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MANAGERIAL DECISIONS AND THE NECESSITY OF MEASURING INTELLECTUAL CAPITAL IN ORDER TO STRENGTHEN THE COMPETITIVENESS

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***Abstract:** The role of knowledge and intellectual abilities is crucial in the creation of tangible and intangible values. Knowledge management has the aim to use the individual knowledge in order to create the value and transform it into a collective knowledge. In fiercely competitive match on the extremely variable global market, the intangible resources, such as corporate reputation, brand, image, business networks etc., become superior factors in creating competitive advantages. Achieving of long-term success assumes the constant encouraging the innovation and creation, sharing and developing the new knowledge. Effective management of intellectual capital means adequate treatment of all its constituent parts, as well as establishing a measurement and reporting system. There is no universal form of intellectual capital management. There are generally accepted guidelines and models that are applied depending on the individual characteristics of each company, starting from their own strategies, organizational cultures, human resources, technological development, reputation, market opportunities, and more. A particular challenge for managers is to identify measure and evaluate the intangible asset of the company and show it in the financial reports. In that way it could be effectively managed, and relevant stakeholders should get precise information about the value of intangible assets, as the most important resource in modern companies.*

***Keywords:** intellectual capital, intangible assets, management, goodwill, market value.*

1. Introduction

In the beginning of the XXI century, rapid technological development and expansion of knowledge caused a dramatic change with the increase in competition and a

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relatively different way of companies' functioning. Intellectual resources are becoming increasingly important in the total resources of modern companies. In modern era of economy value of the company is largely determined by the value of its intangible. Analyses show that the share of intangible assets reaches up to 80% of the total assets. Therefore, in modern economic practices there is a significant departure between market and book value. This phenomenon requires the necessity of measuring and disclosing the intellectual capital that an organization has, for the internal needs of managers, as well as for stakeholders, and mainly, future investors.

A highlight is the weakness of the traditional financial reporting system, especially when it comes to "new" resources, such as relations with stakeholders, internally generated assets and knowledge in the broadest sense of the word (Krstic, 2004, 17-26). Measuring of intellectual capital has another very important dimension: it allows better management of the business only if we know what the core values of companies consist. In such conditions companies will know how to manage them in a way that maximizes the growth of these values, bearing in mind that most of businesses values do not must always be visible in the accounting statements (Dmitrovic-Saponja, Sijan, 2003, 129-139).

In industries such as manufacturing software, microprocessors, the pharmaceutical industry and others, the value of intellectual capital highly exceeds value of the tangible assets, which implied the necessity of developing methods and techniques of its identification, measurement of its use efficiency and real value-based expression. That shows a realistic picture of the market value of the company, which provides precise information about the source of the difference between market and book values.

The value of intellectual capital can be calculated using the Tobin's coefficient, which represents the relation between the market price of the company and its price of real assets (buildings, equipment, supplies, etc.). Size of Tobin's coefficient significantly depends on the level of intellectual capital (which determines the competitiveness of companies) and on the level of use of modern methods of management, technology, knowledge and application of information and communication technology (Draskovic, 2010, 88).

Strategic business decisions, important for the further growth and development are often made on the basis of the measurement and disclosure of intellectual capital. To come into possession of lacking intellectual capital, the company entered into various alliances and come up with the resources that are required for market expansion. It refers, primarily, to the decisions about making the joint ventures, associations, mergers and acquisitions (usually, it is a purchase of smaller company with innovative, distinctive and promising business). Data of intellectual capital are also important for investors, because they reflect the market power of companies, so they are the basis for investors' decision-making whether to invest in company, or not.

