



Agnė
RAMANAUSKAITĖ

THE MODEL OF INTELLECTUAL CAPITAL EVALUATION AND PRESENTATION IN FINANCIAL STATEMENTS

SUMMARY OF DOCTORAL DISSERTATION

SOCIAL SCIENCES, ECONOMICS (04 S)

VILNIUS 2013

VILNIUS UNIVERSITY

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The doctoral dissertation was prepared in 2009 – 2013 at Vilnius University

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VILNIAUS UNIVERSITETAS

AGNĖ RAMANAUSKAITĖ

**INTELEKTINIO KAPITALO ĮVERTINIMO IR PATEIKIMO
FINANSINĖSE ATASKAITOSE MODELIS**

Daktaro disertacijos santrauka
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INTRODUCTION

Relevance of the subject. Habitually enterprises disclose the results of their activity to external information users by presenting financial statements. The information, the form of its presentation, the minimal extent and the type of the presented information in the statements are regulated and are mandatory for each and every enterprise operating in a specific legal environment. This way, external information users may compare different enterprises by considering various financial indices, and well-grounded investment decisions may be taken. However, due to the rapid development of economy and the spread of business processes, the information presented in financial statements becomes restricted and incapable of satisfying the increasing needs of external information users.

Recently, it has been complicated to take well-grounded investment decisions solely on the grounds of the information presented in financial statements of enterprises as the intellectual capital has been gaining ever more prominent importance due to its ability of creating added value. However, only a minor part of the intellectual capital is reflected in financial statements of enterprises as it frequently fails to satisfy one of the key criteria of asset recognition in accounting, namely, the reliable evaluation. As a result, the major part of the intellectual capital is not valued nor is it disclosed to external information users due to the indefiniteness and the intangibility typical of this type of capital. Consequently, external information users obtain only a part of the data about an enterprise and its activity, which directly impacts the decisions they are committing to. That is why the interest of the participants of the market towards this type of information has been increasing lately together with the need for novel methods of evaluation allowing enterprises to establish the values of the intellectual capital and/ or its constituent parts. This data would help to reveal the growth potential of an enterprise as well as its ability to create added value while the values calculated with the help of the same methodology would provide conditions for comparisons of different enterprises.

Exploration level of the scientific problem. The concept and structure of the intellectual capital have been researched by B.Lev (2001), J.H.Daum (2003), B.Lev et al. (2003), D.Andriessen (2004), P.L.Saez et al. (2007), I.Abeysekera (2008), J.Fitz-enz (2009), etc. The issue has also been investigated in various contexts: when dealing with

the significance of the intellectual capital regarding the development of an enterprise (T.E.J.Engstrom et al., 2003; I.Dubra, 2010, etc.), when analyzing the disclosure of information on the intellectual capital of an enterprise (I.Abeyssekera and J.Guthrie, 2004b; P.Ordonez de Pablos, 2005; D.Campbell and M.R.Rahman, 2010; A.-L.Mention, 2011; N.M.Husin, 2012; M.M.Wagiciengo and A.R.Belal, 2012, etc.), when investigating specialized reports on the intellectual capital (E.B.Campos and P.Ordonez de Pablos, 2007; B.Marr, 2008, etc.), when seeking to establish the relationship between the social responsibility of an enterprise and its intellectual capital (M.Pedrini, 2007; N.-M.Yaghoubi et al., 2010, etc.), when exploring opportunities of valuation of this capital (M.Borneman et al., 1999; N.Bontis, 2002a; J.Sedlaček and A.Konečný, 2009, etc.) for both external and internal (J.Chen et al., 2004; M.Borneman and K.Alwert, 2010, etc.) purposes, when comparing it with the intangible assets (I.Kuzmina, 2008) or when evaluating opportunities for its audit (I.Abeyssekera, 2001), etc. In spite of the high numbers of conducted researches, there is no uniform opinion regarding the term for ‘intellectual capital’. A number of terms have been used to refer to this capital, e.g. “intellectual capital”, “intangible capital”, “intangible assets”, “knowledge-based assets”, “knowledge capital”, “organization intellectual capital”, “intangibles”, “intangible resource”, “invisible resource”, “information assets”, “human capital”, “hidden value”, “organizational capacity” as well as many other synonyms. There is neither systematic interpretation nor any consistent agreement regarding the structure of the intellectual capital. The interpretation of the intellectual capital in specific academic works is manifested by the strife to outline its various constituent parts (usually as many as possible) and by attempts to define the difference between the intellectual capital and intangible assets when comparing it to other types of capital or when merely designing a new definition of the intellectual capital. To sum up, various academic works provide different reasoning which further complicates subsequent academic research in this field.

