

INTELLECTUAL CAPITAL OF THE ORGANIZATION AS THE SOURCE OF ITS INNOVATION ACTIVITY

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Abstract

The paper aims at explaining the position and the role of intellectual capital within the innovation processes of the company as an important factor in achieving and sustaining organizational competitive advantage in the market. The output of effective management of the intellectual capital of the organization is the increase of innovation activities through the creation of new products or services with higher added value for the customer by increasing the efficiency of business processes and improving the communication with the external environment.

Introduction

As a result of constant changes caused by globalization, emerging technologies and shorter product life-cycles, knowledge and innovation have already become the main competitive advantages of many companies (Bornemann et al., 2010). Especially European small and medium-sized enterprises (SME) are highly dependent on the ability to identify changes in their global economic environment quickly and respond to these changes with suitable solutions (Bornemann et al., 2010).

The concept of intellectual capital management, which identifies and quantifies knowledge, skills, relationships, business processes, innovation culture and other components of intangible assets in the organization, aims to build and strengthen the competitiveness of the organization in the market and also to activate and increase its innovation potential.

1 Intellectual capital

The concept of intellectual capital is not a new phenomenon. More than a century ago in 1890, Marshall stressed in his work "Principles of Economics" knowledge as an important source and a powerful engine of production (Mouritsen and Larsen, 2005). Despite of this, the importance of the concept of intellectual capital has increased notably in the last two decades.

The term intellectual capital is often confused with the terms intellectual assets, intangible assets, or knowledge assets (Marr and Moustaghfir, 2005). Lev notes that all these

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terms can be perceived as synonyms, while the term intangible assets and goodwill is used mainly by accountants, the term knowledge assets is used mainly by economists and the terms intellectual capital or intellectual assets are used by managers and lawyers (Lev, 2001).

Within the individual disciplines (accounting, economics, management, law) there is a wide range of definitions of intellectual capital (or intellectual assets, knowledge assets, intangible assets). One of the first definitions by Leif Edvinsson explains intellectual capital as “knowledge convertible into value” (Edvinsson, 1997).

From the definition it is evident that the term intellectual capital is being explained through its two fundamental characteristics, namely:

1. Intangible nature;
2. Ownership of value or its future convertibility into value or future competitive advantage.

There are several views on the composition of the intellectual capital presented in the literature. The most popular division is comprised of three main areas to (Edvinsson, 1997; Sveiby, 1997; Stewart, 1998; Meritum, 2002; Bontis, 2002; Mouritsen et al., 2002; Pablos, 2003):

1. Human capital;
2. Internal (also called structural or organizational) capital;
3. External (respectively relationship) capital including also the area of relationships with customers.

The individual components / factors of these three areas are pictured in figure 1 (area of human capital), 2 (structural capital) and 3 (relational capital).

Type of IC	IC Factor	Definition
Human Capital	Professional Competence	The expertise gained within the organisation or in the employee's career: professional training, higher education, training courses and seminars, as well as practical work experiences gained on-the-job.
	Social Competence	The ability to get on well with people, communicate and discuss in a constructive manner, nurturing trust-enhancing behaviour in order to enable a comfortable co-operation. Furthermore the learning ability, the self-conscious handling of critique and risks as well as the creativity and flexibility of individual employees.
	Employee Motivation	The motivation to play a part within the organisation, to take on responsibility, committed to the fulfilment of tasks and the willingness for an open knowledge exchange. Typical sub areas are for example satisfaction with the labour situation, identification with the organisation, sense and participation of achievement.
	Leadership Ability	The ability to administrate and motivate people and to develop and communicate strategies and visions and their empathic implementation. Negotiation skills, assertiveness, consequence and credibility as well as the ability to create a scope of self dependant development belong to this IC factor.