2. Current Measurement Techniques for Intellectual Capital

Most reliable methods for measuring and calculating the value of intellectual capital today:

- 1) *Balances Scorecard;*
- 2) *The Intangible Asset Monitor, and*
- 3) *Navigator.*

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In the next section all of them will be explained:

- 1) **Balanced Scorecard** (Kaplan, Norton, 1996, 21-28) – It serves not only to measure intellectual capital, but also to measure the performance of all organizations, enabling access to company's efficiency indicators. A Scorecard follows four related and mutually conditioned processes: the development process, the internal process, marketing process and financial process. Each process has a single focus in the strategic objectives whose performance is measured and thus provides insight into productivity and growth. Each one has its own strategic objectives for measuring performance goals:
 - **Development process:** motivated and skilled workforce;
 - **Internal process:** innovation processes, quality management, promotion of orders, the percentage of sales of new products;
 - **Marketing process:** customer satisfaction and loyalty, retention of old and attract new ones, increase of market share;
 - **Financial process:** return on equity - ROE (increase in percentage), profitability, percentage of cash reduction, percentage of annual growth and more.
- 2) **The Intangible Asset Monitor** (Sveiby) – The author of this method for the measurement of intellectual capital is *Karl Erik Sveiby*, who singled out a set of three standard measures of intellectual capital, such as:
 - **Growth standard;**
 - **Stability/Risk standard;**
 - **Efficiency standard.**

Sveiby includes all three standards in the structure of intellectual capital, i.e. in its three segments (which are, according to him, the internal and external structure and competences), separating them to scale, as follows:

I) Measurements of Growth standard are:

- **External structure:** volume growth, market share growth, satisfied customers, quality index;
- **Internal structure:** investments in IT, time devoted to D&R, indicator of employees' attitudes towards managers, culture, consumers;
- **Competitiveness:** growth of average professional experience, competence portability, share sales among consumers that enhance competence.

II) Measurements of Stability/Risk are:

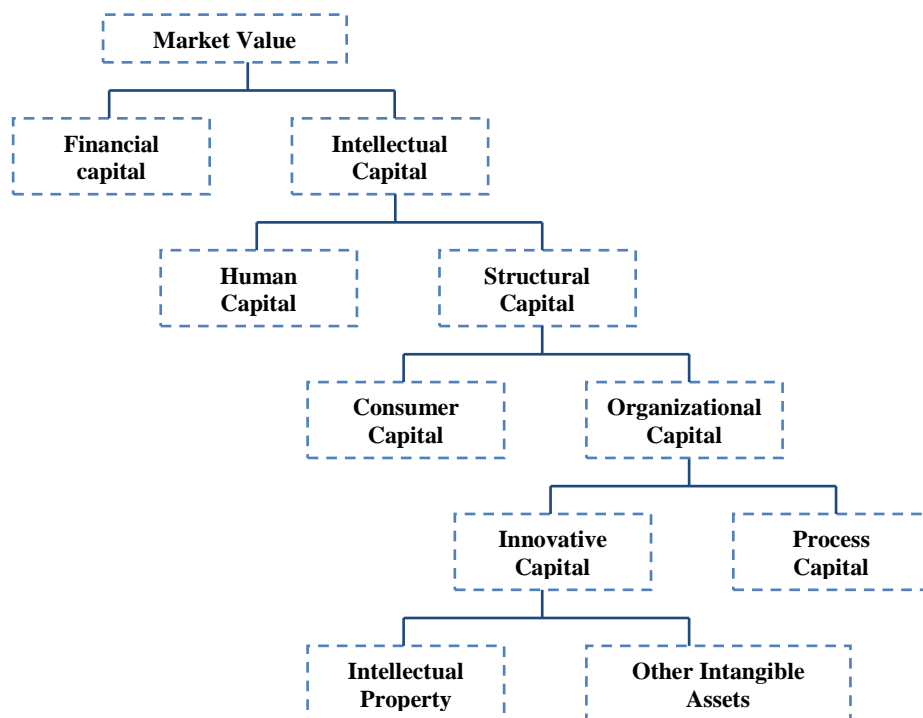
- **External structure:** index of consumer satisfaction, frequency of orders, the relations with big business customers;
- **Internal structure:** pleasant workplace, culture of organization, the age of the organization, the percentage of new workers from the total;
- **Competitiveness:** average age, duration of employment in the company, the ratio of salaries to those of other organizations in the same industry.

