The Evaluation of Company's Intangible Assets' influence for Business Value

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Abstract

Mismeasurement of intangible assets in a company may result in high costs and loss of it's competitiveness and position in the market. Conventional evaluation methods are not able to identify reliably intangible intensive business value because of such assets specificity. Therefore, the business assessment process adjustment, making it comprehensive and including the intangible asset valuation methods is a critical process that allows to evaluate companies better and increases business management efficiency and quality. The article states the importance of further scientific research in the areas of the intangible value resources, creation of business valuation, intangible assets valuation methods and models - the creation of intangible assets on the firm level and how they meet changing needs of the company's owners, capital markets investors, politicians and other interest-groups needs in the intangible intensive economy should be analysed as well as how economic systems based on intangible assets operates. Also special attention is be given to the strenghtening of the cooperation of scientific research and business. Its important to avoid a repeat of guidelines, methods, models and systems of intangible assets' measurement and business valuation methods and to eliminate it's disadvantages in order to create and establish universal system for effective intangible intensive business valuation.

Keywords: intangible assets, business measurement process, models

JEL Classification: D24, E22, G12

1. Introduction

It is very difficult to evaluate intangible assets as a whole. Although human capital, structural capital, and relational capital lead to superior firm operational and financial performance (Wang et al., 2014). Ross et al. (2005) provides the comprehensive classification of company's resources with the distinction of monetary, physical, relational, organizational and human resources to tangible and intangible assets as well as to traditional accounting assets and intellectual assets which illustrates the complexity of identification and understanding of intangible assets in business processes. Respectively, evaluation

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process is complicated mainly because of such assets nature, namely dependence from human factor (especially the intellectual capital). Moreover, it is not possible to evaluate some elements of intangible assets properly at all. Many scientists have analysed the intangible assets conception and offered models for its'evaluation, both financial and non-financial. Lev (2001), Hagg and Schentz (2006), Hall (1993), Villalonga (2003), Rodgers (2003), Palliam (2006), Worthington and West (2001), Daum (2001), etc. analysed the financial measurement tools and models of intangible assets while Roy (1999), Kannan, Aulbur (2004), Rodov, Leliaert (2002), Klaila, Hall, (2000), Sveiby (1997), Norton and Kaplan (1992), Letza (1996), Marr and Adams (2004), Martin (2004), etc. concentrated on non-financial measurement models creation, analysis and improvement. But there are only a few studies that compare research results on intangible assets measurement and there barely are research papers comparing financial and non-financial models which are mostly used for intangible assets' evaluation. In 2000 European Commision published a study on recognition and evaluation of intangible assets called 'The Intangible Economy'. The following findings were stated by the experts in the Study:

- There are too many different definitions and classifications for intangible assets at micro and macro level, which causes its' recognition and measurement difficulties;
- It is difficult to separate extraneous users of the intangible assets (the problem of public good arises), so company cannot adopt all benefits from investment in such assets;
- It is difficult to evaluate reliably imputs needed, future products, time, amount of the benefit for a company from these assets (the problem of uncertainty);
- The transfer or exchange of intangible assets is complicated on as it has no physical form (the problem of making agreements).

Mentioned conditions are the main causes of a misleading measurement of intangible assets. On the other hand, even if the measurement is difficult (sometimes even impossible), ignoring of intangible assets usually results in negative outcomes for a company. Outcomes can be divided into four levels:

Company level – risk of choosing a wrong strategy; *Industry level* – inadequate allocation of resources within an industry; *Capital market level* – underevaluation or overevaluation of companies, instability, inadequate allocation of capital resources; *Country (Europe) level* – inadequate choose of policy based on misleading ratios. It is obvious that mismeasurement (not measurement at all) of intangible assets is closely related within all levels – the mismeasurement of intangible assets in a separate company determines inaccuracy of measurement in the industry, which in turn causes misleading decisions in higher levels. It is very important because effective measurement of assets is crucial for company results as it directly affects decisions, choices, allows perception of real value of business and its disclosure inside (employees, internal processes and environment) and outside (customers, community, investors) the company. So the problem of the research is what models are mostly used for intangible assets measurement. The aim of the research is

to analyse the mostly used intangible assets' measurement models, evaluate its' advantages and disadvantages and usage possibilities. The object of the research intangible assets' measurement. The main objectives of the research are:

- To explain the classification of intangible assets' measurement models;
- To analyse financial and non-financial intangible assets' measurement models;
- To compare advantages and disadvantages of intangible assets'measurement models.
- To provide further guidlines for intangible assets'measurement and definition of business value.

Methods of the research: comparative analysis of scientific literature and statistical data, sace study.