In the last decade, an increase has been observed in the investigation of the trends concerning the presentation of information on the intellectual capital in financial and other annual statements (K.Standfield, 2005; J.Fitz-enz, 2009, etc.). Even though the requirements of contemporary financial accounting and accountability ignore the phenomenon of the intellectual capital (M.S.Lilly and R.O.Reed, 2004; B.Marr, 2008, etc.) yet enterprises conceive it as an important value-creating object in the enterprise

(J.Van der Meer-Kooistra and S.M.Zijlstra, 2001; P.Westnes, 2005, etc.). Apart from the financial statements aimed at external information users, enterprises undertake the initiative to present additional information on their intellectual capital (N.Bontis, 2002b; K.A.April et al., 2003; I.K.Abeyssekera and J.Guthrie, 2004a; P.C.Goh and K.Ph.Lim, 2004; K.Abeyssekera and J.Guthrie, 2005; D.Campbell and M.R.Rahman, 2009; T.H.Ismail, 2009; Sh.Saad and N.M.Salleh, 2009; A.Rashid, 2010, etc.). Nevertheless, the specific culture within an enterprise, its type of activity and the attitude of the management condition differences in terms of the ways of the valuation, interpretation and disclosure of the intellectual capital. This leads to the absence of the possibility of comparison of the data. Even though the issue is recognized in a number of academic works, there is no uniform solution for dealing with it.

Numerous scholars have been researching methods suitable for valuation of the intellectual capital as well as their advantages and drawbacks (D.J.Skyrme and D.M.Amidon, 1998; P.N.Bukh et al., 2001; J.Ratnatunga, 2002; G.Kannan and W.G.Aulbur, 2004; S.Firer, 2005; H.A.Van den Berg, 2007; E.Fragouli, 2010, etc.); however, no uniform opinion regarding the way of conducting the valuation of the intellectual capital of an enterprise has been reached yet. A wide variety of works suggest approximately sixty different valuation methods, some of which are purely theoretical while others are actually applied in enterprises of various types; there are methods based on traditional financial theories as well. On the basis of some methods, new models are being created and suggested (I.Rodov and Ph.Leliaert, 2002; D.Andriessen, 2004; R.Kasselmann, 2006, etc.). In order to systemize the multiplicity of methods for the valuation of the intellectual capital, authors group them (Ch.Bouteiller, 2002; B.Lev et al., 2003; C.Muller, 2004; A.S.Sitar and V.Vasic, 2004; A.Rodriguez-Castellanos et al., 2007; H.P.Tan et al., 2007; J.Jurczak, 2008; I.Kuzmina, 2008; K.E.Sveiby, 2010; R.Salman ir T.B.Mahamad, 2012, etc.); however, even in this field there is no uniform agreement as different criteria of classification are applied or different methods of intellectual capital valuation are analyzed and grouped in these works. There is no research which could cover and generalize the whole spectrum of methods applicable for intellectual capital valuation as well as their theoretical and practical peculiarities, which complicates further researches in this field.

It should be noted that recently the number of works by Lithuanian authors in the

field of intellectual capital valuation and its disclosure has been increasing as well: the essence and structure of the intellectual capital have been researched by J.Palumickaitė and K.Matuzevičiūtė (2007), M.Taljūnaitė (2010), V.Gižienė and Ž.Simanavičienė (2012), etc. while its importance for the activity of an enterprise and for the value creation have been dealt with by I.Mačerinskienė and G.Aleknavičiūtė (2011), I.Mačerinskienė and S.Survilaitė (2011a, 2011b), L.Užienė (2012), etc. Valuable empirical research has been conducted when outlining the trends of the presentation of the intellectual capital in annual statements/ prospectuses of various Lithuanian enterprises (L.Vaškeliene, 2004; L.Vaškeliene and J.Šelepen, 2008).

Some authors (L.Vaškeliene, 2003; J.Mackevičius and J.Jarmalaitė, 2011; A.Stankevičienė et al., 2012, etc.) have been dealing with the issues of intangible assets classification, recognition and accounting. They highlight that only a part of the elements of the intellectual capital of an enterprise are accounted this way. This issue incited Lithuanian authors to analyze not only already existing methods of intellectual capital valuation (V.Bareišis, 2004; V.Pukelienė et al., 2007; L.Vaškeliene, 2007a, 2007b; A.Stankevičienė and A.Liučvaitienė, 2012, etc.) but also to create new models of valuation on their grounds with the objective of intellectual capital management or disclosure (L.Vaškeliene, 2005; J.Palumickaitė, 2008; A.Marfinaitė and K.Rudžionienė, 2011, etc.).

To sum up, the multiplicity of methods of intellectual capital valuation and the absence of established regulations concerning the presentation of the data on the intellectual capital of an enterprise to external information users both in Lithuania and worldwide requires further investigation in this field. Having considered the discussed problem issues of the researched topic, **the problem of the research** has been formulated: *how to complement financial statements with the data on the intellectual capital of an enterprise?* When outlining a solution, this paper strives to concentrate on: 1) *pragmatism* in order to avoid overly extensive, complicated and subjective systems of intellectual capital valuation; 2) *quantitative monetary* expression of results thus providing opportunities for comparisons; and 3) intellectual capital accounting and accountability *integrated* into the current system of financial accounting.

The object of the research is the evaluation of the intellectual capital of an enterprise.

The aim of the research is the development and application of a model of intellectual capital evaluation and its presentation in financial statements.