III) Measurements of Efficiency standard are:

- **External structure:** profitability, sales in relation to the consumers;

- **Internal structure:** ratio of support staff to the number of employees;
 - **Competitiveness:** number of professional staff in relation to the total number of employees, value added per professional employee.
- 3) *Navigator* – It is believed that the study of the role of intellectual capital has gone furthest in the Swedish insurance company named Skandia, where, under the leadership of Leif Edvinsson, they developed a model of the intellectual capital monitoring called *Skandia Navigator*. Based on the scheme of Skandia’s market value, which is shown in Figure 1, it is possible to analyze the role of each element of intellectual capital (Kolakovic, 2010, 925-924).

Figure 1. Model of intellectual capital of insurance company Skandia



Source: Edvinsson, Malone, M. (1997) *Intellectual Capital: Realizing Your Company’s True Value by Finding its Hidden Brainpower*, Harper business, New York, pp.14

The presented model of measuring intellectual capital consists of five factors - focus: focus on customers, focus on people, focus on processes, financial focus and focus on research and development. Each has its own focus of benchmarks that provide insight into the performance of growth and development of the company, which is penetrated by the following table.

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Table 1. Navigator – model for measuring intellectual capital

FOCUS	MEASUREMENT
Consumer focus	* Time spent for visiting customers; * Ratio of contacts and sales; * Ratio of obtained and realized sales.
Human focus	* Managers with high education; * Annual turnover of employees.
Development focus	* Consumer satisfaction index; * Training costs / Administrative costs; * The average age of patents.
Financial focus	* Revenue per employee; * Revenue of new customers / sales; * Revenue of new business activities.
Process focus	* Number of computers per employee; * Time of processing.

Source: Bontis, N. (2001), Assessing Knowledge Assets: A Review of the Models Used to Measure Intellectual Capital, International Journal of Management Review, pp. 6

This model does not imply a strict adherence to the given indicators, but it is only a framework and guidelines for companies, so they need to assess which measures are critical to their business and what will be their priorities in measurement.

It is important to note the coefficient VAIC (Value-Added Intellectual Coefficient). This coefficient measures and reports the contribution of intangible assets to efficient business operations. Coefficient VAIC contributed to the development of measurement systems knowledge economy (Andriessen).

3. Methods of Valuation of Intellectual Capital Assets

Despite the many registered and used methods and concepts for measuring intellectual capital and efficiency of its use, it can be said that there is still no universal, general methods, which is understandable given the nature of knowledge that is essentially intangible and difficult to financially evaluate. Measurement methods are mainly based on non-monetary criteria as a percentage of employee turnover or percentage of customer satisfaction, the age of the organization, the number of new customers, the percentage of repeat orders. They are of course very important and they give managers insight into the intangible resources owned by the company. However, the problem of their overall applicability is incomparable. Therefore, it is necessary to add the valuation methods which express the value of intangible assets in a financial way.

The value contained in the intellectual resources and its categories are often not given by measurement, but using market estimates which are based on observed data and qualitative impressions of investors and financial analysts, or with management projections.

When it comes to screening values for some segments of the intellectual capital it finds useful the application of the income, cost and market principles (Krstic, 2009, 59-72).

In practice, investments in the development of intangible assets are treated differently. Its treatment as a cost (cost approach to the writing off) led to the situation that managers are more reluctant to invest, in order to reduce costs, so they can show higher profits on short-term basis in their balance sheets. On the other hand, by treating these investments as assets on the balance sheet, costs for intangible assets development are capitalized. Also, the treatment of intangible assets is different depending on their useful periods and assets with indefinite duration are treated as income, while the rest of them are objects to depreciable cost approach that is based on an assessment of the costs of replacing assets.

3.1. Method of Net Assets

This method is used to estimate intangible assets in accordance with the following criteria:

- If intangible assets increase the value of tangible assets,
- Intangible assets are existing if there is an increased return on employed assets,
- If they are separable from tangible assets,
- If there is substantive evidence that they exist,
- If it is possible to carry identification (contracts, trademarks, computer software franchise in publishing rights, patents, licenses, trained personnel, etc.).