2. The classification of intangible asstes' measurement models

Although intangible assets are difficult to measure, its importance in economy is growing. Therefore various systems and methods are made and analysed. Since 1950 researchers presented 34 models for intangible assets valuation (European Commission, 2003). All models can be grouped in four categories: *financial, non-financial*, *holistic* and *detailed*. Depending on the measurement methods used models are classified into four groups (Rumizen, 2002):

1) *Direct Intellectual Capital methods (DIC)* – these models are able to capture the financial value of intangible assets by identifying various its components. When such components are stated, they are measured directly, individually or as cumulative ratios.
2) *Market Capitalization Methods (MCM)* – the difference between company's market capitalisation and it's share holders equity are measured. It is considered as the value of company's intangible capital.
3) *Return on Assets methods (ROA)* – material assets and financial growth ratios of a company are compared with the same ratios and values of a particular industry. Income which is above the average is used for companies' intangible assets measurement.
4) *Scorecard Methods (SC)* – various components of intangible assets or intellectual capital are indentified as ratios and indexes in the models and after they are shown in special scorecards and diagrams.

Hereinafter eight models of intangible assets' measurement are analysed. Four of them are financial and four are non-financial. Also this analysis covers both holistic and detailed models in order to reflect its' reliability, efectiveness, advantages and disadvantages fully which is crucial for the estimation of intangible assets measurement system potential.

3. Intangible assets measurement models

3.1 Financial models

Market – to – book value ratio is usually used as an intangible assets' measurement model for investment decisions. Using this ratio company's market capitalization and its book value is compared. Intangible assets can be both included and not included in to this ratio calculation, however if it is aimed to evaluate company's intangible assets effectively it has to be included into calculation. Since usually some intangibles are not registered in accountancy (e.g. intellectual capital or brand value), company's book value does not reflect the real value of it. So it is assumed that the market value, by contrast, reflects not only the material, but also its intangible value. Comparing the market and book value, it is possible to evaluate the intangible assets held by the company. It will include a market capitalization value which exceeds the book value of the company, recorded in the balance sheet.

Tobin's Q value is based on hypothesis that company's market value is close to it's replacement costs. 'Working capital' in this case is the capital company gets benefit from. Capital replacement costs are costs which appear for company's owner on purpose of buying a substitute of asstets company has (Hagg and Schentz, 2006). If Tobin's Q ratio is above 1, company's market value is higher that its book value, so market value reflects unvalued and unregistered company's assets – usually intangible assets, which are imput of knowledge, prestige, technologies etc., but not registered in the accountancy. According to Hall (1993) intangible assets are evaluated by the market, but it is not included in the evaluated company's capital. In order to maximize company's value it has to be invested considering its capital value changes in the market. Villalonga (2003) states that the real value of tangible assets is its replacement cost – price of assets with the equivalent productivity. Researcher notices that material assets is capitalised while intangible assets are written off with regular expenses. Intangible assests value can be estimated by the difference between company's market value and its replacement costs. That is why Tobin's Q ratio is extremely high in the research and development or intensive advertising areas operating companies.

Economic value added (EVA) is a measure of the business, which includes the calculation of capital costs and also is a management control system component in individual business units (Palliam, 2006). Capital cost here is Weighted Average Cost of Capital. EVA is calculated adjusting company's profit according its expenses for intangible assets. EVA changes allow identifying if intellectual capital is productive. In other words, EVA is profit of a company after capital financing cost is deducted. Bose (2004) highlights that EVA model is concentrated for maximizing the wealth of shareholders, but it is very effective for business planning and control of business processes too. However, for effective use of model company is required to make many adjustments (164 are counted). Their main objectives are (Worthington and West, 2001):

1. Get the value of the EVA, close to the cash flows, and therefore less exposed to the accounting distortions;
2. Aside the distinction between investments in tangible assets which are capitalized and in intangible assets, which are often written off as expenses when incurred;
3. Do not allow goodwill amortization and write-downs;
4. To correct deviations caused by mismeasurement in the accountancy.

Intangible assets are not automatically debited to the cost in EVA system. Since EVA is a tool to measure the business value added, it will increase if (The Antidote Issue 3, 1996):

1. The new capital is invested in the company and it earns more than it costs;
2. Capital is taken out of business if it does not cover its costs;
3. NOPAT or Net Operating Profit after Taxes increases, but there is no increase in capital employed.

EVA can be influenced by four groups of factors: innovations, customers, financial and inner factors. From the economic point of view, value is created when a company's income is in excess of the economic cost of such income. And this value is the value of intangible assets company has.

Knowledge capital value (KCV) is a model which evaluates intangible assets from macro perspective, i.e. in the beginning general company results (income) are evaluated and then it is identified which assets generate such income (Daum, 2001). Knowledge capital value ratio reflects not only historical data and results, but also a future perspective and potential of a company. In order to evaluate intangible assets comprehensively Daum (2001) in his study beyond knowledge capital value states other calculated ratios (change of knowlegde capital income, knowledge capital/book value, market value/book value etc.), which are given in a special table called konwledge capital card.

More details about financial intangible assets' measurement models are given in the Table 1.

