 2014; Kianto, 2007; Kianto *et al.*, 2013; Kujansivu and Lönnqvist, 2009). However, in both cases researchers link the concepts of IC and knowledge, but do not indicate the differences between these two concepts. Accordingly, they provide no clear answer to the question: what the essence of the organization's IC is and how it differs from the knowledge resources of the organization?

From the dynamic perspective IC is often analysed from the valuation and measurement aspects. One of the latest developments is the dynamics of IC in long-term perspective (Edvinsson, 2002, 2013), also at the national level (Lin and Edvinsson, 2011; Lin *et al.*, 2012).

In a modern organization, its managerial approaches and investment facilities are changing along with the growing importance of IC and the changes of its components, thereby changing the managerial approaches and focusing on value creation. This study aims to analyse and evaluate the development of IC concept, showing the transformation from resource to capital, while offering a new perspective on the structure of IC.

2. The formation and development of the IC

Upon exploring the historical evolution of the concept of IC, the authors conclude that it is associated with two interrelated views on resources. Consequently, two views on resources and on the formation of profits and competitive advantages exist in the theory of economics. One of the views is the resource-based view (RBV) where the organization's resources or the resources it can acquire are considered to be the source of its competitive advantage (Barney, 1986; Itami and Roehl, 1987; Makadok, 2001; Peteraf, 1993; Rumelt, 1984; Wernerfelt, 1984). The second view is the knowledge-based

view (KBV) where knowledge is considered to be the source of the organization's competitive advantage (Grant, 1996; Roos, 1998; Sveiby, 2001a; Wiklund and Shepherd, 2003). Resources are in the centre of both views, whereas there are differences in the kind of resources taken into account and the way in which the organization's competitive advantage is ensured. However, representatives of both views believe that the sources of the organization's competitive advantage are not in the external but in the organization's internal environment.

In the beginning, the RBV that can be found in the works of D. Ricardo highlighted the importance of resources in building the economic rent (often understood as the income or profits provided by resources). This means that the choice of the resources is the main mechanism influencing the generation of the economic rent (Makadok, 2001). It is important for the organization to attract resources that can provide competitive advantage. Every organization has a different set of resources and resource types. A resource that has the potential of forming the basis for a competitive advantage in the organization has to fulfil the following criteria: be rare, be durable, be strategically valuable, non-substitutable and in-imitable (Barney, 1991a, b; Hoopes *et al.*, 2003; King and Zeithaml, 2003; Wiklund and Shepherd, 2003). The strategic value of an organization's resources is enhanced if they are difficult to buy, sell, imitate or substitute (Amit and Schoemaker, 1993). Later it was concluded that a more productive resource selection and attraction cannot always guarantee the formation of income and competitive advantages. "If a firm can find new ways to use a resource to implement product market strategies, this new resource use would not have been anticipated in the original factor market and thus can be a source of economic rent" (Barney, 1986), and also the economic value of the resources may vary depending on how they are used (Rumelt, 1984), i.e., not only resources in their own right are important, but also the resource types. Consequently, another term – "capability", which is the organization's ability to use resources, entered the scientific literature. In the first works, capability was seen as a factor of resources or production able to provide competitive advantage. The magnitude, type and nature of an organization's resources and capabilities are the important determinants of its profitability (Amit and Schoemaker, 1993). To create a resource base, resource accumulation or storage process in the organization is of great importance in the outcome of the organization's daily and innovative operations (Peteraf, 1993).

In parallel with RBV, other theories and views were developed, such as the theory of invisible assets (Itami and Roehl, 1987), competence-based theories of corporate diversification (Prahalad and Bettis, 1986; Prahalad and Hamel, 1990) under which the role of resources in building the organization's competitive advantage was analysed. Intangible resources, or invisible assets, were considered to be the sources of competitive advantage. Although these two concepts are not synonymous, during that period they were often used as synonyms. However, each of these concepts has its own focus:

(1) In the concept of "intangible assets", the focus is on the assets and their use in the creation of products. Reinhardt *et al.* (2003) believe that intangible assets are those non-monetary assets that present no physical existence, are used in the production of products and services, are rented to others or are applied in administrative routines. Not only the organizational aspect, but also the intangible assets belonging to individuals are included in this concept by some researchers, e.g., Petrick *et al.* (1999) present the intangible assets (both

individual, such as leadership, and social, such as organizational reputation) as being the basis for sustained competitive advantage.

(2) The definition of "intangible resources" focuses on the use of knowledge. For example, Cohen and Levinthal (1990) believe that intangible resources are the capabilities of problem solving, of recognizing the importance and assimilating information, and of knowledge application for commercial purposes.

A real organization's competitiveness lies in intangible assets that are compared to an iceberg by Zack (2003): "as in real icebergs, the largest reality that allows the firm produce is located below the surface of the water, hidden in the intangible assets of the organization, and it entails the knowledge of what the firm does, how it is done, and why it is done that way". Researchers assume that intangible assets utilized by an organization may belong to other firms or individuals, and also the organization may agree that its intangible assets are used by other firms or individuals in their operations. It can be concluded that intangible assets might not be the property of the organization and the organization does not always have full ownership of these resources.