Figure 1: Intellectual capital factors for the area of human capital (Mertins and Will, 2008)

Structural Capital	Internal Co-operation and Knowledge Transfer	The manner how employees, organisational units and different hierarchy levels exchange information and co-operate together (e.g. conjoint projects). The focused knowledge transfer among employees and between generations.
	Management Instruments	Tools and instruments supporting the efforts of leadership and therefore have an impact on the way how decisions are made and what information paths are incorporated in the decision-making process.
	IT and Explicit Knowledge	The computer assisted working environment including all elements of explicit knowledge. Among these are for example specific technical operating principles, networks, fileserver, intra- and extranet, databases, internet and software applications including the content.
	Product Innovation	Innovations of great importance for the future of the organisation. Characterised by the fact, that they will bring new products into being or fundamentally change existing products and eventually result in a patent application
	Process Optimisation and Innovation	Optimisation and improvement of internal procedures and processes, e.g. continuous improvement of all business processes as well as idea management in order to gather suggestions of improvement
	Corporate Culture	The corporate culture comprises all values and norms, influencing joint interaction, knowledge transfer and the working manner. Compliance to rules, good manners, "Do's and Don'ts" and the handling of failures are important aspects of this factor.

Figure 2: Intellectual capital factors for the area of structural capital (Mertins and Will, 2008)

Relational Capital	Customer Relationships	Relationships to former, current and potential customers. The management of these relations comprises activities like sales and marketing, CRM and face-to-face customer cultivation by employees.
	Supplier Relationships	Relationships to former, current and potential suppliers. The management of these relations comprises activities concerning purchases and the cultivation of suppliers.
	Public Relationships	Relationships to the public. Including the relationships to former and potential employees and the public in general, all activities of public relationship management as well as corporate citizenship, e.g. supporting regional activities.
	Investor Relationships	All relations to investors - external and internal investors - i.e. banks, owners, stockholders. The management of these relations comprises all activities providing specific information to the faction, e.g. accountability.
	Relationships to Co-operation Partners	All relations to professional associations, bodies, and societies. The management of these relationships comprises activities like joint acquisition of customers, suppliers, investors as well as an active knowledge transfer on R&D partnerships, best-practice transfer and networking activities.

Figure 3: Intellectual capital factors for the area of relational capital (Mertins and Will, 2008)

2 Innovations and innovation process

Innovativeness of organizations is closely linked to its intellectual capital or its ability to use knowledge sources. The term innovation comes from the Latin word *innovare*, representing renewal, doing something new (Kratky slovník slovenskeho jazyka, 2003).

Innovations in the past have been associated mainly with the meaning of something new, unusual, or in economic theory often associated with technology and technological progress. The "father" of theories on innovation is thought to be an American and Austrian economist Joseph A. Schumpeter (1883-1950), thanks to his ideas and insights that have most influenced further understanding of innovation (Schumpeter, 1987). In his publication, *Theory of Economic Development* (1911) he describes the term "combination of developments" as a

precursor to the concept of innovation. He tried to define entrepreneurial activities that lead to economic development and economic growth, and therefore the usage of these combinations can bring new products, services and technologies on the market, or create new markets. Thus he highlights the role of the entrepreneur to whom such activities are bringing value in the form of "above normal profit". According to Schumpeter "innovations lead to a temporary above average innovation profits that are eventually eroded by imitators" (Samuelson and Nordhaus, 2003).

In the present, generally accepted definition of innovation, which underlines the timeliness of a unifying theory of theoretical and practical knowledge about innovation is the definition published by the OECD in the Oslo Manual (2005) and sees innovation as "the implementation of new or significantly improved product (product or service) or process, a new marketing method or a new organizational method in business practices, workplace organization or external relations" (OECD, 2005).

Innovation activities of an organization include all scientific, technological, organizational, financial and commercial steps which lead to or they intend to drive the implementation of innovations. It is therefore clear that innovation should always be directed towards improving (product, process, method, etc.) and is essential for businesses (OECD, 2005). "Everything that is adaptable and capable of change has the ability to develop and grow, and everything rigid and unresponsive is inevitably moving towards its demise" (Papula and Papulova, 2005). Innovation is therefore a prerequisite for maintaining the business part of any organization, which has long existed on the market.

The organization can achieve commercial success only on condition that it is able to use and benefit from their distinctive competitive advantages that are either its ability to offer the market the same products as its competitors at a lower price, or offer better products than its competitors for the same price (Hungenberg, 2004). This assumption is absolutely compatible with the theoretical definition of innovation and diversification of the two different forms of occurrence in organizations: process and product innovation.