The main objectives of the research are:

- 1) to analyze the essence of the intellectual capital and to reveal its most prominent features;
- 2) to investigate the structure of the intellectual capital and to define its constituent parts;
- 3) to analyze and systemize previous empirical research evaluating the trends of enterprise intellectual capital data presentation to external information users;
- 4) to generalize upon intellectual capital valuation methods suggested in various academic works;
- 5) to explore the theoretical and practical aspects of intellectual capital evaluation methods and to appraise possibilities of their integration into the financial accounting;
- 6) to develop a theoretical model of enterprise intellectual capital evaluation and presentation in financial statements;
- 7) to outline a methodology and to apply the developed model in practice;
- 8) to measure the possibilities of integration of the model of intellectual capital evaluation and presentation in financial statements into the current system of financial accounting and to assess its importance regarding decisions based on financial statements.

Methods of the research. When dealing with the theoretical aspects of the intellectual capital and its structure and when establishing the relationship of its constituent parts, the following integrated scholarly research models were applied in this work: systematic and comparative analysis of academic works, synthesis, systemization and generalization. When investigating trends of the presentation of data on the intellectual capital of an enterprise to external information users highlighted in empirical researches and when researching the need for the standardization, data systemization and comparative analysis methods were being applied.

When analyzing methods of intellectual capital valuation suggested in academic works in terms of their theoretical and practical aspects, the methods of synthesis of academic works, grouping, systemization, descriptive and comparative analysis were

being employed. When developing a model of enterprise intellectual capital evaluation and its presentation in financial statements, deduction, synthesis, comparison and modeling methods were being applied.

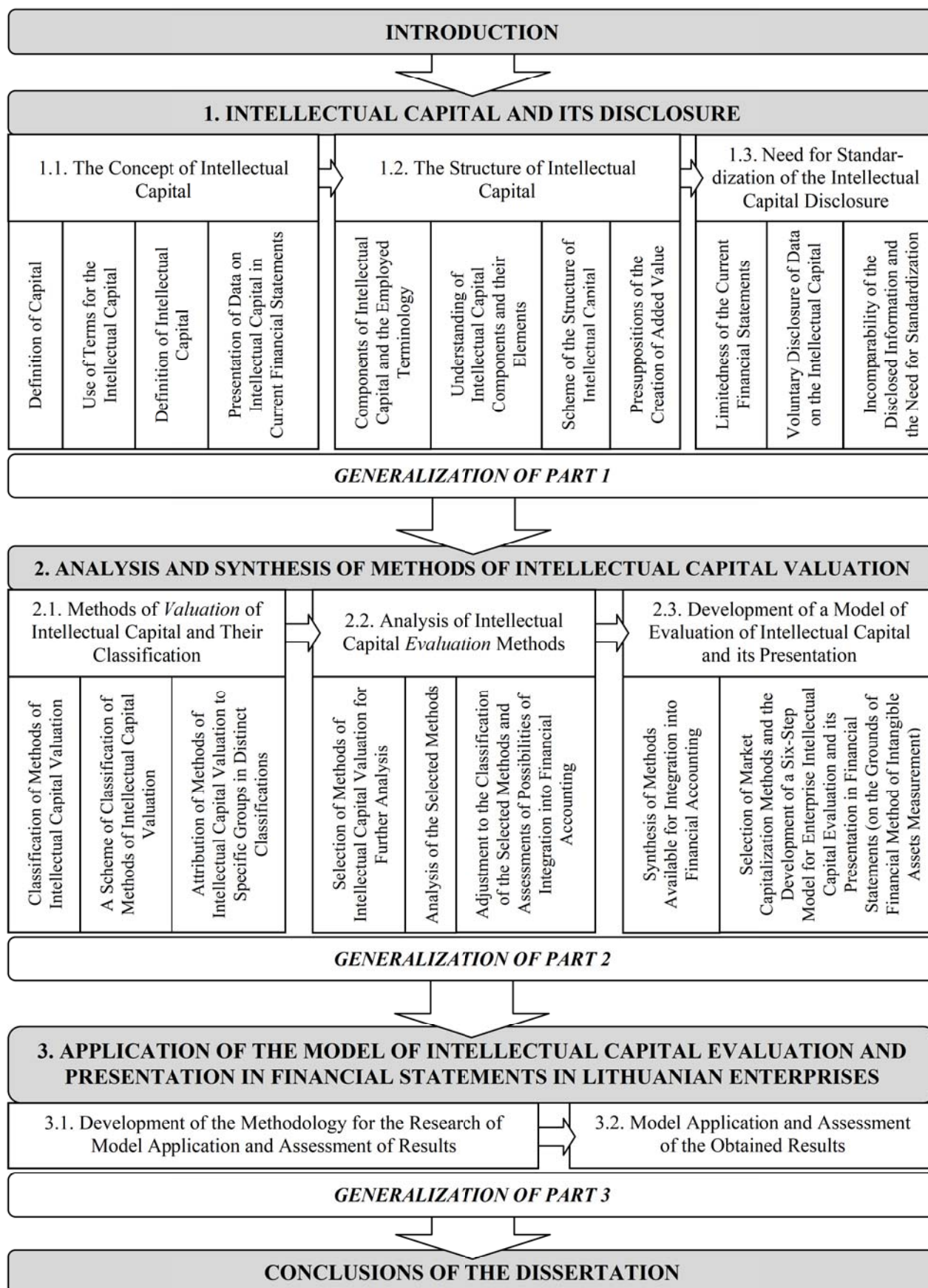
The theoretical model of the evaluation of the intellectual capital of an enterprise and its presentation in financial statements were checked in Lithuanian enterprises by applying inductive proof. The outlined research statements are verified by applying case, document and content analysis methods. When assessing the possibilities of integrating a model into the current financial accounting system and its importance regarding decisions based on financial statements, descriptive and graphical methods were used as well as the method of comparative analysis of quantitative data and relative indices. Microsoft Excel software was used for statistical and graphical data processing.

