

## Model of Organization's Intellectual Capital Measurement

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*Intellectual capital theory has been active for two decades already. Despite that many unanswered questions in theory and business practice are still left. Issues of intellectual capital essence, structure, measurement and its impact on business performance are still being researched. Managers constantly look for the new solutions of recognizing, measuring and managing intellectual capital in order to maximise the value of knowledge, develop new forms of competitiveness and increase organization's potential.*

*Intellectual capital measurement has been identified as one of the most important issues for today's business success. Plenty of intellectual capital measurement methods can be found in business literature. New methods appear within the intellectual capital theory continually. Some of them are implemented in business practice, others remain as theoretical suggestions important for further subject research. But despite that, a common view on intellectual capital measurement still does not exist.*

*Results of the comparative analysis of intellectual capital measurement methods are discussed and the main bottlenecks of intellectual capital measurement methodology are revealed in this paper. Based on these results the model of organization's intellectual capital measurement is proposed here.*

*Intellectual capital measurement is specified as a multi-stage process of information accumulation and interpretation within the model proposed. Six stages of intellectual capital measurement process are formalized. The process starts with the situation analysis in which measurement problem reveals and the particular measurement target development. It continues with measurement possibilities assessment, measurement method selection and organization of its implementation. The process results in the decision making stage. Two alternative scenarios of the rational intellectual capital measurement process are briefly discussed in this paper and the particular measurement techniques are proposed for each scenario.*

*The model proposed summarizes knowledge of intellectual capital measurement. It intends to help managers understand intellectual capital measurement process as a whole and implement intellectual capital measurement solutions purposefully and in series.*

Keywords: *intellectual capital, intellectual capital measurement, measurement process, model.*

### Introduction

Intellectual capital (*further IC*) measurement issues are discussed within the research of almost all IC theory gurus (Sveiby, 1997; Sullivan, et al., 2000; Joia, 2000; M'Pherson, 2001; Guthrie, 2001; Stewart, 2001; Bontis, 2002; Lev, Daum, 2004; Edvinsson, et. al., 2005; Pike, Fernstrom & Roos, G., 2005; Andriessen, 2005; Mouritsen, J., 2009, etc.). Most of them offer their own IC measurement methods. Lithuanian studies approve the relevance of IC measurement (Mikuleniene, Jucevicius, 2000; Legenzova, Scetko, 2001; Anskaitis, et al., 2006, Vaskeliene, 2008; Uziene, 2009; Valanciene, Gimzauskiene, 2009; Strumickas, et al., 2009), but mostly explore issues of its essence, structure and reporting or cover organization's performance measurement issues in a broader sense. Today we have lots of different models and frameworks, but IC measurement method established and universally accepted in business practice still does not exist. Comparative analysis of different IC measurement methods is quite rare in theory. Bontis (2001) and Andriessen (2004) are known for their strong contribution to this field. But the question, what complicates the development of IC measurement methodology, has not been clearly answered yet.

What complicates the discovery of universally accepted IC measurement method? What factors should be taken into account when determining the target of IC measurement and selecting measurement techniques? How should a process of IC measurement look like from the ideological point of view? The answers certainly lie in the deep comparative analysis of different IC measurement methods, identification of the bottlenecks of methodology and the design of new solutions.

The following question outlines the key problem of this paper: ***how should organization's IC be measured in order to make management decisions as well as to disclose information for external stakeholders?*** This paper is intended to consolidate knowledge of previous research and propose a conceptual model based on it. The model proposed should refer to the bottlenecks of IC measurement methodology. It should provide guidelines for the implementation of the reasoned IC measurement process and selection of appropriate measurement techniques.

*The subject of this research* is intellectual capital measurement.

*The main objective of this research* is to propose the conceptual model, which would formalize the process of organization's intellectual capital measurement in the context of the satisfaction of internal and external stakeholder information needs.

*The methods of this research:* Constructivism as a prevailing epistemological approach has been selected for this research. The early stage of IC measurement methodology development and the impossibility of using quantitative methods complicate the application of positivism. Theoretical findings of this paper are based on the scientific research of Lithuanian and foreign papers. Comparative analysis, synthesis and modelling methods are used when designing the model. Case study method is applied when testing the model in a particular knowledge organization.

### Diversity of methods

Dozens of IC measurement methods can be found in IC literature today. Most of them differ in their IC perception, measurement techniques and other features. Method established and universally accepted in business practice still does not exist. Several stages of the development of IC measurement methods could be highlighted here. The first one is related with the appearance of the former solutions of IC measurement and management (*Navigator (Skandia, 1995), Intangible Asset Monitor (Sveiby, 1997), etc.*). Such methods were designed as a set of different IC-related indicators and intended to capture intangibles organizations have. The search for critical IC indicators is still relevant in theory as well as in practice. The second stage methods (*Holistic Value Approach (Pike, Roos, 2000), Inclusive Value Methodology (M'Pherson, Pike, 2001), etc.*) are intended not only to capture IC, but to follow transformations of it from one form to another as well. The main purpose of these methods was to establish the links between different kinds of IC as well as to assess the impact of changing IC performance on business results. The third stage is known for its efforts to develop a single IC indicator (*IC-Index (Roos et al, 1997), IC-Rating (Joia, 2000), etc.*) standardized and easy to use. Unfortunately, such indicators were rejected in practice as uninformative and useless in management process. And the final stage, which is known for its regard to the strategic management. Such methods (*Intellectual Capital Statement (Mouritsen, 2001), Balanced Scorecard (Kaplan, Norton, 2004), etc.*) are intended to capture the impact of management decisions on business performance.

In order to find out the prevailing methodological features among the IC measurement methods, the comparative analysis of thirty different methods was performed by the author previously (Vaskeliene, 2006, 2007). According to the results different IC measurement methods are based on different management paradigms, and differ in their theoretical background, methodological approach, number and type of indicators used, benchmarks applied, techniques implemented and other features.