3.2 Non – financial models

Skandia Navigator model uses 164 measuring and recording instruments in total – 91 for the intellectual capital and 73 traditional means of measuring and recording – in order to focus on five key spheres of company's activity: finance, human, customers, processes, renewal and development (Kannan, Aulbur, 2004). Financial focus includes the company's financial performance. Here long term goals are stated, namely level of profitability, growth rate, which are required by shareholders. The indicators in this area capture the company's performance in monetary terms. Customer focus allows identifying how well organization and services (or) products meet customer needs. It reflects the attitude of the company from outside to inside (key performance indicators: number of accounts, number

of lost customers, and number of agents). Processes focus is based on individual customer desired product and service development processes. Focus center here is associated with the internal business processes and a structural capital of the company plays an important role. Indicators in this field record company's infrastructure in terms of how effectively it carries out its activities (key performance indicators: number of accounts per employee, the administrative costs per employee). Renewal and development focus allows organizations to verify its long-term renewal and stability. Indicators in this field shows regenerative potential of a company, namely how it is able to respond to changes, future perspective and planned development (key performance indicators, employee satisfaction index, marketing cost per customer, number of hours of training). Human are organization centre and they are necessary for the organization that develops value. Knowledge creation process takes place particularly in this section. The importance of workers satisfaction with the work situation has to be stressed, as satisfied staff means satisfied customers, increasing enterprise sales, and improving its performance. The indicators in this area, which is the most dynamic, record the diversity and innovation of a company (key performance indicators: changes in staff, number of managers, number of women in management positions, training costs per employee).

Financial ratios are the information of the past performance of a company, customers, people and processes reflect the current situation of a company, and the renewal and development shows future perspectives (Bose, 2004). Although various intellectual capital measurement indicators can be excessive and duplicate each other, it is recommended to use no less than 112 measurement instruments in Skandia Navigator. Skandia Navigator does not set a cash value for intellectual capital (corporate intangible assets), but uses the instruments that can track changes in the value-added creation processes trends in an enterprise. However, it should be noted that ratios that are used in the model are highly subjective and can not be generalized or standardized (Kannan, Aulbur, 2004).

The Intangible Assets Monitor is intended for companies with high intangible assets - knowledge-based organizations. Klaila and Hall (2000) indicate that the intangible asset monitor is aimed at highlighting the results of intangible assets usage and it is a tool for long-term knowledge management strategies for enterprise development and monitoring. The model can be integrated into management information systems. Intangible assets are classified into three categories in the model: External structure; Internal structure and Competence. Patents, ideas, models, computer and management systems belong to the internal structure. These assets are created by employees, so it is under company's ownership. 'Culture' and 'spirit' of a company also belong to the internal structure. Relations with customers and suppliers, brands, reputation and image belong to external structure. In public organizations society may be external agent. The company's internal departments also have their internal customers, which may also form the external structure. Employees' ability to act in various situations belongs to competence category.

Table 1: Financial intangible assets' measurement models

Model	Market-to-book value ratio	Tobin's Q value	Economic value added (EVA)	Knowledge capital value
Definition	Measures the relative value of a company compared to its stock price or market value	Measures the relative value of a 'working capital' compared to replacement price of the capital	Economic profit or sum by which revenues exceed or fall below the minimum rate of return required by shareholders or creditors, which they could receive by investing in other securities with similar risk levels	General company results (income) are evaluated and then it is identified which assets generate such income.
Calculation	$\frac{\text{Market capitalization}}{\text{Book value}}$	$\frac{\text{Market value of installed capital}}{\text{Replacement cost of capital}}$	$EVA = (r - c)xK$	$\text{KCV} = \frac{\textit{Normalized income} - \textit{Income from tangible and financial assets}}{\textit{Rate of return of knowledge capital}}$
Meaning	Ratio above one suggests the company is undervalued, while a ratio over one suggests the company might be overvalued.	If the market value reflected solely the recorded assets of a company, Tobin's q would be 1. If Tobin's q is > 1.0, then the market value is greater than the value of the company's recorded assets. This suggests that the market value reflects some unmeasured or unrecorded assets of the company. If Tobin's q is < 1, the market value is less than the recorded value of the assets.	NOPAT - Net Operating Profit After Taxes; c - Weighted Average Cost of Capital; K - Capital employed. Shareholders will receive a positive value of the EVA, when return of capital employed in business operations is greater than the cost of such capital.	Normalized income – average of three-year historical average basic income and three-year „IBES International" analysts average income forecast; Rate of return of knowledge capital – 10, 5%.