Sveiby (2001b) believes that the main intangible resource is people's capability. Competences and capabilities ensure the organization's sustainable development because they are specific to each organization and they are difficult or impossible to imitate. Thanks to the dynamic capability which is focused on resource utilization methods, the organization can modify, redirect, change, and integrate knowledge, external resources and strategic and other assets in order to respond to the changes in the environment and promote sustainable development of the organization (Teece *et al.*, 1997).

With the KBV development, knowledge was recognized to be one of the most important resources. Thus, it can be seen that if within RBV much attention is given to the resources, then gradually, due to the changes in global economic trends, researchers attach greater significance to intangible resources and define a new type of resource – knowledge. The resource base of the organization increasingly consists of knowledge-based assets (Roos *et al.*, 1997). Knowledge resources are important to ensure that competitive advantages are sustainable, as these resources are difficult to imitate they are the foundation for sustainable differentiation (Wiklund and Shepherd, 2003). Specific and complex knowledge that is formed within the organization creates sustainable competitiveness. The company absorbs internal and external knowledge, combines it with pre-acquired knowledge, and creates a new one (Cohen and Levinthal, 1990). Knowledge can be used simultaneously in several applications and still it does not devaluate (King and Zeithaml, 2003). Resources like knowledge, learning capacity, culture, teamwork are pointed out to be the ones contributing the most to the sustained competitive advantage of the firm. These resources have a potential of recognizing each other (information, relationship, importance, contacts and knowledge within the sector) and absorb them (Hitt *et al.*, 2001; Barney, 2001).

By studying the evolution of the scientific views on the sources of the organization's competitiveness, a transformation of these sources can be observed: from resource to IC.

In the scientific literature, both views on resources mainly define the role of resources in ensuring the organization's competitive advantage. In order to characterize resources, researchers use different definitions which are topical today, such as competence, performance, knowledge. Understanding and application of these definitions differ from the way they were used 30 years ago when they were introduced.

Often concepts are used without explanation of what this concept represents in the given study. The concepts of "competence" and "capability" are relatively new and little-explored in relation to the organization's management. In the context of research of IC, the concepts of knowledge, competence and capability are significant as these concepts are included in the definitions of IC offered by various researchers (see Table I).

Authors	
Knowledge	
Polyani (1966)	Explicit knowledge refers to the transmission of knowledge to others through formal and systematic language
Nonaka and Takeuchi (1995)	There are two types of knowledge: explicit knowledge, contained in manuals and procedures, and tacit knowledge, learned by experience, and communicated only indirectly, through metaphor and analogy
Grant (1996)	Organizational knowledge is a primary resource for creating and sustaining competitive advantage
Soliman (2000)	Knowledge is defined as the ability to sustain the coordinated deployment of assets and capabilities in a way that helps the firm achieve its goals
Teece (2007)	Knowledge consists of valuable intangible assets for creating and sustaining competitive advantages
Gaponenko and Orlova (2008)	Knowledge is a set of experience, values, information, expert assessment that establishes a framework for acquiring, evaluation and application of new experiences and information
Ishak *et al.* (2010)	Knowledge is defined as what people know about customers, products, suppliers, success and mistakes
Maruta (2014)	The author divides tacit knowledge into two sub-categories: pseudo-tacit – knowledge that is judged tacit by the knowledge owner, but is able to be turned into explicit knowledge with extra effort; genuinely tacit knowledge cannot be turned into explicit knowledge by any means
Competence	
Spencer and Spencer (1993)	Traits inherent to an individual that are linked by causative reasoning with effective or outstanding job performance or other situations and may be characterized by certain criteria
Armstrong (2006)	There are two aspects: action competencies that are characterized as an opinion on how to act to perform one's job well and technical and functional competencies that individuals have to know and exercise to perform their jobs in a proper way
Lapiņa *et al.* (2015)	The meaning of competence is linked to an individual's ability to learn, communicate and cooperate in a changing environment. Competence (plural – competences) is a set of skills, knowledge and attitude or set of competencies (singular – competency) that include also personal behaviour or intent
Capability	
Teece *et al.* (1997)	The term "capabilities" emphasizes the key role of strategic management in appropriately adapting, integrating and reconfiguring internal and external organizational skills, resources and financial competences to match the requirements of a changing environment
Mulders and Romme (2009)	Dynamic capability is described as capabilities that convey deliberate knowledge, invoked on a repeated basis, on how to question purpose and effectiveness of the resource base
Lapiņa *et al.* (2015)	Capability is the ability to use the competence and apply competence models in various situations

Table I.
The concepts related to intellectual capital

In management science the aforementioned concepts are used in connection with the organization and the people who work in the organization and/or cooperate with it. These concepts characterize the organization's competitiveness and ability to create competitive advantage in a given time period. These concepts are also related to the concept of "IC", through which organizations are able to achieve and sustain competitive advantage in the long term.