When performing comparative analysis different methodological features were distinguished as important and explored (*derivation paradigm; conception; empirical evidence; problem solved; methodical reasoning; causal direction; coverage; time scale; number of indicators; internal-external measurement indications; benchmarks; dominant measurement approach; competitive comparability; restrictions of use; advantages; disadvantages; practical applicability; etc.*).

It emerged that majority of the IC measurement methods were created during the last decade and the development of these methods was influenced by the IC theory mostly. Despite the variety of definitions and descriptions used, the most popular concept among the methods is "Intellectual Capital". Nearly half of the methods are designed in the outcome-reason direction. The rest are based on the analysis of the reasons for present IC performance as well as the forecast of its future performance. From the coverage point of view IC within the methods is mostly treated as an entity of undisclosed organizational potential that influence business performance. An obvious interdependence between the derivation paradigm of the methods and their positioning on a time scale has been revealed. Methods developed within the finance theory are mostly based on retrospective information, while the IC theory methods are oriented towards the measurement of organizational potential far more. Methods developed within the finance theory involve monetary measures. Measurement results of these methods are based on a single indicator mostly. While the IC theory methods are distinguished for the variety of measures used and their measurement results are presented as a single indicator the same as a set of indicators. An obvious interrelationship between the problem solved within the methods and benchmarks used exists. Benchmarks are more common within the internal measurement methods. While competitive comparability is more relevant within the external reporting. Investigation of the measurement approach applied reveals that the state measurement and the flow measurement are equally important. Many methods during the research were rejected because of various restrictions related to particular circumstances of implementation, such as total reliance on the type of industry or special business environment. Just a few methods are common within business practice. Others are not clearly reasoned, lack functional and technical clarity and are solely based on theoretical assumptions.

Advantages and disadvantages are observed among the qualitative and quantitative, financial and non-financial, single and multi-indicator, benchmark included or non-included methods. But one of the most important issues observed during the development of IC measurement methods is a particular problem solved with the help of the method. Based on this point of view all methods can be grouped into two groups:

- IC measurement methods designed for internal management purpose;
- IC measurement methods designed for external reporting purpose.

These two groups of methods apparently differ in their nature, prevailing measurement techniques and methodological features. The polarity of different methodological features among the IC measurement methods within these groups was detected. This evidently prompts the divergence of two separate directions within the IC measurement methodology.

### Bottlenecks of methodology

Some systematic shortcomings are not avoided in the development of IC measurement methodology (Vaskeliene,

2007). First of all, methods are often designed without paying regard to measurement context. This guides to the inert operation of traditional measurement techniques and the absent of clear requirements for measurement process. In order to get useful measurement results, an expedience of IC measurement process must be perceived. Problem solved with the help of the method must be realized and a particular stakeholder and his needs must be identified. It is necessary to realize what is the background of the demand of IC measurement, what environment this demand comes from, who is going to use a particular method, what results and in what way are going to be used.

Overvalue of the role of a customer (as a stakeholder) is observed within some methods. Treating customer as a single income source in the value creation process distorts conception of the coherence of interests among different stakeholders. This leads to the application of traditional financial techniques, cost-income approach most often, and limits IC disclosure to scarce non-versatile information. From the value creation point of view organization's relationship with other stakeholders must be treated as much important as relationship with customers. IC performance should be assessed not only from the financial point of view, but in a broader sense, for example, taking into account aspects of social responsibility, networking or sustainable development. Monetary measures are solely based on retrospective information and do not meet the nature of intangibles. Giving financial measurement relatively bigger prominence than other techniques is incorrect.

Another shortcoming of the IC measurement methodology is an ambition to standardize measurement technique trying "to squeeze" all organizations under the unified measurement framework or the unified set of indicators. In this way organization loses the ability to reveal its unique competitive advantage, which is crucial in knowledge economy. Attempts to measure organization's IC using a single indicator are not appropriate as well. Disregard to the dependence of IC measurement on the uniqueness of organizational strategy along with a wide range of IC forms complicate the development and interpretation of a single indicator, and therefore should be treated as irrational.

Strategic reasoning is one of the crucial methodological features when measuring IC both for internal management purpose and for external reporting. Disregard to this issue impedes perception of measurement results. As far as IC is not equal to intangibles (capital is commonly defined as a part of the assets, which participate in value creation process) and comes out of the unique strategy of the organization, strategic background should be taken into account when measuring IC. Of course, this complicates the comparability of measurement results among organizations, but increases validity and reliance on measurement results, used for management and investment decisions. Benchmarks solve the problem partially by adding colours to measurement results and opening space for interpretation. Benchmarks provide managers with the ability to monitor implementation of strategy, while investors are provided with the ability to assess quality of management or compare performance of different organizations.

From the measurement approach point of view, both the state measurement and the flow measurement are

considered as necessary. Methods based solely on the state approach do not provide full view on IC performance. Transformations from one IC form to another as well as their impact on financial results are important not only for managers, but for external stakeholders as well, for example, investors. Flow measurement opens the door to forecasts and hypothesizing. Therefore, consideration of the combination of both the state measurement and the flow measurement should be considered when designing IC measurement solutions.

And eventually issues related to the implementation of measurement process are often ignored within the IC measurement methods. Methods are designed without consideration of their practical implementation and anticipation of final results often. Some of them are too complicated to adapt in practice, have methodologically unreasoned procedures or worthless results. Disregard to measurement circumstances as well as the absence of the clear methodological reasoning of measurement process leads to the expensive and overcomplicated measurement procedures and therefore to the unpopularity within business practice.

The key bottlenecks of IC measurement methodology development along with the recommendations for how to escape them while developing new solutions are summarized in Table 1.