Model	Market-to-book value ratio	Tobin's Q value	Economic value added (EVA)	Knowledge capital value
Advantages	- Most useful when valuing knowledge-intensive companies, where physical assets may not accurately or fully reflect the value of the business; - Simple and easy to use; - Can be quickly adapted by a company	- Simple and quickly adapted for usage; - Covers a whole value of intangibles and a value of its' separate parts; - Useful for investment decisions	- Model can be used for a whole company, separate department, production line etc.; - Intangible assets are not written-off to expenses, adjustments in accountancy for its evaluation are made; - Model includes capital costs, so it determines better investment decisions, identification of activity improvement, evaluation of top management decisions	- Measurement is future orientated, model has a prognistic abilities; - Adjusted to intangible assets particularities ratios are used in the calculations
Disadvantages	- Model covers a whole value of intangibles, but not of its' separate parts; - Sensitive for speculations in the market; - Risk of inaccurate company data (book value)	- Sensitive for speculations and the value changes in the market; - Not always can be used (e.g. during the periods of big inflation company's asstes book value is not able to reflect replacement cost of it	- Complexity of the model (164 adjustments needed); - Data from balance sheet is used which does not reflect the present value of assets; - It is ifficult to evaluate the amount of capital employed in the company; - Model is difficult to use for comparison of companies.	- Very subjective model, because normalized income are based on subjective forecasts; - Model covers a whole value of intangibles, but not of its' separate parts; - It is difficult to make comparisons within particular industry or economic sectors

Source: prepared by author.

People set up two types of intangible structures - internal and external. In the outer structure company is trying to show up as accurately as possible to its agents, i.e. customers, creditors, shareholders, when in an internal assessment the main aims is to gather more information in order to monitor performance and take appropriate actions. Analysis using this model is made through the 4 ways of creating value: Growth rate/volume, Renewal/ innovation, Effective usage and Risk minimization. It is important to construct indicators correlated with each way of creating value - real assets value growth, the renewal rate, how efficiently it is used and what is risk of its loss. These indicators usually are selected individually according to the company's strategy.

Balanced Scorecard model's basic idea is the critical success factors analysis on the basis of the four business perspectives. Each persspective is evaluated in accordance with the objectives formulated, the selected indicators, the challenges and initiatives. The main aim of Balanced Scorecard system is to move the company's mission to the concrete, perceived targets and indicators. This system retains traditional financial indicators, in retrospect reflecting events that have occurred, but it also adds to the mentioned indicators the outlook of the future perspective. The essence of financial perpective is the identification of shareholders needs.

According to the Balanced Scorecard Institute (2010), timely and accurate financial data always takes priority area in a company, but when the company's management concentrates measurement exclusively on this area, the imbalance in the assessment of other perspectives of company appears. Customer perspective objectives indicate how the company is focused on customers and what company has to do that customers would be satisfied with the firm's activities. These factors are key factors, because if customers are not satisfied with the activities of the company and its products, it is probable that they will find another supplier that will meet their needs. Operational inefficiency in this perspective is a factor leading to decline in the company in the future, even if the current financial results are favorable. Processes perspective aims specify what company should do to have effective business processes in order to meet customer and shareholder expectations. Perspective is focused on internal business processes. So continuous monitoring of processes quality and processes structural efficiency is impelemented. Process indicators enable managers to assess how effectively they operate their business and whether they offered products and services meet customer expectations (company's mission). Aims of the development and innovations persective specify what is needed to be done in order to have well prepared and motivated company's workforce, in which way the possibility for rapid change and improvement is ensured and what is the company's IT potential. The ability to maintain adequate staff qualification level and the proper handling of IT potential of the firm guarantees not only its survival, but also allows company remains competitive and develops its business. Training and innovation perspective includes both individual and corporate development. Employees are a key knowledge resource in a company, so in a constantly changing technological environment, it is necessary to create a continuous learning environment. In order that Balanced Scorecard would work effectively, it is necessary to formulate the company's strategy accurately and express it in specific strategic

objectives, identify the links between strategic objectives and their achievement indicators and give descriptive information to all the company's divisions. It is also important to continually plan, establish the goals and strategic initiatives and develop strategic feedback and awareness at corporate level.

Value Chain Scoreboard is a 3 × 3 sized matrix, structured according to three levels of the value chain model: 1) Discovering and learning; 2) Implementation; 3) Commercialization. At each level B. Lev identifies three dimensions in which each company should set appropriate targets for computation, which can provide information to both internal and external business stakeholders interested in efficiency of business. But companies should not be required to fill each cell arrays - it can be used creating also 10-12 set of indicators. Value Chain Scoreboard is an information system, which primarily emphasizes the economic value of the company created by the intangible assets. One of the main objectives of the model is to standardize information relating to intangible assets of the company. The model consists of nine blocks of indicators that provide information about the innovation life within a company. The first phase of discovery and learning, including investments in research and development, brand awareness building, information technology, is the one in which new products and services, or processes are developed. The second is the implementation phase. Technical justification of products, services or processes is carried out and feasibility studies (e.g. clinical trials) are made. The last stage is called commercialization. It includes the products and services release to the market. At each stage the company's created value varies, so with different selected indicators it is possible to monitor the extent of these changes. Since most companies value is created (determined) by intangible assets' changes or its usage efficiency, the model allows the company to monitor and evaluate the intangible assets in these aspects.