Upon studying RBV and KBV, it could be concluded that these views show only a partial picture of the nature of IC – considering it to be the source of the organization's competitive advantage.

3. The nature of IC: resource or capital?

Nowadays, there are different views on the definition of the IC concept. These views can be divided into two groups (see Table II):

(1) one group of researchers link the concept of IC with knowledge (both individual and organizational) – the static view; and

(2) another group of researchers associate this concept with the knowledge and performance of people and/or the organization, as a result of which intellectual property and/or value is created – the dynamic view.

In the past decade, the dynamic view has been gaining popularity in the scientific literature. Within the dynamic approach, researchers more frequently mention the concept of IC management. Capital is understood as a movement and not as an object in a static position. From the perspective of entrepreneurship and business management, the understanding of capital is extended to IC that participates in the circulation of the organization's capital, providing capital gains to the organization. From the perspective of company management, organizations need better understanding internally of where their IC or "hidden" assets are, the assets that are not visible on the financial balance sheet. If organizations could develop a systematized process for value creation, it might lead to better sustainability (Edvinsson and Kivikas, 2007).

Upon examining different interpretations of IC and its development (see Table II), the authors conclude that in the static view the concept of "IC" and the concept of "knowledge" are used interchangeably, i.e., by IC researchers understand different types of knowledge. Within the dynamic view, researchers provide the most comprehensive explanation of the concept of IC, but without specifying differences between these two concepts. In this view, capital is regarded as an asset in the sense of the organization's intangible assets (competences, brand, etc.) and tangible assets (resulting from human intellectual activity and existing in a tangible form, such as a quality manual, business process descriptions, etc.) set, used in the organization's operations in accordance with the organization's priorities and objectives. The interpretations of the concept of IC in the scientific literature provide a different and often incomplete understanding of the nature of IC and its role in the organization, often focusing only on one aspect of the "IC" concept.

The term "IC" consists of two words; each of them has its own meaning, which in turn makes up the nature of the concept. Dictionaries and thesauri give different explanations of the words "intellectual" and "capital". On the basis of the explanations given in dictionaries and encyclopaedias, a relationship scheme has been created (see Figure 1) characterizing this concept (Bishop, 2004; Cambridge Dictionary Online, 2016; Collin, 2009; Longman Dictionary for Contemporary English Online, 2016; Ozegov, 2013; Statt, 1999).

The relationship between the concept of intellectual capital and knowledge – the static view	
Edvinsson and Malone (1997)	Intellectual capital is the possession of the knowledge, applied experience, organizational technology, customer relationships, and professional skills that provide a company with superior competitive position
Stewart (1997)	Intellectual capital is the total stocks of the collective knowledge, information, technologies, intellectual property rights, experience, organizational learning and competence, team communication systems, customer relations, and brands that are able to create values for a firm
Roos and Roos (1997)	Intellectual capital is the sum of the "hidden" assets of the company not fully captured on the balance sheet, and thus includes both what is the heads of organizational members, and what is left in the company when they leave
Sullivan (1999)	Intellectual capital consists of the knowledge-based resources that contribute to the sustained competitive advantage of the firm, or simply knowledge that can be converted to profits
Bontis and Fitz-enz (2002)	Intellectual capital represents the stock of knowledge that exists in an organization
The relationship between the concept of intellectual capital and knowledge – the dynamic view	
Bukowitz and Williams (2000)	Intellectual capital is presented in a dynamic way that forms nonmaterial assets, which thanks to flows of knowledge can generate a potential to create goods
Petty and Guthrie (2000)	Intellectual capital is an indicator that has the ability to generate future earnings or financial capital together with an organization
Lev (2000)	Intangible assets are non-physical sources of value (claims to future benefits), generated by innovation (discovery), unique organizational designs or human resource practices
Kianto (2007)	Intellectual capital, or more generally organizational knowledge, is not only about what the organization possesses or has, it is also about what the organization does
Bailesteanu and Burz (2008)	Intellectual capital management aims to convert knowledge into a value creating resource, multiplying human capital through suitable structural capital
Kujansivu and Lönnqvist (2009)	Intellectual capital management consists of activities related to, e.g., identifying, developing, measuring and reporting on the intangible assets of an organization
Kianto *et al.* (2013)	Intellectual capital comprises the valuable knowledge-based resources and the management activities related to them
Gogan *et al.* (2014)	Intellectual capital is the way of organizations value creation through its monetary, non-monetary, physical and non-physical resources that have to be identified (know), used (exploit), measured (evaluate, control) and managed properly

Table II.
Examples of interpretation of the intellectual capital over time

The authors conclude that the word "intellectual" can be attributed not only to people – knowledgeable, sensible, educated, intelligent, spiritual, able to use knowledge, thinking, but also to things – intangible.