Table 1

#### IC measurement bottlenecks and recommendations

Bottlenecks	Recommendations
Unspecified measurement problem. <i>Why is it necessary to measure?</i>	Initial situation must be examined. IC measurement problem must be identified and explored.
Unspecified IC measurement target. <i>What is a target of measurement process?</i>	Clear target of IC measurement process must be defined.
Disregard to measurement circumstances. <i>What are the circumstances of measurement?</i>	IC measurement possibilities must be considered based on measurement requirements and restrictions.
Abundance of techniques. <i>What particular technique should be used? What should determine the selection of techniques?</i>	Measurement technique that satisfies the initial situation and measurement targets must be selected. If such measurement method does not exist, an original measurement solution must be developed.
Methodologically unreasoned measurement process. <i>How should measurement process be organized?</i>	Implementation procedures of measurement process must be created.
Unpredicted appliance of measurement results. <i>What decisions it will be possible to make based on measurement results?</i>	It should be possible to make alternative management or assessment decisions based on measurement results.

#### Structure of the model

Models and frameworks proposed as a result of the most recent theoretical and empirical research (Smaliukiene, 2007; Juceviciene, et al., 2007; Urbanskiene, et al., 2008; Staskeviciute et al., 2008; Diskiene, et al., 2008; Klimov, et al., 2008; Schieg, 2009; Gatautis, et al., 2009; Kaklauskas, et al., 2009). help authors to reveal their position on different unsettled management issues. In order to organize any conceptual model, sequence of the

common management problem solving process, which starts with an environment analysis and terminates in a result interpretation, can be applied.

Accordingly the development of IC measurement model should be also based on the clear problem definition. Problem defined determines selection of a proper measurement technique, which in turn influence measurement process and corresponding decision-making. Stages of the IC measurement process are shown in Figure 1.

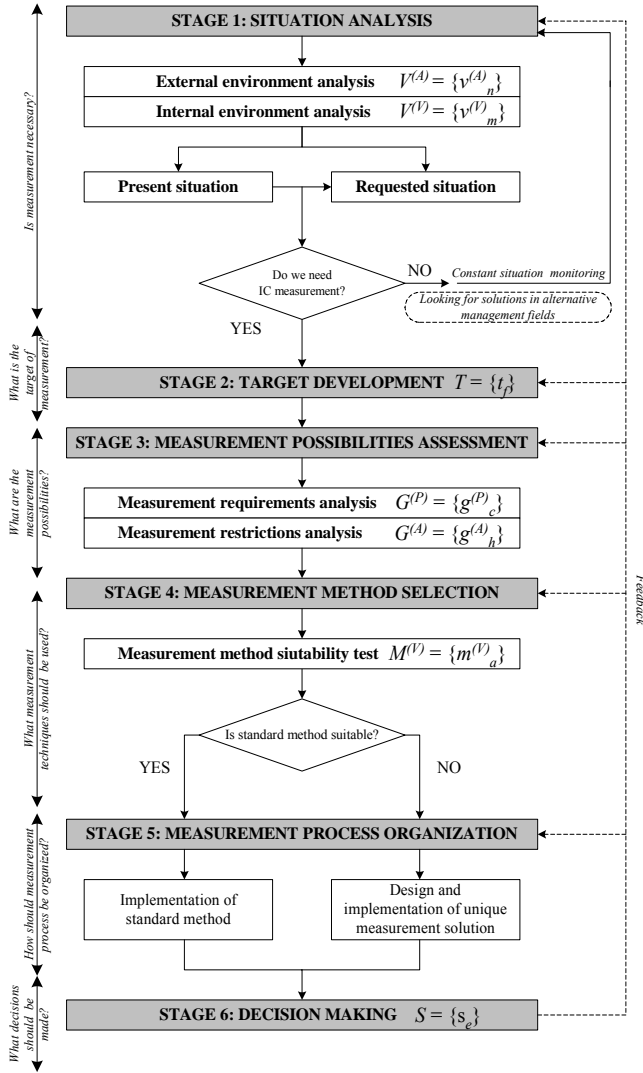


Figure 1. Structure of the IC measurement model

The model consists of six leading stages that enable systematic (*realizing organization as a subsystem of an undivided external business environment, and the IC measurement as a parallel process within already functioning internal system*) and purposeful (*planning the results of measurement process*) IC measurement process. Systematic outlook makes it possible to realize background of the problem solved with the help of measurement, to choose appropriate IC measurement techniques as well as to establish reasoned measurement process.

The six-stage IC measurement process eliminates the bottlenecks of IC measurement methodology mentioned above and provides guidelines for the rational IC measurement process.

Situation analysis in which measurement problem is revealed is the base for IC measurement. In this process stage two directions of external and internal environment analysis are separated and later integrated. Situation analysis reveals the demand of IC measurement and provides a systematic view on different internal and external success factors. The change vector “present–requested situation” helps to identify a particular IC measurement problem. It confirms or denies a need for IC measurement. Otherwise considered problem becomes a target of the other management fields (*knowledge management, finance, efficiency control, etc.*) in the organization. The “present-requested situation” gap found determines corresponding target development.

$$(V^{(A)} \cap V^{(V)}) \Rightarrow t_k \quad (1)$$

where:

$V^{(A)}$  – the set of external factors;

$V^{(V)}$  – the set of internal factors;

$t_k$  – k- particular IC measurement target;

$\Rightarrow$  - implication;  $\cap$  - conjunction.

After the situation is analysed and the change vector is determined, IC measurement target is developed. For the measurement process to be reasoned and meaningful it must be target oriented and this target should match the situation directly.

In this stage two basic IC measurement directions are revealed: measurement for the internal and external purposes. Trying to satisfy both of them leads to satisfying neither of them. The change vector “present–requested situation” determines a particular target  $t_k$  development, which in turn influences the choice of measurement method  $m_l$ .

$$t_k \Rightarrow m_l, \quad m_l \subset M \quad (2)$$

where:

$m_l$  – l – particular IC measurement method (technique);

$M$  – set of IC measurement methods.