Intellectual Capital Statement is a strategic management instrument for assessing and developing the Intellectual Capital (IC) of an organisation. It is constructed within the collective research project 'Intellectual Capital Statement – Made in Europe' (InCaS) funded by the European Commission (2007). It shows how IC is linked to corporate goals, business processes and the business success of an organisation using indicators to measure these elements. An Intellectual Capital Statement assesses the internal capabilities, i.e. a firm's intangible resources, from the point of view of external strategic objectives, e.g. growth, market position, customer satisfaction etc. The approach of conducting an Intellectual Capital Statement is divided into five steps (Management meeting, 1st workshop on IC analysis, internal work on measurement, 2nd workshop on strategy refinement and measures and internal work on final documents) with each step building on the prior one. The Intellectual Capital Statement implementation is a workshop-based procedure involving a selected number of employees from the implementing organisation.

More details about non-financial intangible assets' measurement models are given in the Table 2.

Table 2: Non - Financial intangible assets' measurement models

Model	Skandia Navigator	The Intangible Assets Monitor	Balanced Scorecard	Value Chain Scoreboard	Intellectual Capital Statement
Definition	Identifies company's particular assets that determines effectiveness and crates value added and creates preconditions for sustainable competitiveness.	Captures the efficiency of intangible assets, including tangible and intangible investments.	The strategic management system, transforming the company's strategy to daily operations and controlling the implementation of the strategy.	Continuous monitoring of the effectiveness of the business and intangible asset valuation method, in which performance is correlated with assets development or growth, as well as its recovery rate, efficiency and risk of loss	Strategic management instrument for assessing and developing the Intellectual Capital (IC) of an organisation. It shows how IC is linked to corporate goals, business processes and the business success of an organisation using indicators to measure these elements.
Structure	5 areas of focus: - Finance; - Human; - Customers; - Processes; - Renewal and development	Intangible assets are classified into three categories: - External structure; - Internal structure; - Competence Analysis through the ways of creating value: - Growth rate/volume; - Renewal/innovation; - Effective usage; - Risk minimization	Each company's activities (its vision and strategy) are assessed according to four perspectives: financial, relationships with customers, internal business processes, staff training, development and innovation.	3 x 3 size matrix, structured according to three levels of the value chain model: 1) Discovering and learning; 2) Implementation; 3) Commercialization.	The structural model describes the main elements of the ICS as well as their interrelations: - Human Capital (HC) - 'what the single employee brings into the value adding processes'; - Structural Capital (SC) -'what happens between people, how people are connected within the company, and what remains when the employee leaves the company'; - Relational Capital (RC) is defi ned as 'the relations of the company to external stakeholders'; - Business Processes (BP) which are chains of activities within an organisation and their network-like contexts; - Knowledge processes (KP).

Model	Skandia Navigator	The Intangible Assets Monitor	Balanced Scorecard	Value Chain Scoreboard	Intellectual Capital Statement
Advantages	- The model is a tool to assess the intangible assets of the firm and also a management reporting system at the same time; - It allows companies to identify activities that create high value added for gaining sustainable competitive advantage; - It gives the scheme of the perception of the value, which sets out key value-generating intangible sources	- Captures the effectiveness of the use of intangible assets, including tangible and intangible investments; - Shows non-physical flows and changes that are resources of the value development of the enterprise; - Allows the identification of results of performance based on intangible assets, and development of a long-term Knowledge Management Strategy; - Promotes communication within the company	- Allows identification of the intangible assets as factor of operating performance improvement and effectiveness and monitors its development, as well as enables the company's management based on information available make necessary decisions and actions to improve performance efficiency; - Indicates that firms intangible assets are a key factor in determining its financial performance in the future; - The same report reflects the company's competitive advantage: orientation to customers, quality improvement, new product development time etc.; - The use of indicators in the model is chosen according to individual company's strategy and objectives.	- The model is able to provide quite detailed information about intangible assets changes and the efficiency of its usage in a company through created value; - Simple and easily adapted in a company; - Includes the intangible assets that are generated within the company; - Intangible assets evaluation is included in the management, strategic and control processes, as well as investors' analysis.	- Helps to determine strengths and weaknesses of strategic IC factors (diagnosis); - Prioritises improvement opportunities with the highest impact (decision support); - Supports the implementation of actions for organizational development (optimisation and innovation) - Enhances transparency and the involvement of employees (internal communication); - Diminishes strategic risks and controls the success of actions (monitoring); - Facilitates the communication of corporate value towards stakeholders (reporting).

