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INTELLECTUAL CAPITAL INVESTMENTS AS THE DRIVER OF FUTURE COMPANY PERFORMANCE

Abstract

Considering the twentieth century as a century of ideas, knowledge, innovations, information and changes, intellectual capital has been an interesting topic during the past few decades. Namely, intellectual capital is one of the most important company's strategic resource, which enables creating and sustaining competitive advantage. As yet, there is no unique approach in defining intellectual capital investments. The definition of intellectual capital investments depends on the main aim of study or practical implementation. Thus, the purpose of this paper is to analyse the different concepts of the intellectual capital investments in order to clarify the understanding of these investments either as company's additional expenditures or as investments that will generate future economic benefits. The analysis will enable drawing a conclusion whether intellectual capital investments are appreciated in the company's accounts as expenses or investments.

Key words: *Investments, Intellectual Capital, Value*

JEL classification: *L25, M41, O34*

ИНВЕСТИЦИЈЕ У ИНТЕЛЕКТУАЛНИ КАПИТАЛ КАО ПОКРЕТАЧ БУДУЋИХ ПЕРФОРМАНСИ ПРЕДУЗЕЋА

Апстракт

Посматрајући двадесети век, као век идеја, знања, иновација, информација и промена, интелектуални капитал је био и остао интересантна тема у последњих неколико деценија. Наиме, интелектуални капитал је један од најважнијих стратешких ресурса предузећа који омогућава стварање и одржавање конкурентске предности. За сада не постоји јединствен приступ у дефинисању инвестиција у интелектуални капитал. Дефиниција инвестиција у интелектуални капитал зависи од главног циља истраживања или практичне имплементације. Отуда је сврха овог рада анализирање различи-

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тих концепата инвестиција у интелектуални капитал како би се разјаснило разумевање ових инвестиција било као додатни трошак за предузеће или као инвестиција које ће генерисати будуће економске користи. Анализа ће омогућити да се дође до закључка да ли се инвестиције у интелектуални капитал сагледавају као трошкови или инвестиције у пословним књигама компаније.

Кључне речи: *инвестиције, интелектуални капитал, вредност*

Introduction

A unique definition of intellectual capital investments has not been found yet, because it mainly depends on the purpose of a study. On one side, investments are seen as expenditures for intellectual capital components (human capital, relational capital and structural capital). On the other side, some researchers see investments in intellectual capital as intangible investments, knowledge based investments, intangible activities, etc. (Lentjushenkova and Lapina, 2014). Many researchers observe intellectual capital investments as the key-drivers of company's financial performance. The definition of "investments" is not only focused on financial performance, but also on non-financial performance such as productivity, quality and improvement (Lentjushenkova and Lapina, 2014). Corrado et al. (2006) define investments as any use of resources that are not used for the current consumption, but that are used to increase and create long-term benefits. Most of the researchers link intellectual capital investments to R&D expenses (Bandeira and Afonso, 2010; Coombs and Bierly, 2006; Liebowitz and Suen, 2000). Based on the literature, intellectual capital investments are linked to value factors (Dumay, 2012).

The investment has its main ability to make contributions to more than one production cycle. The investment process leads to the accumulation in the form of an asset. Investments in intangibles include current and capital expenses for tangible and intangible resources that will remain in use for more than one year (OECD, 1998). In practice, expenses related to intangible products are recorded in company's accounts within non-capital part or operating part (OECD, 1998).

The goal of the paper is to analyse different definitions from various authors of investments in intellectual capital in order to clarify whether investments in intellectual capital and its components are seen as expense or investments for a company.

Conceptualization of Intellectual Capital Investments

In the knowledge-based economy, successful innovations require various kinds of investments in intangibles that will further produce intellectual capital. Further, intellectual capital is seen as future earning potential that will be obtained from investments in different components of intellectual capital and tangible assets at the same time (RICARDIS project, 2006). The OECD member countries have been rising awareness about the importance of their investments in the business sector, which are mainly concentrated on "investment products", such as R&D, software, training, marketing, etc. The availability of the financial information still remains scarce and limited

(Kaplan, 1987). By the study published by OECD (1998), investments in intellectual capital produce long-lasting rights or assets with or without physical substance that will generate future economic benefits for a company.