The third model stage is intended to assess IC measurement possibilities, that are determined by the change vector identified, measurement target developed and organization’s capability found. Measurement target dictates measurement extent, time input, the finance and other requirements. From the other side these requirements are restricted by organization’s capability: size, personnel busyness, scarce financial resource, degree of concentration on the main projects and activities, etc. The balance should be found between measurement requirements  $G^{(P)} = \{g_c^{(P)}\}$  and restrictions  $G^{(A)} = \{g_h^{(A)}\}$ , which must ensure that measurement target is reached with the optimal (minimal) inputs of time, finance and other resource. The interaction between requirements and restrictions is expressed under the equalization principle:

$$G^{(P)} \equiv G^{(A)} \quad (3)$$

$$(G^{(P)} \cap G^{(A)}) \Rightarrow g_s \quad (4)$$

where:

$G^{(P)}$  – set of requirements;

$G^{(A)}$  – set of restrictions;

$g_s$  – s- particular possibilities combination;

$\equiv$  - equalization ratio.

The “price–benefit” balance setting in this stage is quite complicated and is often based on the subjective, intuitive attitude of managers.

Fundamental decision concerning the suitability of particular IC measurement method (technique) is made in the fourth model stage. Suitability of measurement technique is determined by the results of previous stages.

$$m_i = f(V^{(A)}, V^{(V)}, t_k, g_s) \quad (5)$$

There are two possibilities for managers here. The standard IC measurement method could be implemented or the unique measurement solution developed. In previous research (Bontis, 2001, Andriessen, 2004, Vaskeliene, 2006) IC measurement methods are classified according to two model scenarios. Their advantages and disadvantages are highlighted and application opportunities revealed. Research results and practical experience enable managers to decide about the applicability of methods in the particular management situations. If a suitable method does not exist (*unfortunately it is a common situation in current theory's development period*), the unique IC measurement solution should be designed and implemented. The guidelines for its design are proposed further. In the second section of paper the suggestion of rational measurement principles as well as the offer of appropriate measurement techniques will be discussed.

In the fifth model stage the process of IC measurement is organized in practice. This is an integrated process influenced by the internal and external organizational factors, measurement targets and selected measurement techniques. The process depends on the following answers to the questions like “is process terminative or permanent?”, “how long does the process last?”, “how many hierarchical levels of personnel participate in it?”, “is process organized in the “top-down” or “down-top” direction?”. Feedback plays an important role within the IC measurement because it enables organizational learning and process quality improvement.

And finally in the last model stage the results of IC measurement are summarized and alternative decisions are made. A set of decisions  $S = \{s_e\}$  varies from strategic management to the particular intangible resource or functional process management issues. The deeper IC measurement penetrates into organization's business philosophy, the more opportunities it offers.

### Alternative scenarios

From the functional point of view IC measurement is intended to satisfy information needs of internal and external stakeholders that are quite different in their nature. IC measurement for the internal management purpose must perform the role of managerial leverage, reveal problematic areas for decision-making as well as motivate for improvement. IC measurement for the external reporting must disclose the real state of the resource organizations have and provide clear, relevant and reliable data for different external stakeholders.

Consequently two alternative scenarios should be explored within the IC measurement model. The main differences between them are distinguished in Table 2. Special attention should be paid to the fourth and the fifth

model stages, where the design and implementation of organization's unique IC measurement solution along with the use of standard measurement methods are considered.

Table 2

Comparison of the IC measurement scenarios

Model stage	IC measurement for internal management purpose	IC measurement for external reporting purpose
Situation analysis	Effectiveness of intangible resource and value creation process are analysed. External environment is examined as much as it is important for identification and management of organization's success factors.	Traditions of information disclosure and the best practice cases play an important role. The detailed analysis of stakeholder needs is performed. Organization's competitive advantages are analysed.
Target development	IC measurement targets concerning the strategic and operational management are developed. Striving to satisfy requirements of strategic management and security of the effectiveness of particular intangible resource are primary.	IC measurement targets concerning the external information disclosure are developed. Striving to satisfy the needs of one or several stakeholders is primary.
Measurement possibility assessment	The benefit of IC measurement for organization is emphasized.	The balance between information disclosure price and stakeholders needs satisfaction is weighted.
Measurement method selection	Methods that satisfy measurement targets the best are selected. Priority is given to the measurement of particular IC sorts.	Priority is given to the diversity of IC sorts ( <i>human, relationship and structural</i> ) and to the use of standardized methods.
Measurement process organization	Measurement process is permanent. Importance of feedback is emphasized.	Measurement process is terminative. The result of measurement process is the IC information disclosure (report).
Decision making	Direct and indirect IC management decisions are made. Their effect is monitored.	Alternative decisions related to information disclosure are made.

Based on the bottlenecks of IC measurement methodology, the rational measurement principles and corresponding measurement techniques are proposed further.

### IC measurement for internal management purpose

Research of the methodological features recommended within this scenario (Vaskeliene, 2006) shows that the most reasonable, uncovering maximum information, revealing organization's potential and easily applicable in practice are measurement methods designed as the *set of indicators*. Indicators based on organization's strategy along with the benchmarks reflecting organization's progress should be employed here. Indicators should be selected intentionally and should match organization's strategic objectives and value creation process. Benchmarks should reflect organization's progress in reaching the objectives and implementing the strategy.

*Rational process* of IC measurement for internal management purpose should:

- enable purposeful IC management and development;

- be based on organization's policy, strategy and objectives;
- be flexible and respond to external and internal environment changes;
- be clear, methodologically reasoned and easily implemented in different types of organization;
- help to identify management priorities in all functional levels and activities;
- reveal IC management shortcomings and enable to eliminate them;
- stimulate constant management improvement with the help of feedback.

*Measurement techniques* proposed for the rational process implementation are:

- value chain designing;
- success factors identification and corresponding indicators selection;
- causal interrelationship testing.

These techniques enable systematic and purposeful measurement process, help to identify and implement management priorities and respond to the internal and external changes of business environment.