As shown in Figure 2, capital is interpreted as a resource, asset or wealth used to create income or benefit. In the classic theory of economics, capital is generally understood as a physical or real capital – the means of production used in manufacturing of goods and rendering of services, i.e., buildings, structures, tools, machinery, equipment, etc. (Marx, 2014). In the light of the word "intellectual" meaning, it is difficult to apply the aforementioned view to IC.

Upon analysing the capacity and interrelations of the concepts "intellectual" and "capital", the authors offer an interrelationship scheme of the concept "IC" (see Figure 3), highlighting the words that reveal the nature of the organization's

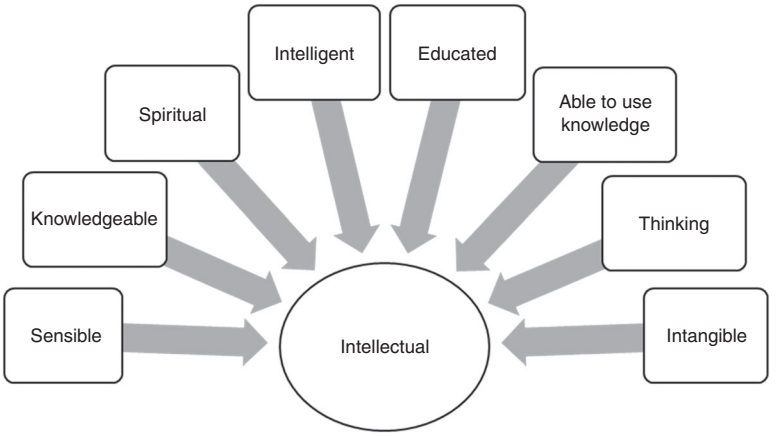

Figure 1.
The capacity of the concept "intellectual"

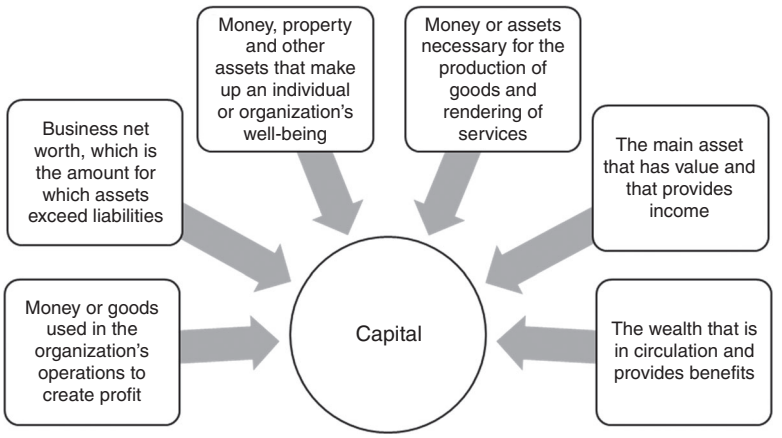

Figure 2.
The capacity of the concept "capital"

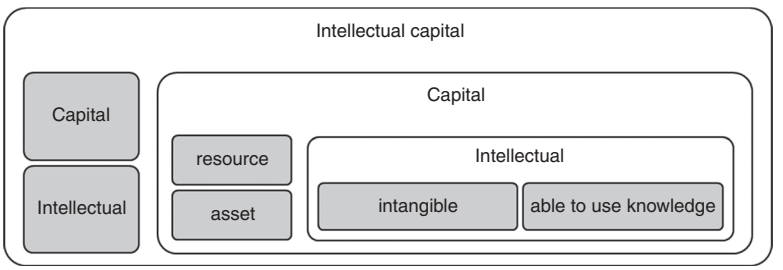

Figure 3.
The interrelationship scheme of the concept "intellectual capital"

IC and that are henceforward used to analyse the meaning and structure of the concept.

For each concept, two other concepts have been selected: "capital" – a resource and an asset, "intellectual" – intangible and able to use knowledge.

The two views on the resources discussed above provide a partial explanation of the IC nature. They have similarities with the defined keywords which are selected for understanding the concept of IC:

(1) The word "intellectual" is associated with the words "intangible" and "able to use knowledge". Both words are related to the aforementioned concepts of "knowledge", "competence" and "performance".

(2) The word "capital" is related to two words – "resource" and "asset". The aforementioned views show the nature of capital – a resource that is owned by the organization and is used to produce goods and provide services. The word "asset" is used in the name of the resource "intangible assets", but in essence it is analysed as a resource that is used or impacted in order to manufacture a product or render a service.

Along with the changes in the economic environment and views on the organizational management, a significant change appears in the view on the capital – a transition from a static to a dynamic perspective and placing a greater emphasis on IC. According to the authors, nowadays capital is to be seen from three perspectives:

(1) capital as a resource through which goods can be produced and services can be rendered;

(2) capital as the object of investments, where the volume and quality of capital can be changed with the help of investments; and

(3) capital as the result of the organization's operations, so that it can be used by the organization and its employees, customers and partners, and also society as a whole.