The limitations of the research are as follows. The thesis deals with physically intangible capital which has no definite price tag and is impossible to calculate. In order to provide the most precise estimate of this capital, most researches concentrate on the accumulation of the intellectual capital from the management point of view; as a result, the suggested models are extensive and complicated while their result is usually qualitative and not always possible to compare. The Author of the thesis having generalized on previously conducted researches and taking foreign experience in this field as a background strives to derive a model of intellectual capital evaluation which would allow to value the intellectual capital of an enterprise in monetary units and would not be hard to apply in practice. Besides, it would be easy to integrate into the current system of financial accounting thus avoiding a separate accounting system for the intellectual capital as well as drafting and presentation of additional reports. Consequently, the selection of this trend in the thesis partly limits the precision of the obtained results.

The structure of the research. The thesis consists of an introduction, three main parts and conclusions. Figure 1 presents the logical scheme of the thesis research reflecting the sequence of dealing with the set objectives.

The following results reveal **the scientific novelty of the research and its theoretical value:**

- a *scheme of intellectual capital structure* has been developed;



Source: created by the Author.

Figure 1. Logical scheme of the dissertation research

- a *definition of the intellectual capital* has been developed;
- a *scheme of classification of intellectual capital valuation methods* has been developed and a generalized *list of classification* of intellectual capital valuation methods revealing similarities of some methods due to their attribution to the same groups in different classifications has been drawn;
- a *system of classification of valuation methods according to the expression of the valuation result* has been developed. It clearly shows the essential features of specific valuation method groups and is a useful means when striving to harmonize the terms used in this field;
- a scheme of production factors classification has been developed revealing the position of *capital* and its distribution in economics.

The practical meaning of the research. The *model of intellectual capital evaluation and presentation in financial statements* has been developed, theoretically motivated and empirically verified. Taking into consideration the successful application, this model is suggested to supplement the current financial statements and to regulate the duty of enterprises to include the data on the intellectual capital. As a result, development and filling out of additional reports would be avoided; meanwhile, external information users would obtain more data for taking investment decisions.

1. INTELLECTUAL CAPITAL AND ITS DISCLOSURE

This part of the thesis deals with the concept of capital as well as with the importance of capital in economics. The part also investigates the concept of intellectual capital and the terms employed to give reference to it. The structure of intellectual capital is explored in the context of the relationship of the constituent parts. Besides, the importance of the presentation of information on the intellectual capital to external information users is highlighted and the results of academic researches on the voluntary disclosure of this data both in Lithuania and in the whole world are generalized.

The concept of the intellectual capital. When analyzing the concept of the intellectual capital, it is usually claimed that there is no universal agreement in the field of social sciences regarding the general definition of the intellectual capital. This is a consequence of the concept being mostly used in contexts of sciences of economics,

management, law and sociology. As a result, various interpretations are possible (M.Taljūnaitė, 2010). If interpretations of the concept of the intellectual capital in academic works are compared, several trends may be singled out:

- 1) *strife to enumerate various (and, if possible, all) the structural parts of the intellectual capital and avoidance to define the intellectual capital in its entirety* (N.Bontis, 2002a; L.Vaškelienė, 2003; D.Andriessen, 2004; P.C.Goh and K.Ph.Lim, 2004; V.Bareišis, 2004; J.R.Hitchner, 2006; J.Fitz-enz, 2009);
- 2) *presentation of the difference between the intellectual capital and intangible assets in order to define qualities typical of the explored type of capital* (M.S.Lilly and R.O.Reed, 2004);
- 3) *comparison between the intellectual capital and other types of capital* (M.Borneman et al., 1999; B.Lev, 2001; L.Vaškelienė, 2003);
- 4) *strife to produce a new definition of the intellectual capital* (J.H.Daum, 2003; J.Palumickaitė and K.Matuzevičiūtė, 2007; J.Palumickaitė, 2008).

The variety of definitions of the intellectual capital in academic works has been investigated by a number of scholars. The results of the conducted researches (T.E.J.Engstrom et al., 2003; P.Westnes, 2005) showed that 1) there is no universally accepted definition of the intellectual capital; 2) the concept of value creation is often mentioned, which shows that if the intellectual capital does not create any added value to the enterprise in any way it is useless; and 3) most definitions employ the same key words: knowledge, skills, know-how, experiences, intangible assets, information, processes, and value creation.