### **IC measurement for external reporting purpose**

Research of the methodological features recommended within this scenario revealed a set of requirements for the rational process of IC information disclosure. IC measurement methods designed on the basis of the *set of indicators* meet these requirements the best. Measures should be selected according to the clearly considered format and be based on the unified way of their selection, illustration and interpretation. In the databases accumulation process unique information not necessarily needed for the other functional processes should be invoked.

*Rational process* of IC measurement for external information reporting purpose should be based on further principles:

- reported information should be presented in a clear, consequent and understandable format;
- reported information should be reliable, comparable (from the dynamic point of view and among competitors) and should not raise any interpretation doubts for external stakeholders;
- reported information should indicate present situation and perspectives of organization's IC state and its management efficiency;
- reported information should satisfy stakeholder needs at the maximum level, while the measurement process should empower organization to work towards this;
- measurement process should motivate organization to improve among competitors and work towards reaching the objectives;
- measurement process should be based on organization's experience and existing data, while the formation of a new database should be based on the "benefit-costs" analysis.

*Measurement techniques* proposed for the rational process implementation are:

- essay disclosure;
- core competencies identification and corresponding indicators selection;
- different illustration-interpretation means implementation.

Set of indicators along with the essay and different techniques of illustration enable managers to disclose the present and the future performance of IC. Combination of these techniques enables to present information in a clear and reliable way, to disclose the quality of management and stimulate managers to improve.

The prior recommendations are based not only on the comparative analysis of different IC measurement methods, but on empirical research as well. Case study method was selected for the empirical exploration of the model proposed. Observations, in-depth interviews, investigation of original documents and similar techniques were used while carrying out the exploration. Two different enterprise levels within the case organization (foreign capital company operating in Lithuanian IT service market) were explored. IC measurement issues related to the internal management were investigated at divisional level, while issues related to the external IC reporting were explored at enterprise level.

A set of indicators along with the benchmarks is used in order to measure and monitor IC performance at divisional level. Orientation towards essential IC factors helps managers concentrate attention on the essence of value creation and strategic goals. Public IC reports are prepared and published at enterprise level annually. Department of external communication is responsible for this. With the help of annual IC reports managers attempt to provide external stakeholders with the true and accurate information on IC. Different indicators (mostly quantitative), texts and illustrative figures are used when preparing IC reports at a case organization.

Case study research revealed that measurement techniques recommended above were applicable in business practice. The case organization using these techniques makes obvious progress in IC measurement and gets real advantage of its management.

Principle of the random case selection was ignored during the research. It was quite hard to find the case organization, which makes progress in IC measurement, because there are few such organizations in Lithuania. However, case study research is the preferable one while investigating IC measurement issues in this stage of the development of the IC theory, even if it faces some environmental pitfalls.

### **Conclusions**

- There are lots of IC measurement methods proposed within the IC theory. Different IC measurement methods are based on different management paradigms; differ in their IC conceptions, theoretical background, number and type of indicators used, benchmarks applied, techniques implemented and other methodological features. The method established and universally accepted in business practice does not exist.
- The biggest bottlenecks of the IC measurement methodology are disregard to measurement context, distortion of the coherence of interests among different stakeholders, prominence of the financial techniques among others, ambition to standardize measurement technique or to establish a single standardized

indicator, lack of strategic reasoning, absence of benchmarks as well as disregard to the issues related to the possibilities and practical implementation of measurement technique.

- Organization's IC measurement is a multi-stage process of information consolidation and interpretation that should be implemented in the following steps:
  1. Situation analysis (IC measurement demand comes from the change of organization's internal and external environment).
  2. Target development (IC measurement target should correspond to the specifics of problematic situation, be concrete and clearly defined).
  3. Measurement possibilities assessment (IC measurement possibilities are assessed under the interface between measurement requirements and restrictions).
  4. Measurement method selection (standard measurement methods are selected or unique IC measurement solutions are a designed subject to the measurement situation, targets and possibilities).
  5. Measurement process organization (measurement process success depends on the knowledge and interest of process participants, flow of the parallel organizational processes, culture, value system and other internal factors).

6. Decision-making (IC measurement results are summarized and alternative decisions are made).

- One of the two alternative scenarios (IC measurement for internal management or IC measurement for external reporting) should be accepted when measuring IC. A set of indicators based on organization's strategy along with the benchmarks could be employed when measuring IC for the internal management purpose. Value chain design, success factors and observation of causal interrelationships among them could be used here as stimulating constant improvement, disclosing IC weaknesses, helpful for management priorities achievement, flexible in front of internal and external environmental changes and simple to implement. When measuring IC for the external reporting, the core competence theory along with the set of indicators, essay and different illustration-interpretation techniques could be used. Such reporting format enables managers to disclosure information on IC in a comparable, reliable and understandable way, reveals organization's ability to perform in the future and ensures its democracy by involving external stakeholders into the management processes.