Model	Skandia Navigator	The Intangible Assets Monitor	Balanced Scorecard	Value Chain Scoreboard	Intellectual Capital Statement
Disadvantages	- Model does not specify any numerical evaluation of intangible assets; - Its provided performance measurement tools are very individual to each company and their number is quite large; - A practical use of model is heavily dependent on workers' willingness to cooperate and record the information and work results; - effective information technology infrastructure is needed.	- Company employees must be fully equipped with the necessary information and have the ability to communicate information related to intangible assets with each other, what is not always easy to implement; - is not completely clear how to integrate the Intangible Assets Monitor to the other broader performance measurement systems in order to create relationship between the intangible sources of efficiency and performance results; - Does not specify any monetary evaluation of intangible assets and is very specific to each company according to the choice of indicators.	- The four perspectives in the model includes only the investors' and customers' wishes and needs, but do not include an analysis of employees, suppliers, business partners, local communities and other interest groups; - Training and innovation perspective is referred to as not very clear, so companies often do not include it while implementing model in its' operations so it can be assumed that the intangible assets of the company can be measured unreliably; - Indicators used in the model are very individual for each company.	- Does not assess all individual components of intangible assets; - Unable to quantify intangible assets; - Is not very accurate as changes in value are not always determined only by intangible asset's usage efficiency.	- Time consuming and resource intence implementation process; - Support material for the use is needed; - Its provided performance measurement tools are very individual to each company as it is set during workshops by company representatives; - Does not cover all intangible assets.

Source: prepared by author.

4. The comparative analysis of intangible assets' measurement models

In summary, analysing the intangible assets' valuation methodology it can be concluded that the intangible assets' valuation theory is quite widely analyzed by the world researchers, but there are still gaps in effective valuation ways for intangibles. The main models for evaluating intangible assets mentioned and constantly discussed in scientific journals are analysed in the article, what allows distinguishing the common advantages and disadvantages of valuation process.

Financial intangible assets measurement models are usually adjusted with relative ease in a company's business, it is quite easy to use and understand. They enable company to assess the overall value of intangible assets (some of which even a vale of an individual intangible asset), but they can be easily affected by changes in market and various speculations, since in many cases, the assessment is based on the real market value of the company. Non-financial models can not provide monetary value of intangible assets, however, they reflect the value creation process and significant changes in a company allowing companies to make reasonable decisions to improve operational efficiency. However, these models are often very individual, with a lot of different characteristics inside, requiring a lot of adaptations, and very dependent on the quality of information provided and a company's employees willingness to cooperate, making it hard to implement in the company. Also, comparability problem between enterprises arises, as each company choosing individual indicators of measurement, makes particular model very specific.

Scientific analysis of the proposed financial and non-financial intangible asset models shows that they are all valuable and innovative, because they represent the transition from the Industrial age, when primary role was given to tangible assets and material resources, to the Knowledge age, which is based on immaterial economy (Chareonsuk, Chansangave, 2008). However, despite these advantages, the models can be criticized for a lack of consistency, their insufficient credibility; subjectivity, when for every company model is individualized; depth, because the models are not able to perform a comprehensive evaluation of intangible assets. Significance of models also may be debatable since such factors as high subjectivity in choosing the most appropriate indicators for a company's activity, which reflect performance in the most favourable way for a company, also the lack of extra features of indicators and its very high specificity do not allow an objective evaluation of intangible assets. These features lead to the non-comparability between companies because each company (even acting in the same field or in the market and with a similar type of activity), the same model uses very specifically, so methods of intangible asset valuation also differs as well as reflection of its value. In this case models have the advantage that they can be quite simply and effectively adapted in each firm's business, but due to their individuality they lose universality, which could be stated as one of the biggest drawbacks. While performance comparison to other market participants is especially important in gaining a competitive advantage, because according to the results strategic decisions are made.