3.2. Goodwill

Goodwill arises when the value of the "business" exceeds the value of net assets, so it is the difference between, usually higher value market and smaller book value of the company. Goodwill relates only to the company as a whole, not to individual parts of the assets of the company. Goodwill represents an intangible asset in balance sheet. It makes the difference between the book value and the purchase price (the paid price). If the paid value is higher than the book value, the difference is positive goodwill (PRF Magazine, 2011, 14). Otherwise, if the book value is greater than its paid value it is a negative goodwill.

Due to its specificity, two very important issues concerning goodwill are as follows:

- 1) How much cost goodwill?
- 2) When we should record goodwill in the financial statements?

The value of goodwill is performed as a free estimating ability of investors to perceive the earning ability of the company in the future, and therefore goodwill will be recorded in the accounting only when the entire company is bought at a price that is greater than the fair market value. In other situations, it is very difficult to estimate the internally acquired goodwill, which is caused by the influence of many factors, such as business reputation, brand, expected profitability and so on. Goodwill acquired in a business combination represents a payment made by the acquirer, who anticipates future economic benefits from assets that are not individually identified and separately recognized. There can be different reasons that acquirer is paying a higher price than the fair value of the net assets is. This may be a synergistic effect that is expected to result from the combination of two or more companies (Rankovic, 1998, 301).

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3.3. Property Value Brand

Internationally known and recognized brand is reflected in a large number of loyal customers who represent a barrier to competition. It has the earning ability of an intangible nature. Property value brand is a concept that involves a long-term marketing investment in the construction of stable, high-quality relationships between consumers and companies. It reflects the difference between market and book value of products, services and companies. Positive consumer experience results by long-term trust, and that is extremely important intangible value of the company.

The definition of property value brand (brand equity) that is commonly cited in the literature is the one that gave Aaker (1996), and it reads: "Property value is a set of brand attributes in the form of assets and liabilities linked to a brand, its name and logo, which provide added value to the company and / or its customers." In fact, this is a differential effect between the two potential market scenarios: one in which the product or service will not identify the elements of the market are mentioned as generic products, and others, in which there are components of the identity of those products or services that act as a driver of consumer behavior. (Rakita, Mitrovic, 2007, 23).

4. Reporting on Intellectual Capital of the Organization

In the new economy, traditional financial reporting does not provide all the necessary data and information on the intellectual capital of the organization. Using only traditional financial statements managers and investors would be deprived of the knowledge of what is the role and contribution of certain forms of intellectual capital in the total value of the organization and its competitive position. Also, the traditional financial statements are treating past period, so they are focused on the past, while in today's highly changing business and social environment, this can be very risky, especially for future investors who, based on those statements, do not have a realistic picture of the potential and capabilities of the organization and earning ability in the future.

The introduction of the intellectual capital reports internally gets very important tool for management. Information about the intellectual capital growth, stagnation or decline is in a function for managing intellectual capital, and also it is externally important for the proper use and improvement of the critical elements, in order to maximize the total value of the company. Great importance is to communicate with external stakeholders, especially investors. Effective management and development of intellectual resources is of the utmost importance to the prosperity of modern global enterprise.

Disclosure of information about these resources is likely to contribute to lowering the cost of equity capital, because it reduces uncertainty about the future prospects of enterprises' development. This facilitates the evaluation (assessment) of capital or companies' resources. On the other hand, this will increase the demand for companies' securities (Mouritsen, Bukh, Marr, 2004, 46-54).

Economic phenomenon of growing the market deviation from the book value of the company has produced natural need of serious and comprehensive study and explanation of this phenomenon. In that context, intellectual capital reporting is intended to coverage of intellectual resources, whether they are obtained externally, i.e. purchased from others, whether they are internally generated.

4.1. Indicators of Business Success

Traditional indicators of business performance, such as the increase in total revenue, growth in investment, increase market share and so on, are not sufficient to provide information to stakeholders on the company's capability to create value over the long term. The emphasis is on creating value measurement systems as new criteria of business success.