## References

- Andriessen, D. (2004). IC valuation and measurement: classifying the state of the art. *Journal of Intellectual Capital*, 5(2), 230-242.
- Andriessen, D. (2005). Implementing the KPMG Value Explorer: Critical success factors for applying IC measurement tools. *Journal of Intellectual Capital*, 6(4), 474-488.
- Anskaitis, A., Bareisis, V., & Lydeka, Z. (2006). Konstruktyvistinis ir analitinis požiūris į intelektinį kapitalą. *Inžinerine Ekonomika-Engineering Economics*(4), 63-68.
- Bontis, N. (2001). Assessing knowledge assets: a review of the models used to measure intellectual capital. *International Journal of Management Reviews*, 3(1), 41-60.
- Bontis, N. (2002). Managing organizational knowledge by diagnosing intellectual capital: framing and advancing the state of the field. *World Congress on Intellectual Capital Readings*, 621-642.
- Diskiene, D., Galiniene, B., & Marcinskas, A. (2008). A strategic management model for economic development. *Technological and Economic Development of Economy*, 14(3), 375-387.
- Edvinsson, L., Hofman-Bang, P., & Jacobsen, K. (2005). Intellectual capital in waiting – a strategic IC challenge. *Handbook of Business Strategy*, 6(1), 133-140.
- Gatautis, R., Kulvietis, G., & Vitkauskaitė, E. (2009). Lithuanian eGovernment Interoperability Model. *Inžinerine Ekonomika-Engineering Economics*(2), 38-48.
- Guthrie, J. (2001). The management, measurement and the reporting of intellectual capital. *Journal of Intellectual Capital*, 2(1), 27-41.
- Joia, L. A. (2000). Measuring intangible corporate assets. Linking business strategy with intellectual capital. *Journal of Intellectual Capital*, 1(1), 68-84.
- Juceviciene, V., Stonciuviene, N., & Zinkeviciene, D. (2007) The cost control model of food processing enterprises: the case of Lithuanian agricultural sector. *Transformations in Business & Economics*, 2(12), 153-169.
- Kaklauskas, A., Zavadskas, E. K., & Raslanas, S. (2009). Modelling of real estate sector: the case for Lithuania. *Transformations in Business & Economics*, 8(1), 101-120.
- Kaplan, R. S. & Norton, D. P. (2004). *Strategy Maps – Converting Intangible Assets into Tangible Outcomes*. Boston: Harvard Business School Press.
- Klimov, R., & Merkurjev, Y. (2008). Simulation model for supply chain reliability evaluation. *Technological and Economic Development of Economy*, 14(3), 300-311.
- Legenzova, R., Scetko, S. (2001). Intelektualaus kapitalo koncepcija Lietuvos finansų rinkos kontekste. *Organizacijų Vadyba: Sisteminiai Tyrimai – Management of Organizations: Systematic Research*, 18, 73-85.

- Lev, B., & Daum, J. H. (2004). The dominance of intangible assets: consequences for enterprise management and corporate reporting. *Measuring Business Excellence*, 8(1), 6-17.
- M'Pherson P. K., & Pike S. (2001). Accounting, empirical measurement and intellectual capital. *Journal of Intellectual Capital*, 2(3), 246-260.
- Mikulienė, R., Jucevičius, R. (2000). Organizacijos intelektinis kapitalas: sandaros ir pagrindinių sąvokų interpretacijos. *Social Sciences*, 3(24), 65-76.
- Mouritsen, J. (2009). Classification, measurement and the ontology of intellectual capital entities. *Journal of Human Resource Costing & Accounting*, 13(2), 154-162.
- Mouritsen, J., Larsen, H. T. & Bukh, P. N. (2001). Intellectual capital and a capable firm: narrating, visualising and numbering for managing knowledge. *Accounting, Organizations and Society*, 26, 735-762.
- Pike, S., & Roos, G. (2000). Intellectual capital measurement and a holistic value approach. *Works Institute Journal* 42.
- Pike, S., Fernstrom, L., & Roos, G. (2005). Intellectual capital: Management approach in ICS Ltd. *Journal of Intellectual Capital*, 6(4), 489-509.
- Roos, G., Roos, J., Dragonetti, N. & Edvinsson, L. (1997). Intellectual Capital: Navigating in the New Business Landscape. New York: New York University Press.
- Schieg, M. (2009). Model for integrated project management. *Journal of Business Economics and Management*, 10(2), 149-160.
- Skandia (1995). Value-creating processes: intellectual capital. A supplement to Skandia's 1995 annual report.
- Smaliukienė, R. (2007). Stakeholders' impact on the environmental responsibility: Model design and testing. *Journal of Business Economics and Management*, 8(3), 213-223.
- Staskeviciute, I., & Neverauskas, B. (2008). The Intelligent University's Conceptual Model. *Inzinerine Ekonomika-Engineering Economics*(4), 53-58.
- Stewart, T. A. (2001). Intellectual capital: ten years later, how far we've come. *Fortune*, 143(11), 28 May. 192-193.
- Strumickas, M., & Valancienė, L. (2009). Research of management accounting changes in Lithuanian business organizations. *Inzinerine Ekonomika-Engineering Economics*(3), 26-32.
- Sullivan, P. H. Jr, & Sullivan P. H. Sr (2000). Valuing intangible companies – An intellectual capital approach. *Journal of Intellectual Capital*, 1(4), 328-340.
- Sveiby, K. E. (1997). The Intangible Assets Monitor. *Journal of Human Resource Costing & Accounting*, 2(1), 73-97.
- Urbanskiene, R., Zostautiene, D., & Chreptaviciene, V. (2008). The model of creation of customer relationship management (CRM) system. *Inzinerine Ekonomika-Engineering Economics*(3), 51-59.
- Uziene, L., Staliuniene, J. D. (2009). Intelektinio kapitalo auditas: samprata, uždaviniai ir realios galimybės. *Economics and Management-2009*, 123-131.
- Valancienė, L., Gimzauskiene, E. (2009). Dimensions of performance measurement system in changes research. *Inzinerine Ekonomika-Engineering Economics*(4), 41-48.
- Vaskeliene, L. (2006). Organizacijos intelektinio kapitalo vertinimo metodų dichotomijos raiška: teorinė studija ir empiriniai įrodymai. *Social Research*, 2(8), 150-159.
- Vaskeliene, L. (2007). Development of organizational intellectual capital measurement methodology: problems and solutions. *Economics and Management-2007*, 165-173.
- Vaskeliene, L. (2007). Quantitative research approach versus qualitative within the organizational intellectual capital performance measurement research. *Changes in Social and Business Environment : proceedings of the 2nd international conference, November 8-9, 2007, Panevezys, Lithuania : selected papers*, 284-290.
- Vaskeliene, L., Selepen, J. (2008). Informacijos apie intelektinį kapitalą atskleidimas Lietuvos akcinėse bendrovėse. *Economics and Management-2008*, 88-97.