Structure of the intellectual capital. The variety of ways of splitting the intellectual capital into constituent parts (components or smaller parts – elements) in academic works leads to complications in terms of comparison testified in multiple researches. Their results show that the division of the intellectual capital into three *components* – human, organizational and relational – is the most widely accepted (M.Borneman et al., 1999; T.E.J.Engstrom et al., 2003; P.Westnes, 2005; P.L.Saez et al., 2007); this is also evident in the present thesis. Besides, the weight of the components in the entire structure of the intellectual capital (according to Saez et al., 2007) is similar: the human capital makes up 36%, the organizational capital constitutes 29% and the relational capital represents 35%.

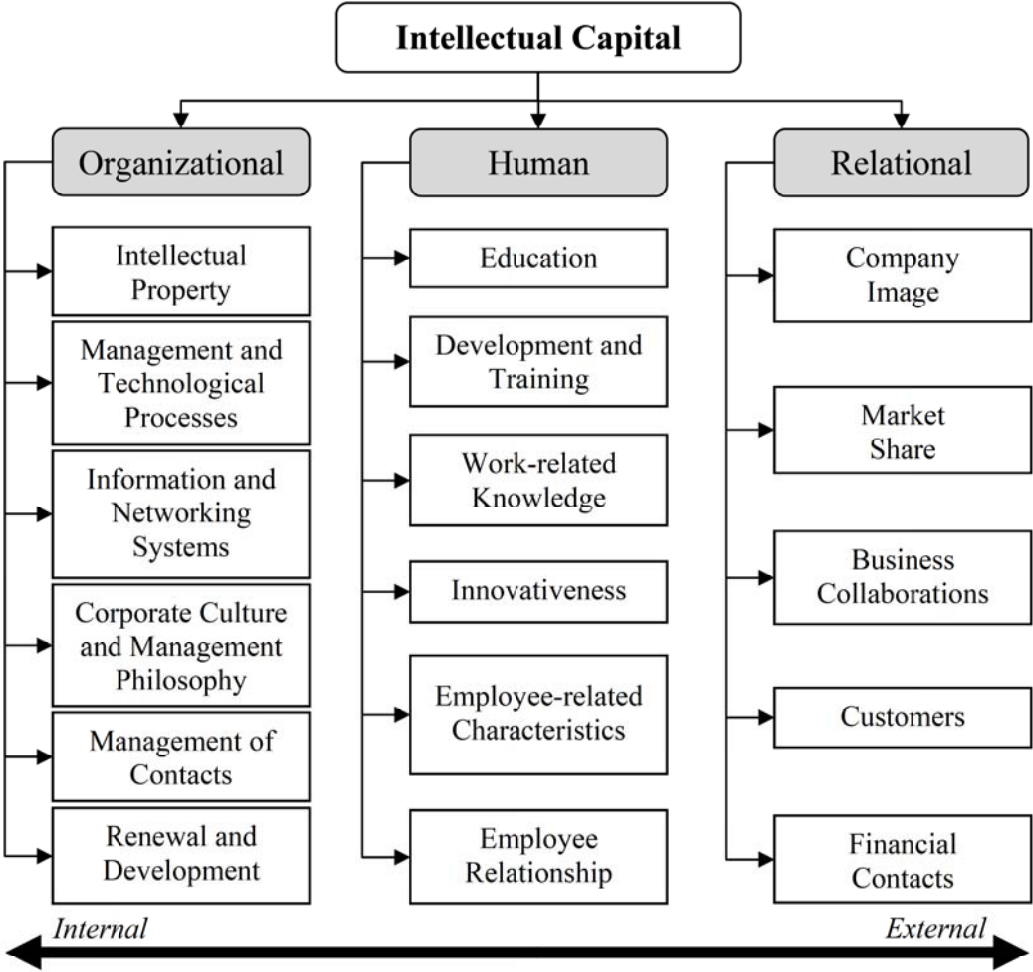
According to N.Bontis (2002a), J.H.Daum (2003), L.Vaškeliene (2003), J.R.Hitchner (2006), P.L.Saez et al. (2007), J.Fitz-enz (2009), I.Dubra (2010) and V.Gižienė and Ž.Simanavičienė (2012), the *human capital* is realized as the entirety of the knowledge, skills, education, experience, talent, innovativeness, competence, motivation, loyalty, creativity, ability to perform the task and to deal with the arising issues, leadership, business initiative, management and idea generation when going for new products possessed and exhibited by the staff of an enterprise. This capital is denoted by inability of being owned by an enterprise. It is claimed that this capital is one of the key and most influential resources of an enterprise in the competitive fight as the ability of an enterprise to compete in a market depends on the knowledge and skills possessed by its staff, i.e. on the efficiency of the human capital.

According to N.Bontis (2002a), J.H.Daum (2003), L.Vaškeliene (2003), J.R.Hitchner (2006) and P.L.Saez et al. (2007), the *organizational capital* is conceived as the organizational and financial structure of the organization, its strategic processes, technologies, procedures, process documentation, risk assessment methodology, software, systems, application of information technologies, databases (e.g. ones covering information on the market and its clients), patents, trademarks, methods of sales management, communication systems and all other organizational opportunities maintaining the productivity of the staff and facilitating their cooperation. It also includes the value of the enterprise, its culture and philosophy. It may be claimed that the organizational capital covers those technologies, methodologies and processes which allow the enterprise to operate. In other words, these are the things which remain at the enterprise after a working day when the staff have left. Differently from the human capital, this capital may belong to the enterprise and thus it may be possessed. This capital is considered to be the second most important capital at an enterprise after the human capital.