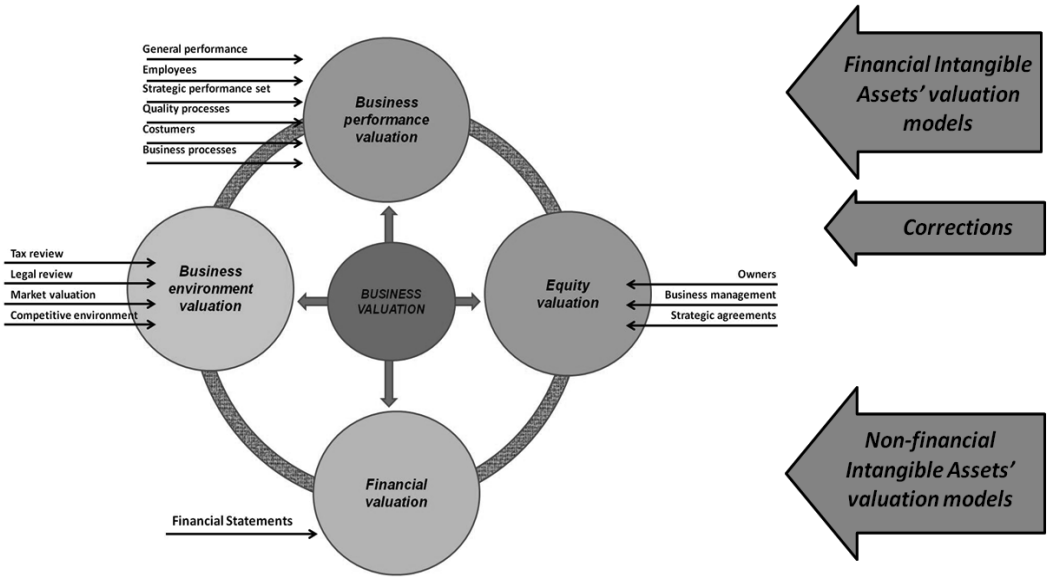
It is obvious that the economy already reached a level where it is based on intangible resources and assets and factors that influence innovation, technology and business process improvement, development and other changes. This means that the growing importance of intangible assets leads to new ways of value creation and new forms of economic organizations, which must be measured as well. According to Mehlman et al., 2010, it is a 'cooperative relationship base on the development of innovation'. Therefore, new types and quality information is necessary because the failure to appreciate the intangible assets or inappropriate, incorrect assessment of it causes high cost for business and determines the loss of market position. As shown in Figure 1, Intangible intensive business valuation process has to be improved substantially by evaluating, applying and adapting both financial and non-financial intangible assets valuation models to be complete. Appropriate corrections to meet the requirements and nature of intengibles have to be adopted in order to ensure the objecvity and comparability of the companies at the certain sufficient level. Better evaluation of intangible assets is very important both in the micro (enterprise) and macro levels, and appropriate methods used in micro-level allows to create a better performance indicators in the macro level. Considering the current methodology of valuation of intangible assets it can be noticed that convergence between the existing valuation models is necessary, but not creation of new models, because the existing measurement models cover various aspects of the intangible assets' valuation, so all attention should be paid to the improvement of models and elimination of weaknesses they have. The general measurement standard should be possible to some extent, although very difficult to implement, since intangible assets are highly specific for each company to be valued equally. It is important that the more business system is based on intangible assets, the stronger it is, because intangible assets are a one of a key growth and value creation factors, but at the same time, the more the system is based on intangible assets, the more vulnerable it becomes. This is one of the most important factors that should be considered in research and development of the intangible assets' measurement methodology.

In the mid term intangible intensive business valuation is aimed to lead to more detailed company reporting which means that value creation process within the company would be reflected and reported in detail. This would involve identifying, measuring, and reporting, as well as constructing a coherent presentation of how the enterprise uses its resources, both tangible and intangible (RICARDIS Report to the European Commission, 2006). The same experts identify two functions that are fulfilled by such reporting:

1. complement financial management information (internal management function);
2. complement the financial statement (external reporting function).

Having and operating more accurate intangible assets' measurement methods and reporting it is important, because it not only helps to develop the company's strategy, but also focuses on the development and use of intangibles and is a monitoring system at the same time, which makes company accountable for its intangible resources.

Figure 1: Intangible intensive business valuation process

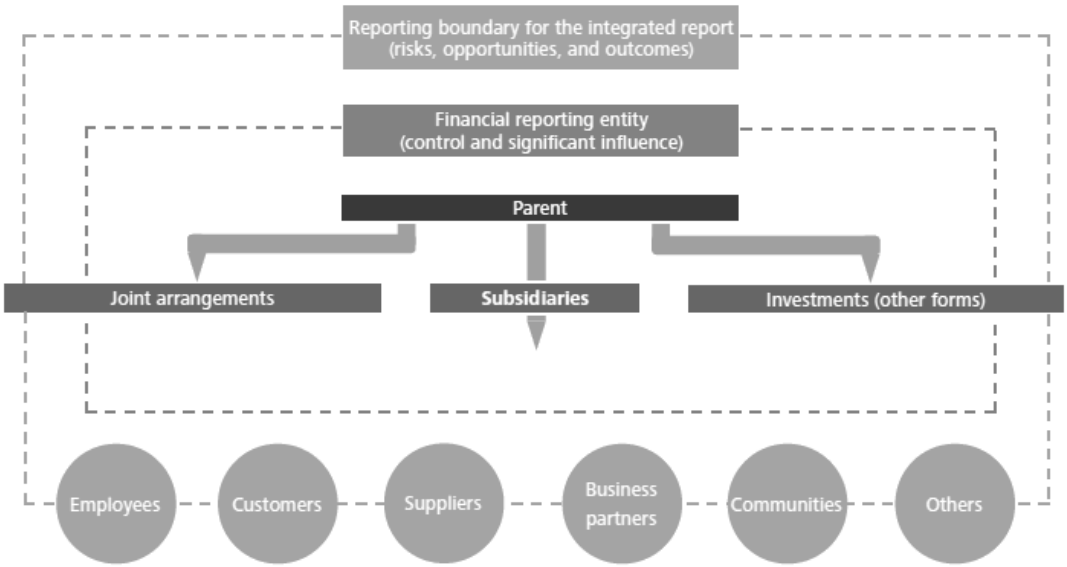


Source: prepared by author.