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#### Organizacijos intelektinio kapitalo vertinimo modelis

Santrauka

Organizacijų intelektinio kapitalo vertinimas kaip vadybos mokslinių tyrimų problema tyrinėjama jau daugiau kaip du dešimtmečius. Intelektinio kapitalo vertinimo metodika vis dar nėra nusistovėjusi. Mokslinėje literatūroje sutinkama daug bandymų analizuoti intelektinio kapitalo vertinimo metodų esmę, kritinių šių metodų vertinimų, bandymų išvėgti silpnąsias ir stiprias puses. Ir nors kai kurios apčiuopiamos šių metodų pasirinkimo gairės jau išvėgtamos tam tikrose vadybinėse situacijose, vis dar tebediskutuojama dėl kiekybinių ir kokybinių, finansinių ir nefinansinių bei kitų intelektinio kapitalo vertinimo metodų taikymo sąlygų, prasmės ir naudingumo.

Šiame straipsnyje sprendžiamą problemą galima išreikšti klausimu: **kaip vertinti organizacijos intelektinį kapitalą siekiant priimti organizacijos valdymo sprendimus ir patenkinti informacinius išorinių suinteresuotųjų dalyvių poreikius?** Tyrimu siekiama agreguoti teorinę intelektinio kapitalo vertinimo patirtį ir pasiūlyti konceptualų organizacijos intelektinio kapitalo vertinimo modelį, kuris, atsižvelgiant į susiklosčiusią situaciją, įgalintų pasirinkti racionalaus vertinimo principus ir technikas.

Tyrimo objektas – intelektinio kapitalo vertinimas.

*Tyrimo tikslas* – sudaryti konceptualų organizacijos intelektualinio kapitalo vertinimo modelį, formalizuojantį intelektualinio kapitalo vertinimo procesą tenkinant vidinių ir išorinių suinteresuotųjų dalyvių informacinius poreikius.

*Tyrimo metodika*. Modelio sudarymas grindžiamas interpretacine konstruktyvistine epistemologine prieiga. Tyrimo išvados formuluojamos remiantis Lietuvos ir užsienio autorių moksliniais darbais. Sudarant modelį taikomi lyginamosios analizės, sintezės ir modeliavimo metodai. Modelis empiriškai apibendrinamas taikant atvejo analizės metodą pasirinktoje žiniui organizacijoje.

Intelektinio kapitalo vertinimo metodų gausa ir aiškių koncepcinių metodikos plėtotės kryptų nebuvimas verčia ieškoti būdų, kaip apibendrinti metodikos plėtotę. Todėl straipsnis pradeda intelektualinio kapitalo vertinimo metodų įvairovės aprašymu ir palyginamosios metodų analizės, atliktos ankstesniuose autorės tyrimuose, rezultatų apibendrinimu. Palyginamoji analizė tyrime svarbi kaip intelektualinio kapitalo vertinimo metodikos agregavimo, sintetinio ir pažangių idėjų atrankos priemonė.

Išanalizavus trisdešimt literatūroje pateikiamų intelektualinio kapitalo vertinimo metodų, nustatyta, jog šie metodai formuojasi skirtingų vadybos paradigmu kontekste, tarpusavyje skiriasi intelektualinio kapitalo ir vertės kategorijų samprata, indikatorių skaičiumi, matavimo vienetais, įverčių naudojimo pobūdžiu, pozicionavimu laiko ašyje, vyraujančiomis vertinimo priemonėmis ir kitais būdingais požymiais. Tačiau vienas iš svarbiausių požymių, lemiančių intelektualinio kapitalo vertinimo metodikos formavimąsi ir jos specifiką, yra taikant metodą spręstina problema. Šiuo požiūriu visus metodus tikslinga suskirstyti į dvi grupes: 1) intelektualinio kapitalo vertinimo metodai, kuriais siekiama priimti organizacijos valdymo sprendimus; 2) intelektualinio kapitalo vertinimo metodai, kuriais siekiama atskleisti informaciją apie intelektinį kapitalą išoriniams suinteresuotiesiems dalyviams.

Toliau straipsnyje apibendrinamos siaurosios intelektualinio kapitalo vertinimo metodikos formavimosi vietos ir išryškinamos pažangios jos plėtotės kryptys. Prieinama prie išvados, jog pagrindinėmis intelektualinio kapitalo vertinimo metodikos kliūtims reikėtų laikyti vertinimo konteksto ir organizacijos strategijos vaidmens ignoravimą, vertinimo metodais sprendžiamos problemos ir tikslų apibrėžtumo stoką, skirtingų suinteresuotųjų dalyvių interesų derinimo principo nepaisymą, perdėtą finansinių vertinimo technikų sureikšminimą, siekį standartizuoti intelektualinio kapitalo vertinimo metodiką ar suformuoti vieną apibendrintą intelektualinio kapitalo padėtį atspindintį indikatorių, vertinimo proceso įgyvendinimo aspektų ignoravimą, vertinimo rezultatų naudingumo išvalgo stygių ir palyginamųjų metodikos tyrimų trūkumą.

Siekiant išvengti šių kliūčių, intelektualinio kapitalo vertinimo metodo pasirinkimą ar savito vertinimo sprendimo projektavimą būtina grįsti sisteminiu požiūriu. Būtina suprasti, jog organizacijos intelektualinio kapitalo vertinimas – tai kryptingas daugiapakopis informacijos agregavimo ir interpretavimo procesas, kurį realizuoti tikslinga nuosekliai, t. y. nustatant intelektualinio kapitalo vertinimo poreikio specifiką, aiškiai apibrėžiant problemines situacijas pobūdį atitinkančius vertinimo tikslus, įvertinant poreikių ir apribojimų sandūroje besiformuojančias vertinimo galimybes, priklausomai nuo probleminės situacijos specifiškumo, iškeltų tikslų ir nustatytų vertinimo galimybių parenkant adekvačias vertinimo technikas bei aiškiai apibrėžiant vertinimo procedūras. Projektuojant intelektualinio kapitalo vertinimo sprendimus, būtina atskirti dvi savo ideologine prigimtimi, realizavimo pobūdžiu ir vertinimo technika išsiskiriančias perspektyvas: intelektualinio kapitalo vertinimą vidinio organizacijos valdymo tikslais ir intelektualinio kapitalo vertinimą išorinio informacijos atskleidimo tikslais.