According to N.Bontis (2002a), J.H.Daum (2003), L.Vaškeliene (2003), P.L.Saez et al. (2007) and J.Fitz-enz (2009), the *relational capital* is treated as the awareness of the enterprise, its brand awareness, image, ability to operate in a network and to fulfill the orders it wins, supply channels, longterm contracts, license and franchise agreements and relationships with external entities constituting the marketing of the enterprise and its commercial abilities. External entities in this context represent clients/ consumers,

business partners, suppliers and regulating institutions.

Various academic works mention different *elements* of the intellectual capital. Having systemized the elements on the grounds of classifications provided by I.Abeysekera (2008), D.Campbell and M.R.Rahman (2010), A.-L.Mention (2011), N.M.Husin (2012) bei M.M.Wagiciengo and A.R.Belal (2012), the Author of the thesis systemizes these classifications and provides the following scheme of the structure of the intellectual capital (Figure 2).



Source: created by the Author.

Figure 2. Scheme of the structure of the intellectual capital

Finally, on the grounds of the conducted analysis of the concept of the intellectual capital, the Author of the thesis provides a definition of the intellectual capital and claims that the intellectual capital is the resources created in, purchased by or maintained by the enterprise which has no tangible form and together with the material and financial capital of the enterprise helps to create the added value. The intellectual capital may be

divided into minor constituent parts – components and elements. This definition strives to highlight that:

- 1) the intellectual capital has no tangible form (or this form is not predominant);
- 2) the intellectual capital may be purchased, created or merely maintained within an enterprise irrespectively of the property rights (e.g. the human capital cannot belong to an enterprise yet the enterprise may invest into it or use other methods of its involvement into the process of value creation);
- 3) the intellectual capital is divided into three components: the human capital, the organizational capital and the relational capital which considering the needs and the specificity of the enterprise may be split into further constituent parts – elements;
- 4) the intellectual capital or its components cannot operate independently *per se*: they only operate all and together and only together with other resources of the enterprise will the value creation be possible in the future.

Need for standardization of the disclosure of data on the intellectual capital of an enterprise. A number of authors (M.Borneman et al., 1999; J.Van der Meer-Kooistra and S.M.Zijlstra, 2001; J.R.Hitchner, 2006; T.H.Ismail, 2008; J.Fitz-enz, 2009; J.Mackevičius and J.Jarmalaitė, 2011; L.Užienė, 2012, etc.) emphasize the limitedness of financial statements and indicate the main differences of the statements and the employed systems of the presentation of intellectual capital-related information (Table 1) obstructing the presentation of the intellectual capital-related information together with the annual financial statements.

With the growth of importance of the intellectual capital in the market, the interest of external and internal information users in being presented more data on the intellectual capital of an enterprise was growing as well. This fact has been researched by numerous scholars (N.Bontis, 2002b; K.A.April et al., 2003; I.K.Abeysekera and J.Guthrie, 2004a, 2004b; P.C.Goh and K.Ph.Lim, 2004; I.K.Abeysekera and J.Guthrie, 2005; P.Ordonez de Pablos, 2005; E.B.Campos and P.Ordonez de Pablos, 2007; L.Vaškeliene and J.Šelepėn, 2008; D.Campbell and M.R.Rahman, 2009; Sh.Saad and N.M.Salleh, 2009; A.Rashid, 2010, etc.). Having produced generalizations on the results of the research, it is possible to state that:

- 1) considering the needs of information users, enterprises present increasingly

- more information on the intellectual capital in their financial or other annual statements, i.e. they cover its specific components and elements;
- 2) when disclosing various intellectual capital-related information, enterprises avoid the usage of the term “intellectual capital”;
 - 3) enterprises see the human capital as the most important type and it is covered in statements most of all (however, in some countries the relational capital predominates);
 - 4) the predominant form of presentation of data on the intellectual capital is qualitative, e.g. diagrams, photos, texts, tables without any numbers;
 - 5) enterprises of different countries provide different amount, type, sequence and form of information; this stems from different levels of country development and different requirements set by governments in the fields of politics, social structure and economics;
 - 6) enterprises lack a systematic methodology and guidelines for presentation of the intellectual capital.

Table 1.

Key differences in the presentation of financial statements and information on the intellectual capital

Features	Financial Statements	Intellectual Capital Reporting
1. Valuation Methodology	Monetary expression, fixed amount	Expressed in indicators, fixed features
2. Target Group	Shareholders, investors, other interested parties	Stakeholders covering both internal and external information users
3. Disclosure	Full disclosure	Selected information
4. Decision support	External	Internal
5. Time perspective	Historic (past-oriented)	Forecast (future-oriented)
6. Validity / Standards	High	Low
7. Extent of the employed data	Only the data which may be reliably evaluated	Any possible quantitative and qualitative evaluations
8. Attitude to the intellectual capital	Consequence of future actions (i.e. the data which will be the grounds of producing accounting data in the future)	Condition of value creation
9. Degree of availability	Unlimited for the owner	Harder to access while the information is only inside the heads of the staff or in such ephemeral phenomena as the chemistry of the organization, its innovativeness or business culture

Source: produced by the Author according to M.Borneman et al. (1999), J.Van der Meer-Kooistra and S.M.Zijlstra (2001), J.R.Hitchner (2006), T.H.Ismail (2008), J.Fitz-enz (2009).