Process innovations are manifested by streamlining technology. Innovative technology and production conditions may also have a fixed character, for example: growth and change of qualifications of the human factor in business or better management (Cimo and Marias, 2006). Product innovations are aimed at creating entirely new products or increase technical and economic parameters of the existing products (Cimo and Marias, 2006).

OECD authors of the materials complement the original breakdown of innovation in product and process with additional three types, namely organizational, marketing and institutional innovation, these types of innovations extend the initial process of innovation. Process innovations in this regard are purely innovations in production processes, they do not address more changes in organizational or marketing methods. The document defined the following five possible objectives of innovation (OECD, 2009):

- Products, including both goods and services;
- Processes, e.g. production methods and procedures;
- Marketing methods, e.g. the way in product design or packaging, method of distribution of goods, sales promotion, respectively. pricing;
- Organizations, such as management structure and distribution of responsibilities;

- Institutions, or wider social group exceeding the borders and control of the organization itself, for example: social norms and cultural values.

Besides the type of innovation, current studies tend to look at innovation from the point of interest groups or its openness. Historically, it was common to use the classical model of closed innovations, whereas focusing only on internal sources as an input for innovation processes (Herzog, 2011). Today's dynamic environment and its characteristics however create a need for a more open model of innovation which allows other entities to enter the innovation process.

Open innovation model is currently considered a phenomenon, a novelty in the field of innovation management. The term "open innovation" has been first introduced by the professor and executive director of Open Innovation Center at the University of California Haas, Henry Chesbrough in 2003 in his book "Open Innovation: The New Imperative for Creating and Profiting from Technology". Open innovation is defined as "the deliberate use of the tide of knowledge to accelerate internal innovation, as well as the expansion of the markets for external use of innovation" (Chesbrough, 2003). It is based on years of studies and detailed analysis of a small number of enterprises in search of signs that lead these companies to successful innovation activities. He described it as a paradigm shifting from the classical model of closed innovation to open innovation (Chesbrough, 2003).

The model is described by three stages and summarizes the basic types of interactions in these stages, as shown in the figure 4:

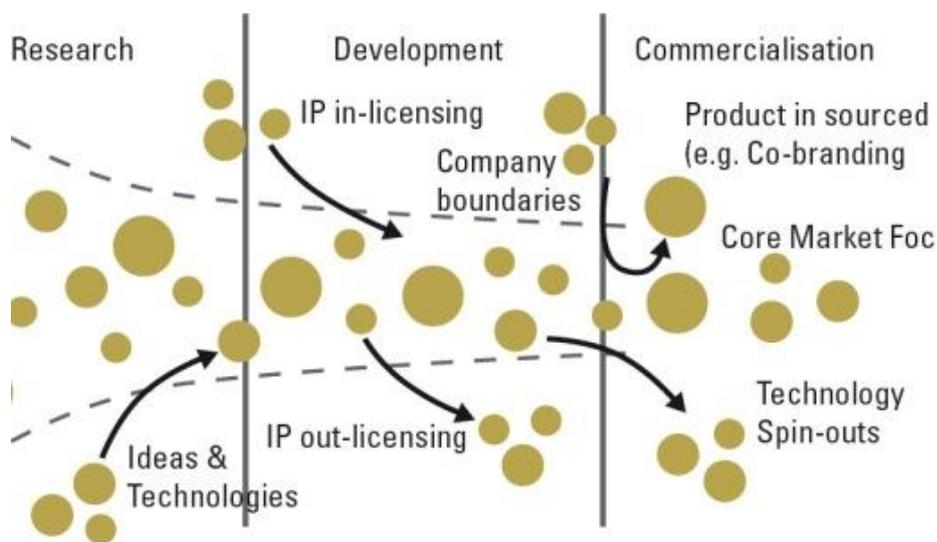


Figure 4: Open innovation model according to Chesbrough

- Research - internally ongoing projects, which are based on their own ideas and technology, while there may enter ideas and technologies from outside.
- Development - for the development of the ideas, enterprises may buy existing technologies and licenses necessary for the use of their ideas and their transformation

into the final project. Likewise, their ideas and technologies that cannot be used or are not prepared to commercialize can be sold to external entities.