At organizational level all the three aspects are important, but when viewed from the perspective of sustainability, the second and the third aspects are most important because they show capital from the dynamic perspective. These are aspects that demonstrate the dual nature of capital, i.e.:

(1) The organization can develop its capital through improvements in accordance with the organization's needs. The capital can be developed using a variety of means, including the organization's existing capital and attracting additional capital.

(2) As the result of its operations when its own and attracted capital is used, the organization can create a larger capital, thereby ensuring the growth of the capital amount, and in some cases quality as well, not only for the organization, but also employees, customers, etc. Capital may also have a multiplier effect, i.e., while growing in one organization it may grow in the society as a whole. This means that capital may be the outcome of operations.

The nature of IC at organizational level differs fundamentally from the nature of IC that is discussed in the two existing views on resources – RBV and KBV. Today, the organization's IC is significant just as the capital that has value in its own right and can create a value. Thus, according to the authors, IC should not be analysed as a resource, but it needs to be analysed as an organizational asset that is its competitive advantage and at the same time can ensure the organization's competitive advantage. The authors conclude that over time, alongside with the development of RBV and KBV and the changes in the sources of the organization's competitive advantage from resource to IC, IC has also transformed from resource to capital.

Upon analysing the concepts of "knowledge", "intellectual", "capital", "IC", the authors conclude that significant differences can be observed between the concepts of "IC" and "knowledge" and these two concepts cannot be used as synonyms:

(1) IC is a broader concept than knowledge. Knowledge is included in IC as its component, and knowledge is also a component or element of human capital.

(2) On the basis of scientific ideas about the two views on resources, knowledge is seen as a resource, but IC is viewed from a dynamic perspective as well: as an asset used by the organization in its operations and also as the result of these operations.

(3) Knowledge is directly or indirectly created by individuals. The organization without the individual (at least initially) cannot generate knowledge. The organization creates conditions, uses the existing resources and assets in order to facilitate the creation of knowledge and its utilization in the organization.

Upon studying the historical evolution of the "IC" concept and the nature of the concepts related to IC, the authors offer their own definition: IC is the organization's asset that includes the organization's human capital, business processes (procedures and their descriptions), information and communication technologies, and intangible assets that can be transformed into tangible and intangible value.

It should be noted that in the scientific literature the understanding of value differs. This is due to the concept interpretation in different social groups and different situations. In management science and economics, the concept of "value" is closely related to the value chain theory, according to which the organization performs a set of strategically related activities in order to create value, i.e., creation of products and transfer of value from the organization to its customers and back (Porter, 1985). This theory focuses mainly on the creation of value for consumers. Whereas, the authors of the stakeholder theory, as well as its advocates believe that the organization's competitive advantage depends on the organization and its managers' competence to create value for all stakeholders (Freeman *et al.*, 2004). In the Database of Academic Terminology *AkadTerm* in Latvian language (2000) value is defined as the usability of things, products, etc., in order to meet some needs.

From the perspective of cooperation development, value can be analysed from two aspects. Cooperation creates two kinds of value: the intrinsic value which is the shareholders' value where value = well-being, and the extrinsic value which is the consumers' value where value = satisfaction. From these perspectives, value lies in consumers' satisfaction and meeting their requirements while promoting the organization's well-being (Bititici *et al.*, 2004). These are situations where each party gains something and loses nothing: when the intrinsic value is increased, benefits are provided to stakeholders, and when extrinsic value is created, customers are satisfied.

Miles (1989), the originator of Value Engineering Methodology believes that "a product or service is generally considered to have good value if that product or service has appropriate performance and cost". Value is a relationship established by comparison. Value is about performance compared to need; intent compared to performance; needs compared to requirements; requirements compared to features or attributes; features or attributes compared to price and price compared to satisfaction. Value increases with higher use, esteem and exchange of values, but decreases because of high price (Iyer, 2009).

There are four types of value analysed in the scientific literature:

(1) Economic value associated with earnings and profits (Brodin and Anderson, 2008; Dowlatshahi, 2010; Škapa and Klapalova, 2012). Production costs can be reduced and productivity can be increased with the help of cutting edge materials and technologies. Modern management methods can help in selecting the right resources in the right amount, reducing communication defects, optimizing service time, etc.

(2) Environmental and social value has become important and is constantly growing under the influence of stakeholders and laws and regulations. Some aspects are related to the reduction of environmental pollution (Krikke, 2011; Huppes and Ishikawa, 2009), but there are also aspects related to the development of green marketing and promotion of ecological products (Hazen *et al.*, 2012; Huang *et al.*, 2012). Also corporate social responsibility has a significant role in the creation of social value (Frolova and Lapina, 2015; Mežinska *et al.*, 2015).