Investing in intellectual capital is highly important for companies that want to operationalize their strategies and perform better (Riahi-Belkaoui, 2003). Radjenovic and Krstic (2017) state that the company's strategy needs to develop internally the best competencies and capabilities, such as: databases, skills, organizational and technical competencies in which a company already has a considerable expertise, as well as to focus externally on the suppliers' networks which perform activities that must be bought in the market. The market-driven companies demand investments in both tangible and intangible assets at the same time (Day, 1994; Vorhies et al. 1999). The positive results will appear in the form of increased customer satisfaction, improved internal processes and enhanced final company's performance. What remains hidden are values of human resources, information systems, customer relationships, R&D, creativity and competence basis (Chen, 2002).

Rodriguez-Castellanos et al. (2011) prove that companies that invest in intellectual capital have a better economic result than those that do not. For Malone (2000), the biggest challenge for a company is how to convert intangible assets into market value. Edvinsson (2002) thinks that in the knowledge economy, the present value can change and be different from the value of yesterday or tomorrow. For example, French companies very often disclose financial information about "innovation revenues". Those are the revenues that come from the newly introduced and developed products. Such revenues are the proof that French companies have abilities to innovate and very quickly launch products or services on the market.

Measurement of Intellectual Capital Investments

Sichel (2008) offered three approaches for the measurement of intellectual capital investments – financial market valuation, other performance measures and direct expenditure data.

The first approach was explored in depth by Brynjolfsson & Yang, (1999), Brynjolfsson et al. (2000) and Brynjolfsson (2002), who identified a link between intangible investments and investments in computers in the US. Each dollar of investments in computers in a company is linked with between five and ten dollars of market value. This is explained as a huge interrelation between computer investments and existing intangibles in a company. Webster (2000) stated that every missing explanation about the market value of a company not explained by the existing balance sheet of tangible assets, must be explained by intangible assets.

The second approach uses other performance measurements for measuring intellectual capital investments, such as: productivity or earnings (Barnes & McClure, 2009). By using the proportion of labour force in jobs that produce intellectual capital Webster (2000) found that the growth of intangible investments is 2.8% per year for the last 25 years in Australia. Cummins (2005) insisted that the first two approaches can face problems and errors in measurement.

The third approach tries to link expenses directly to intangible capital (Barnes & McClure, 2009). This approach can also face measurement errors and data limitations, like

the previous two approaches (Barnes & McClure, 2009). Nakamura (1999, 2001) measured investments in intellectual capital by collecting all expenses in R&D, software, advertising and marketing, wages and salaries of employees. His results showed that trillions of dollars were invested in the US, with intellectual capital investments in the amount of 5 trillion dollars. Corrado et al. (2006) expanded Nakamura's works (1999, 2001) and gave measurement indicators for the previous study by Corrado et al. (2004, p. 183):

- *Computerized information*: Investments in computer software and computer databases available in national accounts;
- *Innovative property***:** Scientific R&D and Social sciences R&D are expenditures on R&D; Mineral exploration is the investment in mineral exploration available in national accounts; Copyright and license costs are investments available in national accounts; New product development in financial industry and new architectural and engineering designs are organized in 20% and 50% respectively regarding all the purchases by finance industry and sales of architectural and consulting engineering services;
- *Economic competencies***:** Advertising is advertising expenditure; Market research is available from sales of market research services; Human capital represents all direct costs and wage costs of employees in training; Organizational capital is 80% and 20% respectively regarding sales of management consulting services and salaries of managers and administrators.

Regarding measurement, it is doubtful whether measurement should be expenditure-based or value-based (Lev, 2001; Bosworth & Webster, 2006; Hunter et al., 2005). Barnes and McClure (2009, p. 37) emphasized four main measurement steps and challenges involved in investments in intangibles:

1. Collect relevant financial data for expenditures on each intangible asset;
2. Apply time series of nominal expenses;
3. Determine the percentage of expenditure share that will be seen and treated as an investment;
4. Choose appropriate deflator to calculate the value.