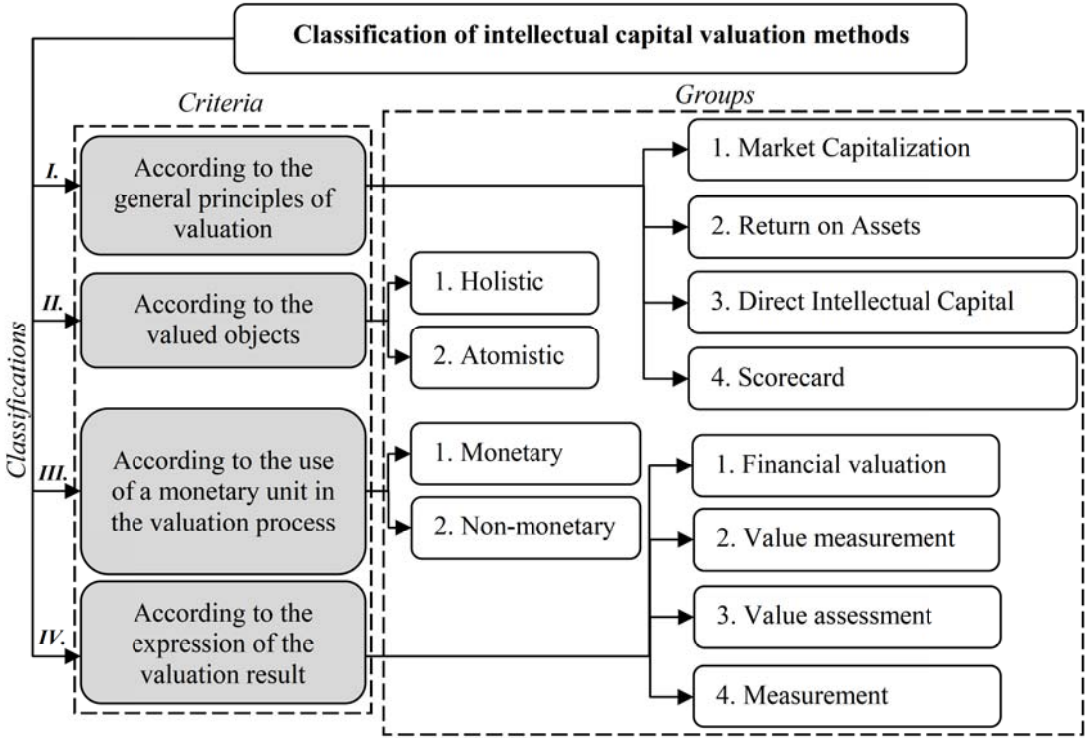
Consequently, the voluntarily presented data is different and hard to compare which is a core drawback faced by external information users when evaluating enterprises and comparing them. According to J.Van der Meer-Kooistra and S.M.Zijlstra (2001), B.Marr (2008) and V.Lakis (2008), presentation of information to external information users sets specific requirements: 1) information users want to be able to compare data about different enterprises; 2) they expect the presented information to be reliable, objective and containing protection from the involvement of subjective data; as a result, the quality of information must be possible to verify by independent auditors. Even though the need for public presentation of information on the intellectual capital is known and universally understood, there are no universally accepted and established principles of presentation of this data.

2. ANALYSIS AND SYNTHESIS OF METHODS OF INTELLECTUAL CAPITAL VALUATION

This part of the thesis deals with various methods suggested for the valuation of the intellectual capital in various academic works. A generalized classification scheme of these methods has been selected to assess possibilities of their integration into the financial accounting. In order to achieve the aim of the thesis, nineteen methods have been selected for further more extensive research allowing to calculate the qualitative value of the intellectual capital of an enterprise in monetary units. The research is conducted in terms of theoretical and practical aspects of the methods by singling their advantages and drawbacks and by assessing their applicability. On the grounds of analysis and synthesis, the most suitable method is selected and on the basis of this method, a theoretical model for the evaluation of the intellectual capital and its presentation in financial statements is developed.