(3) Customer value is created by satisfying customer needs and by promoting customer loyalty (Lee and Lam, 2012; Mollenkopf *et al.*, 2007). This value is enhanced by offering after-sales service, ensuring use of ecological raw materials and recycling of packaging, the lowest price, as well as enhancing the organization's reputation (Jayaraman *et al.*, 2012) and promoting brand awareness (Michaud and Lerena, 2011).

(4) Information value which is created by managing the flow of information on customer behaviour and the production and supply chain, the factors influencing the organization's operations, etc. This value can be an incentive for the creation of the aforementioned three values (Schenkel *et al.*, 2015).

Thus, it can be concluded that value can be analysed both from the financial perspective as well as non-financial. Non-financial value can be regarded as long-term financial value, since originally created non-financial value can generate future cash flow (e.g. promote customer loyalty), create financial value accordingly.

The spectacular developments now occurring in science and technology, world economy and trade, make imperative a holistic approach to manage value. It will mean: discovering ever more effective ways of turning knowledge and technology into useful products and services; creating change and managing change, exploiting every opportunity to create value; excellence from everyone and everything done; helping employees to become more creative; in congruence with the community and natural harmony; value in everything made and done (Iyer, 2009).

The organization's development is measured through value creation aspects, where the value is dependent on a number of internal factors over which the organization usually has control, and external factors over which the organization usually does not have any control. In order to reach a certain level of development, the organization needs to work out a strategy, implementation of which would result in efficient use of the organization's existing resources and value would be created, which in turn corresponds to the stakeholders' expectations and perceptions of what value means.

The authors analyse IC from the perspective of value creation and the holistic approach to value, i.e., as an asset through which value can be created and also an asset which is a value to those to whom the asset belongs (see Figure 4). In order to achieve a certain level and progress in the organization's development, it is necessary to redirect

the flow of investments from tangible capital to intangible, providing formation and development of IC as a prerequisite for the organization's growth.

The authors define IC by emphasizing its nature in accordance with modern business management theory as an asset that can be transformed into value – both financial and non-financial. In the definition offered by the authors, the focus is on the fact that IC is an asset. Today, the term "asset" or "assets" is often used in accounting, describing the assets in the possession of the organization that have been acquired during the previous period and can be used in future in its operations. The word "asset" means a set of the organization's intangible (competence, brand, etc.) and tangible (resulting from human intellectual activity and existing in a tangible form, such as a quality manual, business process descriptions, etc.) assets used in the organization's operations in accordance with the organization's priorities and objectives. Utilization of IC as an asset allows the organization to create value, or this asset itself can transform into value, which can take two forms: tangible, more commonly associated with financial gains – profits, cost reduction, growth of the organization's value, etc., and intangible that is often related to non-financial benefits – raising employee and customer loyalty, enhancing employee qualification, improving the organization's reputation, etc.

Taking into account the organization's objectives and the resources available, the organization develops and implements strategies and, as a result, creates value. If the amount of resources and/or quality is not sufficient to achieve the defined objective, the organization has to take a decision on investments. Investments in IC serve as a tool of enhancing and developing IC in order to achieve the goals and create the planned value. By value the authors understand a set of all four types of values, adhering to the understanding of values defined by the stakeholders' theory and the concept of creating shared value. This means that a common value is created by using IC and implementing the strategy based on the interests of all stakeholders. Part of this value can become the organization's IC which in the future may also be used as an investment in IC (e.g. knowledge of consumer behaviour, experience in project management, higher qualification of staff, etc.). The resulting value can be both financial and non-financial.

4. The structure of IC

To better understand the nature of the "IC" concept it is necessary to analyse the components which are included in the IC at organizational level and the elements contained therein. When studying the structure of IC, it can be noted that IC is traditionally divided into three groups/components: human capital (in the sense of the organization's human capital), organizational capital and relational capital (see Table III).

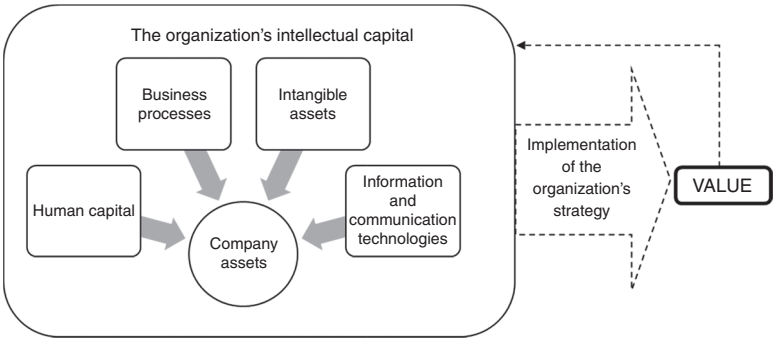

Figure 4.
The content scheme of the definition of intellectual capital

Author(s)	The component of intellectual capital				
Stewart (1997)	Relational capital	Organizational capital			Human capital
Edvinsson and Malone (1997)	Customer capital	Organizational capital			Human capital
		Innovation capital	Process capital		
Kaplan and Norton (1996)	Customer perspective	Internal process perspective			Learning and growth perspective
Roos and Roos (1997)	Customer and relationship capital	Organizational capital			Human capital
Sveiby (2001a)	External structure	Internal structure			Competence
Canibano *et al.* (2002)	Relational capital	Structural capital			Human capital
Mertins *et al.* (2009) InCaS project	Relational capital	Structural capital			Human capital
INNODRIVE project (2008-2011)	Marketing	Information and communication technologies		Management	Research and development
Jurczak (2008)	Relational capital	Organizational capital			Human capital
		Structural capital	Business process capital	Market capital	Development capital