The Potential Effects of Intellectual Capital Investments on Company Performance

Investments in intellectual capital very often do not generate immediate results and returns. Some period is necessary to produce effects on company performance. The results today must come from the investments made in previous periods (García-Zambrano et al., 2018). Results from investments in intellectual capital components vary from each other. For instance, studies by Awano et al. (2010) and Whittard et al., (2009) proved that investments in intellectual capital produce results after 3-5 years regarding training, reputation and branding, and 4-7 years regarding R&D and software. Previous research proved that a period of two (Hirschey and Weygandt, 1985) to seven years (Ballester et al., 2003; Sougiannis, 1994) is necessary for investments in R&D to be capitalized.

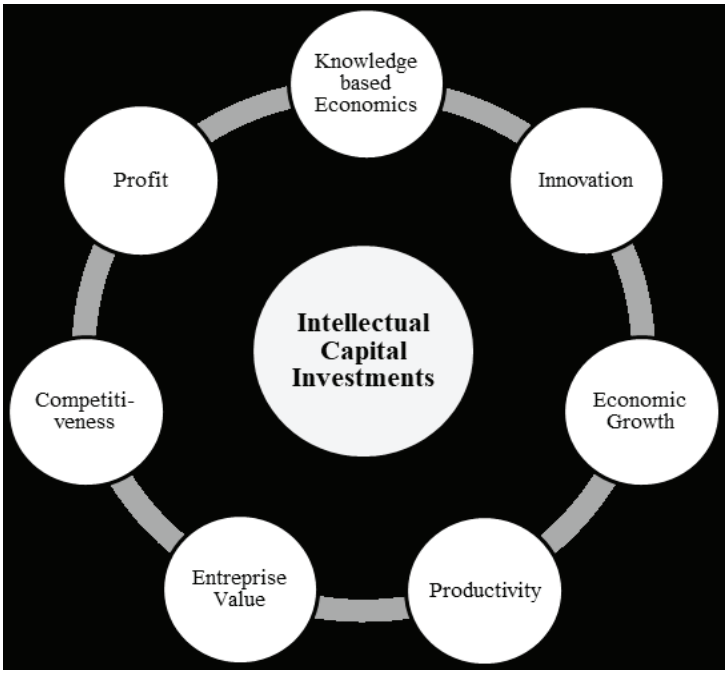

Figure 1: Concepts related to the intellectual capital investments potential outputs (Lentjushenkova and Lapina, 2014, p. 5)

There are seven main potential outputs that can come from intellectual capital investments (Figure 1), and those are: knowledge-based economics, profit, innovation, competitiveness, economic growth, enterprise value and productivity (Lentjushenkova and Lapina, 2014).

Analysis of the Existing Definitions of Intellectual Capital Investments

The Table 1 gives the overview of the definitions of intellectual capital investments from the literature that will be examined in the further steps.

Based on the existing literature, 24 definitions of investments in intellectual capital were analysed. From the 24 definitions, 16 definitions see the investments in intellectual capital as the investment that will bring future economic benefits to a company. This information proves that the managers are more motivated to make a decision to capitalize the long-term investments and create future value than to expense them in company's accounts. On the other side, the other 8 definitions see investments in intellectual capital as expenses. At the same time, this proves that investments in intellectual capital are more often seen as capital expenses, than operational expenses. Damodaran (2009) explores this issue in his study, where he emphasizes importance of capital costs, compared to operational costs. Capital expenses are expenses that will last for a longer period, bringing and generating benefits over multiple periods, compared to the operational expenses that are observed in just one business year without benefit expectations.