Some efforts to combine intangible assets valuation and reporting are made and integrated reporting (see Figure 2) framework is introduced. The framework explains that 'providers of financial capital are interested in the value an organization creates for others "when it affects the ability of the organization to create value for itself, or relates to a stated objective of the organization (e.g., an explicit social purpose) that affects their assessments' (Deloitte, 2013). Comprehensive reporting can communicate with relevant external stakeholders such as employees, partners, customers, investors, regulatory institutions, etc. in order to inform and persuade them about the firm's unique characteristics, resources, capabilities and other intangibles that have an impact on the future of the firm, thereby facilitating their decisions about interacting with it in new ways (RICARDIS Report to the European Commission, 2006). However, framework is explicit about not requiring an organization to quantify or monetize its use of, or effects on, all of the capitals (i.e. tangible and intangible); quantitative indicators are to be included in an integrated report only when it is practicable and relevant to do so.

These tendencies in scientific research show that business companies have a need to manage their intangibles in a similar way to how they manage their tangible resources, i.e. to have similar an accounting and reporting system for decision making, yet measurement methods and models are not as comprehensive as it should be for completed and fully integrated measurement and reporting system. This situation leads to individualised measurement with different indicators and incomparable reports of different companies.

Figure 2: Integrated reporting boundaries



Source: '*IIRC releases the International Integrated Reporting <IR> Framework*', Deloitte, 2013

5. Conclusions

Analysis shows that the concept of intangible assets, although has been examined by researchers, is still not clearly understood - there is no universal definition of this economic category, the researchers emphasize different characteristics of intangible assets and, although it is possible to distinguish the common points in definitions, which allows the standardization of the concept at some level, but there are still remaining lot of different criteria of the analysis of intangible assets, what makes it a very complicated concept and is a basic measurement problem. Intangible assets' valuation process is very complicated because of its unique features, so companies generally measure intangible assets only to the extent required by accounting standards what means that usually actual value is not revealed. Valuation process is ineffective itself, since it is put to the circle: intangibles are not recognized because the evaluation criteria are not reliable, so it is not measured, and due to the absence of a reliable ability to determine intangibles' value, it is not recognized. Current financial and non-financial intangible assets' measurement models are valuable and innovative, enabling structuring of measurement process, but they also have many drawbacks: a lack of consistency, their insufficient credibility; subjectivity, when for every company model is individualized; depth, because the models are not able to perform a comprehensive evaluation of intangible assets. The high subjectivity in choosing the indicators reflecting company's activities in the most proper way for a company does not allow an objective evaluation of intangible assets, which leads to the emergence of non-comparability between companies.

As intangible assets significance and importance in business processes is not always recognized appropriately, these assets' measurement is highly fragmented, in an uncoordinated manner, without much regard to the assessment of different assets' types, therefore businesses potential and intangible benefits of creating value for the company are not being used as well as a competitive advantage it provides, because these assets are highly specific and very difficult to imitate. Moreover, measurement of intangible assets can provide a systematic way to create value for a business that makes it sustainable. A knowledge-based approach of making decisions and managing business provides an opportunity to sense, anticipate and respond rapidly and effectively to any changes, both internal or external. In order to reach such results an organisation needs to systematically assess its core competencies (inlc. all intangibles) against other elements of the business model to evaluate current situation and to be able to identify and capitalise on market opportunities. Systematic and comprehensive approch of intangibles measurement would allow evaluate not only internal elements of organisation for decision making, but also could be a reliable tool for investor decision making when purchasing shares (i.e. intangible intense companies' shares value usually increases when using integrated measurement methods for evaluation).

As intangible assets are a unique source of value in a company which has to be used the following suggestions for the improvement of intangible assets' measurement should be implemented. It is important to obtain an overall concept of the intangible assets, which forms a base for a measurement. Moreover, further research on the intangible value resources and tangible and intangible assets interaction in value creation process is necessary. The creation of intangible assets on the firm level and how they meet changing needs of the company's owners, capital markets investors, politicians and other interest-groups needs in the intangible intensive economy should be analysed as well as how economic systems based on intangible assets operates. Encouragement of businesses to measure the intangible assets as well as disclose information related to it and use it for decision making is a crucial step for the intangible assets measurement system development, but at the same time a common minimum universal set of indicators for effective valuation has to be defined and established to make it possible. Also it is very important to avoid the unnecessary duplication and growth of measurement guidelines, models and systems, giving more special attention to development and promotion of relationship between research institutions and business on the intangible asset valuation models. As a result of interaction, the best practice in the measurement of intangible assets should be constantly exchanged between companies and public organizations and institutions. It is necessary to highlight that such factors as general rules for defining the value of intangible assets not traded in market and establishment and development of markets for certain intangible assets (such as patents, copyrights, etc.) also determine progress in measurement system improvement. This will allow eliminating current measurement system disadvantages in order to create and establish universal system for effective measurement of intangibles.

In conclusion, estimating the current situation of intangible assets' measurement system, two goals could be set: the short term goal - to form a comprehensive set of micro-

and macro-economic indicators, methods and models, which could be able to measure all the characteristics of intangible assets; and the long term goal - to set common accounting standards and a global framework for effective measurement and reporting of intangible assets.

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