Value creation efficiency for intangible indicators is achieved by mobilizing all available intellectual capital of the company in order to create maximum value. A modern value creation emphasis intangible value creation generated by the complex relations between labor supply and demand, where supply exceeds demand. Mental work does not produce things but the values (ads value by their activities). Intellectual capital is a key factor in value creation.

Table 2. Quantitative and qualitative benefits of intellectual capital management

Quantitative	Qualitative
Cost reduction	Better ideas' management
Sales growth	Decrease of employees out
Increase of margins	Greater customer loyalty
Increase of company's value	Greater cooperation with customers
Improvement of loyal customer's behavior	Increase of customers' satisfaction
Increase of repeated purchases	Improvement of innovation
Increase of market share	Improvement of trained employees
Increase of retained customers	Increase of productivity
Increase of share price	Increase of employees' satisfaction
Reduction of sales' costs	Strengthening the market leadership
	Improvement of organization stability
	Improvement of stakeholders' satisfaction
	Better understanding of customers' needs
	Positive cultural change

Source: Bergeron B. (2003) Essentials of Knowledge Management, John Wiley and Sons. New Jersey, 2003, pp. 55

Intellectual capital is a key creator of value and includes the company's ability to be flexible, i.e. to change the way of doing processes and procedures if they are no longer supporting process of value creation, as well as to create an innovative range of new products and services, relations with customers by setting a higher level.

4.2. International Accounting Practice of Intellectual Capital Reporting

The issue of intellectual capital and its coverage and presentation of the report deals with the U.S. Financial Accounting Standards (FAS 141 and FAS 142) and the International Accounting Standard IAS 38. Solutions offered by accounting professionals and organizations are in area that is promoting, enhancing and further developing. In any case, the current

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regulation requires a modern organization that in addition to regular financial and accounting reports are compiled, disclose and present a report on intellectual capital.

American financial standards 141 and 142 differ externally acquired intangible assets with the one created internally. Furthermore, standards emphasis different part of the intangible assets which can be identified, such as patents, contracts, etc., and intangible piece of property that cannot be identified as goodwill that represents the revenue in the future. Standards also treat the assets with limited and unlimited duration, so limited assets are amortized over the duration of their life and ultimately its value is zero.

By these standards investments in research and development are treated as costs of current period, because of uncertainty of their capitalization. There are exceptions when it comes to software program, so the capitalization of invested costs is required during its' use. They are written off over time, depending on the volume of products that are produced.

4.3. International Accounting Standards 38 (IAS 38) – Intangible Assets

According IAS 38 each intangible asset, whether purchased or internally generated, are recognized only if it can be identified, controlled and measured by the criteria of the purchase price. Otherwise, according this standard, the use of the intangible asset will be shown as a cost, i.e. as an expense during the period. Thus, investment in staff training, internally-generated goodwill and advertising costs are treated as expenses in the period, and therefore, they are not capitalized.

The following is a brief explanation of each of the three criteria for recognition of intangible assets, according IAS 38:

Identification criteria - An intangible asset is identifiable if it is distinguished from goodwill. The goodwill created in the merger transaction, represents a payment made by the party who purchased asset (property) and expected future economic benefits. That benefit may be synergistic or individual. Additionally, the intangible asset can be clearly distinguished from goodwill if it can be leased, sold, exchanged, or if as long as possible it distributes future economic benefits attributable to the asset (Krstic, 2004, 21).

Control criteria - Very important but not exclusive control criteria is legally protected property, such as copyrights, where quite easier control of future benefits is. In the case of intangible assets that are not subject to legal protection, the control criteria are difficult, but not impossible to meet. However, it is anticipated that these assets must be balanced and based on the legal requirements in this area.

Purchase price criteria - The value of intangible assets and measurements of economic effects in future is presented by prices at the time of acquisition, i.e. the amount of money that the company paid for the asset. Asset could be acquired in other ways, through the transfer of rights to use, as gifts and so on. In this case the fair market value will be applied.