Table 1: Definitions of intellectual capital investments

Authors	Definitions of intellectual capital investments	Expenditures/ Investment
1. Hall et al. (1986)	Strategic expenditures must be seen as investments in strategic assets.	Investment
2. OECD (1998)	Investments in intangibles include current and capital expenses for tangible and intangible products that will remain in use for more than one year.	Investment
3. Deeds & Decarolis (1999)	R&D expenditures enhance a firm's knowledge that is coming through newly created and developed scientific achievements.	Expenditures
4. Canibano et al. (2000)	Investments in intellectual capital are seen as intangible activities. They are simply allocation of resources focused on: 1) Acquiring new or developing internally intangible resources; 2) Increasing the value; 3) Monitoring and evaluating the results of the previous two steps.	Investment
5. Klock & Megna (2000)	Advertising expenditures are used as a key measurement for the intellectual capital investments. These expenses have the positive impact on a company's Tobin Q ratio and market value.	Investment
6. Roos et al. (2001)	Investments in intellectual capital are company's expenditures for intellectual capital components that will result in a company's growth in the future.	Expenditures
7. Bontis and Fitz-enz (2002)	Expenditures in training and development are seen as investments in human capital.	Investment
8. Ballester et al. (2003)	Labour costs are seen as investments in intellectual capital, precisely in human capital.	Investment
9. Abernethy et al. (2003)	Investment in intellectual capital creates twice as much benefits to a company than the same investment in physical asset.	Investment
10. Youndt et al. (2004)	Authors examined investments in intellectual capital components and how those components coexist. To be more precise, the investments were made in Human resource management (HRM), Information technology (IT) and research and development (R&D). The results of this study were that HRM and IT investments tended to be more important than R&D investments across intellectual capital components	Investment
11. Huang and Liu (2005)	Investment in intellectual capital, precisely in innovation capital and IT capital have a non-linear relationship with company performance that implies that investment is not always better.	Expenditures

12. Andriessen & Stam (2005)	Values of intellectual capital are used as the intellectual capital future perspectives that will give insight into the future power of a company.	Investment
13. Corrado et al. (2006)	Expenditures related to economic competencies, innovative property and software are all used as intellectual capital investments.	Investment
14. Coombs & Bierly (2006)	R&D expenditures have a systematic influence on company's market value.	Investment
15. RICARDIS project (2006)	Investments in intellectual capital or innovative expenditures consist of internal and external R&D expenditures, acquisition of machinery, training and license.	Expenditures
16. Gaponenko and Orlova (2008)	Investments in intellectual capital are focused on the intellectual capital creation. The process is orientated on future benefit creation for achieving company's goals.	Investment
17. Awano et al. (2010)	Investments in intellectual capital are defined as expenditures for software, training, reputations, R&D, design and brand, and business process improvement.	Expenditures
18. Bandeira & Afonso (2010)	R&D expenditures are used as synonyms for intangible capital investments.	Expenditures
19. Piekkola (2011)	Intellectual capital investments are company's capital formation expenditures.	Expenditures
20. Boujelben & Fedhila (2011)	Investments in R&D, quality and advertising can affect cash flow operations.	Investment
21. Zéghal & Maaloul (2011)	The main value creators are intangible investments.	Investment
22. Corrado et al. (2012)	Intellectual capital investments are defined as intangible activities for a strategic goal in a company.	Investment
23. Molodchik 24. et al. (2012)	Intellectual capital investments are the intellectual capital part focused on improving a company's competitive advantage and performance that will cause the increase in company's value.	Investment
25. Lentjushenkova & Lapina (2014)	The intellectual capital investments are expenditures in different intangible assets and human resources of company.	Expenditures

Conclusion

The clarified definitions by various authors combine different concepts of intellectual capital investments, whether they are expenditures or investments, operational costs or capital costs. The paper analysed different definitions of intellectual capital investments from the existing literature review, and concluded that in the 24 observed definitions authors mostly saw them as investments. This approach improves understanding of investments in intellectual capital and its components, and their role in company's management. With this study, deficiencies in the understanding of current value creation and obstacles in collecting financial information that are related to the

investments in intellectual capital can be overcome. This is due to the fact that managers and decision-makers can be more stimulated to invest in company's intellectual capital and expect benefits on a longer time span.

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