Atsižvelgiant į nustatytas siaurasias intelektualinio kapitalo vertinimo metodikos vietas, straipsnyje pasiūlomas ir teoriškai argumentuojamas konceptualus organizacijos intelektualinio kapitalo vertinimo modelis. Šiame modelyje intelektualinio kapitalo vertinimas formalizuojamas kaip šešių nuoseklių vertinimo etapų procesas.

1 etapas. Situacijos analizė. Šiame etape atskiriamos, o vėliau integruojamos išorinės ir vidinės organizacijos aplinkos stebėjimo kryptys, konstatuojama susiklosčiusi padėtis, įvertinama pageidaujama situacija. Pokyčių vektoriuje „esama situacija – pageidaujama situacija“ identifikuojama konkreti intelektualinio kapitalo vertinimo problema. Nustatytos „esamos – pageidautinos situacijos“ spragos nulemia adekvačių tikslų šioms spragoms spręsti formulavimą.

2 etapas. Tikslų formulavimas. Šiame etape išryškėja dvi pagrindinės intelektualinio kapitalo vertinimo kryptys: intelektualinio kapitalo vertinimas vidinio organizacijos valdymo tikslais ir intelektualinio kapitalo vertinimas išorinio informacijos atskleidimo tikslais. Siekiant patenkinti abi šias kryptis taikant vieną ir tą patį metodą, dažnai nėra pasiekama nei viena, nei kita. Identifikuotas pokyčių vektorius „esama situacija – pageidaujama situacija“ sąlygoja vertinimo tikslo parinkimą, kuris savo ruožtu implikuoja vertinimo metodo pasirinkimą.

3 etapas. Vertinimo galimybių nustatymas. Intelektinio kapitalo vertinimo tikslai diktuoja vertinimo masto, finansavimo, laiko sąnaudų ir kitų poreikių specifiką. Kita vertus šie poreikiai yra ribojami organizacijos galimybių: organizacijos dydžio, personalo užimtumo, ribotų finansinių išteklių, susikoncentravimo pagrindinėse veiklos sferose laipsnio ir kt. Priklausomai nuo siekiamo tikslo, turi būti ieškoma pusiausvyros tarp intelektualinio kapitalo vertinimo poreikių ir apribojimų taško, kuris minimaliomis laiko, finansų, kt. išteklių sąnaudomis užtikrintų tikslų pasiekimą. „Kainos - naudos“ pusiausvyros nustatymas šiame etape yra itin kompliktuotas, ir dažnai remiasi subjektyviomis, intuityviomis organizacijos nuostatomis.

4 etapas. Vertinimo priemonių parinkimas. Atsižvelgiant į ankstesnių etapų realizavimo rezultatus, taip pat įvertinus atskirų vertinimo metodų pranašumus ir trūkumus, sprendžiama apie jų pritaikomumą konkrečioje vadybinėje situacijoje. Neatsiradus tinkamo tipinio metodo (*šiame koncepcijos raidos etape dažnai pasitaikanti situacija*), tikslinga kurti ir diegti originalius organizacijos intelektualinio kapitalo vertinimo sprendimus, kurių projektavimo gairės straipsnyje nubrėžiamos rekomenduojant racionalaus vertinimo principus ir technikas.

5 etapas. Vertinimo proceso organizavimas. Vertinimo procesas – tai kompleksinis reiškinys, kurį sąlygoja vidiniai ir išoriniai organizacijos veiksniai, iškeltų vertinimo tikslų pobūdis, pasirinktos vertinimo technikos. Nuo šių dedamųjų priklauso, ar tai bus tęstinis ar baigtinis procesas, kiek truks procesas, kiek hierarchinių personalo lygių betarpiškai dalyvaus procese, kokia kryptimi – „iš viršaus į apačią“ ar „iš apačios į viršų“ – vyks procesas. Svarbus grįžtamasis ryšys, užtikrinantis organizacinio mokymosi refleksiją, žinojimo ir tęstinio intelektualinio kapitalo vertinimo proceso kokybinį „augimą“.

6 etapas. Sprendimų priėmimas. Sprendimų aibė varijuoja nuo kompleksinių strateginio valdymo sprendimų iki atskirų nematerialių išteklių rūšių, organizacijos procesų valdymo ar atskirų suinteresuotųjų grupių informacinio tenkinimo sprendimų. Kuo giliau intelektualinio kapitalo vertinimo procesas įsiskverbia į organizacijos veiklos filosofiją, tuo daugiau galimybių organizacijai atveria.

Sudarant modelį analizuojamos dvi tikslinės intelektualinio kapitalo vertinimo perspektyvos: 1) intelektualinio kapitalo vertinimas siekiant priimti organizacijos valdymo sprendimus; 2) intelektualinio kapitalo vertinimas siekiant patenkinti informacinius išorinių suinteresuotųjų dalyvių poreikius. Kiekvienam iš scenarijų straipsnyje pasiūlomi racionalaus vertinimo principai ir parenkamos vertinimo technikos. Vidinio vertinimo perspektyvoje siūloma panaudoti būdingosios vertės grandinės projektavimo, sėkmės veiksnių identifikavimo, rodiklių rinkinio formavimo ir priežastinių ryšių testavimo technikas. Išorinio vertinimo perspektyvoje tikslinga derinti esminių kompetencijų koncepciją su išmatuojamų rodiklių, iliustravimo-interpretavimo ir vienijančio aprašymo atskaitos formatu.

Raktažodžiai: *intelektinis kapitalas, intelektualinio kapitalo vertinimas, vertinimo procesas, modelis*.

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