- Commercialization - enterprise can developed technologies, services, products used for existing or new markets, or innovations may arise, which were created from the mutual combination of innovation processes of different entities and become a form of joint product. The alternative is so-called spin-off, which represents separate businesses which arise, for example, by developing innovative products that initiates the creation of new business.

Stages of innovation or the innovation process can be generally characterized as a set of different activities, from technical, commercial, financial, organizational after that lead to innovation, whether in the form of anything new, or improved. These activities may be derived either from research and development activities, or even those that are not research and development character (Dvorak et al., 2006).

For most detailed representation of the inputs to the model of open innovation process we see the model of Narvekar and Jain (2006), which is shown in Figure 5. They looked at the key element in the innovation process meaning the creation of ideas (Narvekar and Jain, 2006). Ideas are one element that effects the quality of inputs into the innovation process, and of course increased quantity and quality of ideas increases the probability of selecting an appropriate solution for a given problem or opportunity. External sources of ideas that are included in this model are shown in an oval frame.

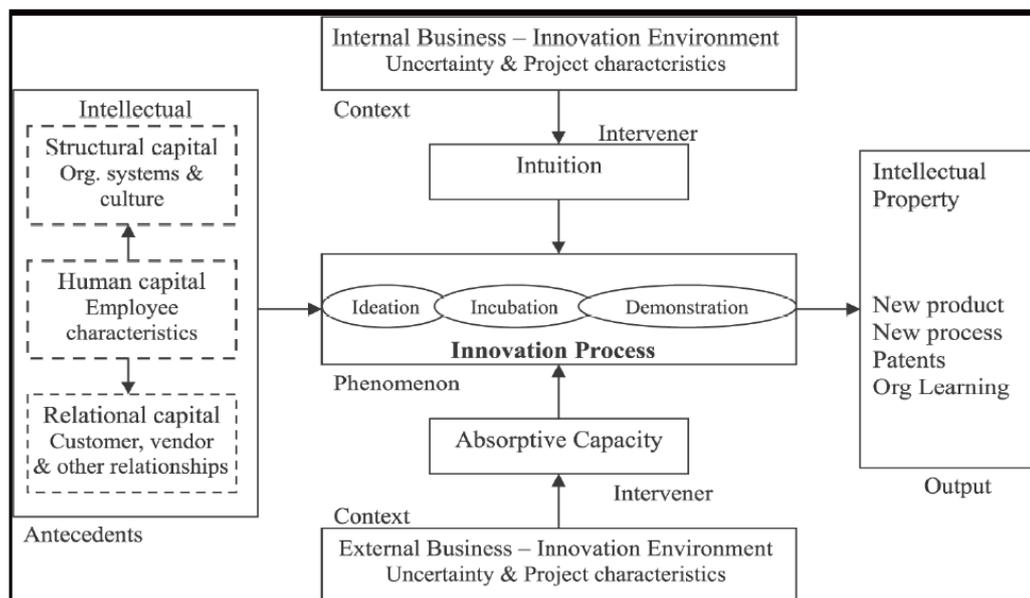


Figure 5: The role of intellectual capital in innovation process according to Narvekar and Jain

3 Components of intellectual capital as enablers of the innovation process

Taking into account the fact that the management of intellectual capital in the company takes the form of managing its individual components through monitoring and evaluation of pre-defined indicators for each component, it is possible to perceive the management of intellectual capital in an organization as the tool for managing the innovation activities of the company.

At the same time, every single corporate innovation affects the value of the intellectual capital of the organization (e.g. when for example the company starts landing the customer with present when purchasing the product, the expected result is the increase of the value of relationships with customer as the component of intellectual capital of the company, which can be measured by CSI - Customer Satisfaction Index indicator).

Conversely, knowledge and other components of intellectual capital are key inputs as well as key outputs of the innovation process of organization (Gamal et al., 2011). Innovation as such represents the process of transformation of initial inputs into outputs. Inputs can be both tangible and intangible resources, while intangible resources (e.g. intellectual capital), which normally are not even recognized, measured and managed in the organization, are considered as crucial in the innovation process. It can therefore be concluded that the activities of intellectual capital management in the organization actually influence the realization of innovations and such the innovation activity of an organization, leading to strengthening the competitive advantage and sustainability of the organization in a competitive environment. The interrelation of intellectual capital and innovation activities of the organization is shown in figure 6 (Volna and Papula, 2013).