Table III.
The structure of the intellectual capital

Each of these groups/components is formed from a variety of elements: knowledge capital, capital of competencies, attitudes and intellectual ability, intellectual property, structural capital, business process capital, market capital and development capital, etc. Within the project MERITUM, IC is divided into three components: human capital (staff abilities and knowledge that the employees take away when leaving their workplace), structural capital (knowledge, which remains when the employees leave the workplace, such as procedures), relational capital (relations with customers, suppliers, R&D partners, etc.). Lev (2000) considers that there are three major nexuses of intangibles, distinguished by their relation to the generator of the assets: innovation, organizational practices and human resources.

According to the German approach – ICS – the IC of an organization can be divided into three categories: human capital (human capital covers the skills, abilities and motivation of employees, human capital is "owned" by employees and can be taken home or on to their next employer); structural capital (structural capital covers the structures and processes within the organization, it consists of the intelligent structures which remain at the organization when the employee leaves); relational capital (relational capital describes an organization's relations with customers and suppliers, as well as with other partners and the public) (Alwert, 2006; Mertins *et al.*, 2006).

The authors of the *Intellectus Model* offer a different structure of IC that has four main components: human capital, technological capital (knowledge combination, which ensures the functioning of technical systems in the organization), organizational capital

or business capital (the value obtained by establishing relationships with customers, suppliers, etc.), social capital (the value obtained by the organization in maintaining relations with social agents). A four-component structure of IC is also offered by Ferenhof *et al.* (2015) in the IC Meta model which synthesizes previous research activities and highlights the main IC dimensions and sub-dimensions. According to that model, the main IC dimensions are structural capital (innovation capital, process capital, technological capital, organizational capital) human capital (motivational capital, interpersonal relationships, knowledge, skills, attitudes, agility), relational capital (customer capital, business capital), social capital (social action, social interactions). In the context of this study, when discussing human capital as a component of IC, the authors understand it as the organization's human capital, not human capital in a broader context, such as at the macro-level, which would be the national human capital.

A different approach to the structure of IC is offered by Ortiz (2009) by creating the CONICCVAL^{TM} model (contextual IC components valuation). The components are clustered in three dimensions: nuclear (the components "are intrinsic to the human being and they can only be developed by humans"), radial (the components "are generated by the human capacities") and peripheral (the components "arise as part of the organization's processes, they can be transferred and commercialized"). The form of the model is shaped as a cone where the tip represents the nuclear dimensions.

Each component of IC consists of several elements which each researcher defines in a different way. Overall, the distribution of these elements shows common trends, the main differences are observed in the names given to the elements. Here the authors of this study have analysed three main elements of the components (see Table IV).

As can be seen, the components of IC include elements that exist not only in an intangible form, but in some cases also in a tangible form, for example, computer disks, business process descriptions, etc. Human capital includes knowledge and many knowledge-related elements. Organizational capital includes the elements that are created by using the organization's human capital and also the elements that can be created outside the organization. Relational capital consists of elements that ensure successful product sales, not only in the short term, but also in the long term.

Human capital	Organizational capital	Relational capital
Education	Patents	Brand
"Know-how"	Trademarks	Consumer loyalty
Professional qualifications	Licenses	Cooperation
Professional knowledge	Management model	Consumer database
Competency	Organizational culture	Supplier database
Entrepreneurial ability	Management processes	Partnership
Creativity	Information and communication systems	Reputation
Ability to change	Computer network systems	
Ability to act	Technologies	
Performance	Intellectual property	
	Computer software	

Table IV.
The elements of the intellectual capital components

The authors conclude that the structure of IC at organizational level does not provide transparency and efficient management of IC because:

(1) According to the theory of microeconomics, IC is not included in the classification of resources or factors of production.

(2) In the theory of accounting, the concept "IC" is hardly ever used. Instead, there is the concept of "intangible assets". International Accounting Standard 38.SGS (IFRS, 2002) defines what can be included in the intangible assets, also using the term "IC". However, the structure of IC significantly differs from the structure which exists in the scientific literature. The structure used in 38.SGS is based on the investment object, i.e., how or where the organization's financial resources are spent.

At organizational level, the authors offer to structure IC into four components, which would allow the organization to easily enter them in the accounts, use them and analyse their changes (see Table V):

(1) Human capital or an individual with his physical and mental abilities, including his knowledge and skills, mind-set, ability to act in a certain way, in a certain sphere and environment (Lapiņa, 2010).