4.2.2. Report on Intellectual Capital as Part of the Financial Statements

The recent practice of financial reporting anticipated the obligations of preparation and presentation an intellectual capital report, as an additional part to financial statements. In this way, management and stakeholders are getting much-needed information about the

values of all segments of the company's assets, as well as about the origin of the differences between the book and market value of companies. Disclosure of the key success factors is important for the management, from the point of strategizing and managing intellectual capital. Report on intellectual capital is consisting from four parts, as follows:

- 1) Description of intellectual resources, i.e. description of all the knowledge in the organization;
- 2) Removal of the critical elements of the development and management of intellectual capital, as well as analyzing if the situation should improve, which resources should externally obtained, etc.;
- 3) Activities and strategies for the achievement of management objectives: application of new technologies, buying licenses, planning and implementation of various forms of training;
- 4) Indicators for the control of the implementation of the actions and the monitoring of problem solving.

The inclusion of all these elements in the report are recommendations, proposals and guidelines that companies report about their potential value creation and potentials for managing intellectual resources' strategy (knowledge, in the broadest sense) (Krstic, 2004, 21).

5. Conclusion

Knowledge and the related intellectual capital are today the main source of competitive advantage, and therefore effective management of intellectual capital is imperative to achieve long-term success. It is important to implement permanent training and development of employees, and fostering business philosophy that investing in employees is not an expense but an investment in the future.

Intellectual property is a very important part of the intellectual resources which creates value and impacts competitiveness by different competition's protection strategies or through commercialization which draws maximum profit.

Identifying all segments of intellectual capital is of great importance for the company, as well as its quantitative and qualitative measurement of the expression. Intangible assets are very difficult to measure and value, so the major challenge for economists and managers are to express the intangible into tangible assets, since it is known that only what we can measure, and thus we can effectively manage. Managers must necessarily be familiar with the methods, tools and techniques of measuring intellectual capital and they need to try to adapt the information system measurement methods.

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MENADŽERSKE ODLUKE I NEOPHODNOST MJERENJA INTELEKTUALNOG KAPITALA U FUNKCIJI JAČANJA KONKURENTNOSTI

Abstract: Uloga znanja i intelektualnih sposobnosti je danas ključna u stvaranju materijalnih i nematerijalnih vrijednosti. Upravljanje njime upravo ima za cilj da individualno znanje iskoristi u svrhu stvaranja vrijednosti i preobrazu ga u kolektivno znanje. U oštroj konkurentskoj utakmici, na izuzetno promjenljivom globalnom tržištu, nematerijalni resursi, poput korporativne reputacije, brenda, imidža, poslovnih mreža i sl. postaju superiorni faktori u stvaranju konkurentskih prednosti. stvarivanje dugoročne uspješnosti pretpostavlja neprestano podsticanje inovativnosti i stvaranja, razmjene i razvoja novih znanja. Efikasno upravljanje intelektualnim kapitalom podrazumijeva adekvatan tretman svih njegovih sastavnih djelova, kao i uspostavljanje sistema mjerenja i izvještavanja. Ne postoji univerzalan obrazac upravljanja intelektualnim kapitalom. Postoje opšteprihvaćeni modeli i smjernice koje se primjenjuju u zavisnosti od individualnih karakteristika svake kompanije, polazeći od njene strategije, organizacione kulture, ljudskog potencijala, tehničko-tehnološkog razvoja, reputacije, tržišnih prilika, i drugo. Poseban izazov za menadžere je identifikovati, izmjeriti i procijeniti nematerijalnu imovinu kompanije i prikazati je u finansijskim izvještajima. Na taj način bi se njome moglo efikasno upravljati, a relevantni stekholderi bi dobili precizne informacije o vrijednosti neopipljive imovine, kao najvažnijem resursu savremenih kompanija.

Keywords: intelektualni kapital, nematerijalna imovina, menadžment, gudvil, tržišna vrijednost.