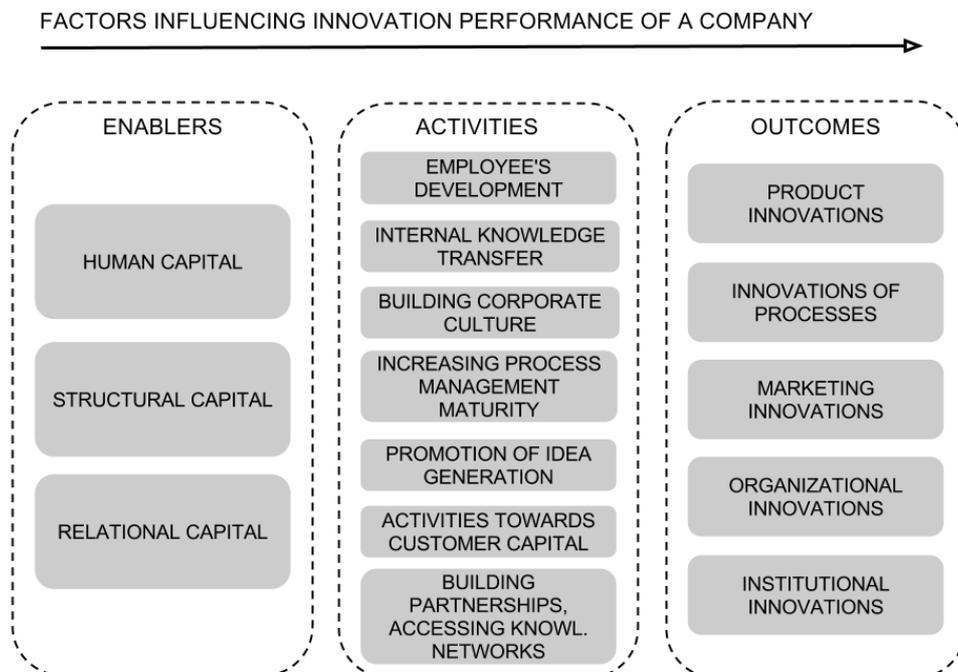


Figure 6: Factors influencing innovation performance of an organization (Volna and Papula, 2013)

Conclusion

In a “knowledge-based” economy, the source of companies’ economic value no longer depends on the production of material goods but on the creation and manipulation of intellectual capital (Guthrie et al., 2004). To achieve long-term success, it is more advantageous for the organization to find the source of its competitiveness within the company, because the only stable certainty in a constantly changing environment is the internal capacity stemming from a desire to be successful in the future (Papula and Papulova, 2012). The concept of intellectual capital such becomes extremely significant business factor. Companies investing in building a sustainable competitive advantage must significantly focus on their intellectual capital and knowledge activities focusing on the development of individual components of intellectual capital.

For organizations, to understand its intellectual capital in its interdependence on innovation activity is key. The innovativeness of the organization and the ability to build a sustainable competitive advantage are closely linked to its intellectual capital, respectively its ability to use knowledge sources (Subramaniam, 2005). Intellectual capital and innovations are two different views, each from a different perspective, on the same core subject. Innovations are the output of the process of intellectual capital management in organizations, or in other words, organizations, which purposefully manage their intellectual capital, purposefully manage also their innovation activities.

Innovation development within economies of individual European countries is one of the seven basic initiatives currently valid in the European Union's strategy for growth (Europe 2020). Building of knowledge society, human capital and innovation activities is an essential driving force of economic development, evolving opportunities for future competitiveness in the form of new knowledge, increasing the efficiency of the economy and its ability to act, especially through small and medium-sized enterprises. Today it is more than ever necessary that the modern economy was based on knowledge and "innovative open" society.

Based on the above, it is therefore clear that companies in order to provide their sustainability in today’s economic conditions must focus on intellectual capital and its management.

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