(2) Business processes or their descriptions that are formalized descriptions of the organization's operations or procedures that allow to systematize all processes and minimize the organization's dependence on the human resources and their turnover (Jardon and Martos, 2012).

(3) Technologies: *Encyclopaedia Britannica* defines technology as the application of scientific knowledge to the practical aims of human life or, as it is sometimes phrased, to the change and manipulation of the human environment. The Latvian database "Letonika" (2016) offers the following explanation:

- All the resources (skills, knowledge, tools and resources) that are used by people to influence their environment in the production process.
- Knowledge of what ways and types of equipment and arrangements are used to realize various production processes.
- Use of scientific findings in industrial processes; a set of knowledge, methods and techniques (in the particular industry) related to processes that involve qualitative changes of the processed object.

Summarizing the aforementioned, the authors conclude that in the context of IC as an asset, technologies should be understood as the use of a set of scientific findings, methods and techniques in business processes that result in a product manufactured or services rendered.

(4) Intangible assets: according to international standards (38.SGS), "an intangible asset is an identifiable non-monetary asset without physical substance". However, these standards recognize that in some cases it could also have a tangible form, such as a computer disk. Among the intangible assets the authors include: the results of research and knowledge created in research, patents, brands, licenses, databases of the organization's customers, suppliers, etc., marketing research and marketing plans.

The components of intellectual capital and their elements existing in the scientific literature		The components of intellectual capital and their elements offered by the authors of this study	
Component	Elements	Component	Elements
Human capital	Education	Human capital	Education
	"Know-how"		"Know-how"
	Professional qualification		Professional qualification
	Professional knowledge		Professional knowledge
	Competences		Competences
	Entrepreneurial ability		capability
	Creativity		Science and research
	Ability to change		
	Ability to act		
	Performance		
Organizational capital	Management processes	Business processes	Business model management process
	Organizational culture		Organizational culture
	Information and communication systems		Cooperation and partnership
	Computer network systems		Reputation
	Computer software		
	Technologies	Information and communication technologies (ICT)	Information and communication systems
	Patents		Technologies
	Trademarks		Computer network systems
	Intellectual property		Computer software
	Licenses		
Relational capital	Brand	Intangible assets	Patents
	Customer loyalty		Licenses
	Cooperation		Intellectual property
	Customer database		Trademarks
	Supplier database		Brand
	Partnership		Customer loyalty
	Reputation		Customer database
			Supplier database

Table V.
The components of intellectual capital and their elements

Business processes as the component of IC unite the other three components. Which human capital will be used in the organization is directly dependent on the business processes, while human capital ensures creation of business processes within the organization. Human capital can create intangible assets in the organization by implementing certain business processes. Whereas, information and communication technologies ensure the efficiency of business processes and facilitate the organization's operations by providing processing and storage of the necessary data, help to save resources and time in the organization.

All components are interrelated and mutually complementary. One component by itself cannot create or change value, or the resulting value will be lower compared to the value generated in the interaction of all components.

Upon studying the scientific literature on IC and related concepts, the authors conclude that the views on the concept of "IC" are very broad, IC is understood as knowledge and an intangible asset, as well as a set of concepts and resources. Some researchers define IC as a resource; others focus on the structure of IC rather than the nature of the concept. The researchers' views do not provide a comprehensive understanding of the IC nature.

5. Conclusions

The authors believe that the concepts of "IC" and "knowledge" are not synonymous, as IC includes knowledge. The principal difference between these two concepts lies in the nature of IC as well: IC is to be treated as a capital and not as a resource. IC has a dual nature: it is an investment in the organization, as well as the outcome of the organization's operations. Moreover, this result is a value which exceeds the value of IC, as the organization's operations create value for all of the organization's stakeholders, including the organization itself. The authors conclude that from the perspective of value creation, IC can lead to the effect of multiplication, i.e., provide greater value creation in the organization and the national economy than the value of the original investment.

When creating the content of the "IC" concept, the authors look at it from two perspectives: the aspect of value creation where value is viewed holistically and the aspect of the dual nature of IC. For a deeper understanding of the concept, the authors also analyse the structure of IC. The authors propose to restructure IC into four components: the organization's human capital, business processes, information and communication technologies, and intangible assets. The authors define IC as the organization's assets which include the organization's human capital, business processes (procedures and their descriptions), information and communication technologies, and intangible assets that can be transformed into tangible and intangible assets.

The paper examines the aspects of raising IC at the organizational level, not including the aspects of national economics and the aspects of measuring IC, and the value created by IC.

Using the structure of IC proposed by authors, organizations will find it easier to use IC and it will be possible to know the value of IC when developing and implementing their operational strategy.

It is necessary to further study the opportunities that IC offers for ensuring sustainability of the organization, especially in the Latvian situation. The main aspects of research at the organizational level are identification of IC and entering it into the accounts, use and development of IC in the organization's overall operational strategy.

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