Methods of intellectual capital valuation and their classification. Methods of intellectual capital valuation of an enterprise have been researched by a number of authors (C.Bouteiller, 2002; J.Ratnatunga, 2002; I.Rodov and Ph.Leliaert, 2002; B.Lev et al., 2003; D.Andriessen, 2004; V.Bareišis, 2004; C.Muller, 2004; A.S.Sitar and V.Vasic, 2004; L.Vaškeliënė, 2007a, 2007b; V.Pukeliënė et al., 2007; A. Rodriguez-Castellanos et al., 2007; H.P.Tan et al., 2007; H.A.Van den Berg, 2007; J.Jurczak, 2008; I.Kuzmina, 2008; K.E.Sveiby, 2010; R.T.Salman and T.B.Mahamad, 2012, etc.); their

works mention and suggest at least sixty different methods of intellectual capital valuation. The multiplicity of methods and variations of their application undoubtedly complicate both theoretical and empirical research in this field. Many authors in order to systemize and reveal features common in various methods or to identify the shared features classify them according to certain criteria. Having conducted a research and considered all the classification aspects of intellectual capital valuation methods presented in academic works, a generalized scheme of classification of these methods has been developed (Figure 3). It has been discovered that methods of intellectual capital valuation may be classified on the grounds of four criteria and divided into groups accordingly.



Source: produced by the Author.

Figure 3. A scheme of classification of intellectual capital valuation methods

According to the first classification, most methods are assigned to the ‘scorecard’ group, i.e. the intellectual capital is valued without employing monetary units but rather by attributing indices or indicators to its specific components. This is corroborated by the number of methods presented in the ‘atomistic’ group of the second classification, i.e. most methods treat the intellectual capital not as an entirety but rather deal with its specific components. In the third classification, the number of methods attributed to

either group is more or less equal; yet, in the process of valuation, the majority of methods do not use this unit of measurement. According to the fourth classification, most methods are assigned to the group of ‘financial valuation’ methods; however, considering the fact that this classification has been researched the least of all in academic works it is possible to claim that this field has not been adequately explored yet and that these results shall impact the generalizing conclusions to the least extent.

When summarizing the obtained results it is possible to claim that most methods of intellectual capital valuation are based on scorecard, they tend to assess specific components of the intellectual capital and do not employ monetary units in the process of valuation; as a result, the expression of the valuation result is non-monetary, i.e. it is qualitative and presented as text or quantitative and presented as an index.

Analysis and synthesis of the methods of intellectual capital *evaluation*. Considering the aim of the thesis, the Author restricts the research in the field of intellectual capital valuation methods and further researches only those *evaluation* methods which allow the evaluation of the entirety of the intellectual capital of an enterprise (i.e. the *holistic* methods) and/ or the establishment of the enterprise value in monetary expression (i.e. *financial valuation* methods) by applying corresponding general principles of valuation (*market capitalization, return on assets* or *direct intellectual capital* methods) and a monetary unit of measurement in the process of valuation (i.e. *monetary* methods). In order to achieve this objective, 19 methods applicable to these groups have been selected for further research.

The conducted analysis of the theoretical and practical aspects of the selected methods in academic works contributes to a more precise classification (Table 2). The Author also supplements the Table with the column “Applicability in financial accounting” where “+” stands for the method being suitable for the evaluation of the intellectual capital and its presentation in financial statements thus complementing the methods applied in financial accounting; “+/-” means that the method may be applied while “-” indicates that the method is unsuitable and cannot be applied.

The analysis of the results presented in Table 2 leads to two groups corresponding to the aim of the thesis and applicable in financial accounting being singled out (Table 3). Having conducted a synthesis of Group A methods, the Author concludes and emphasizes that these methods typically exhibit the subjectivity of a valuator as a part of

Table 2.

Methods of intellectual capital *evaluation* and a revised classification

No.	Classification Group Method	I.				II.		III.		IV.				Applicability in financial accounting
		Market Capitalization	Return on Assets	Direct Intellectual Capital	Scorecard	Holistic	Atomistic	Monetary	Non-monetary	Financial valuation	Value measurement	Value assessment	Measurement	
1	Market to book value / Market to book ratio (MTBV / MTBR)	X				X		X		X				+
2	Tobin's q (Tq)	X				X		X		X				+/-
3	Calculated intangible value (CIV)		X			X		X		X				+
4	Intellectual capital index				X	X		X		X				-
5	Technology broker (sometimes referred to as Intellectual capital audit)			X			X	X		X				-
6	Economic value added (EVA)		X			X		X		X				+/-
7	Market value added (MVA)	X				X		X		X				+
8	Value added intellectual capital coefficient		X			X		X		X				-
9	Total value creation			X			X	X		X				-
10	The value explorer / Weightless wealth tool kit (TVE / WWKT)		X			X		X		X				+
11	Citation-weighted patents			X		X		X				X		-
12	Knowledge capital earnings (KCE)		X			X		X		X				+/-
13	Accounting for the future		X			X		X		X				-
14	Investor's assigned market value (IAMV)	X				X		X		X				+/-
15	Human resource (costing &) accounting			X			X	X		X				-
16	Intellectual assets valuation			X			X	X		X				-
17	Inclusive value (sometimes referred to as valuation) methodology			X			X	X			X			-
18	Human resource statement			X			X	X		X				-
19	Financial method of intangible assets measurement (FiMIAM)	X				X		X		X				+

Source: produced by the Author.

the data employed in the process of valuation is forecast-based. Besides, lack of use of average data is not eliminated. Furthermore, the rate of return of specific capital groups and their indirect calculations applicable in the process of valuation remain unclear. It is possible to claim that no variable in this calculation process is precise, and their establishment is inseparable from the factor of subjectivity thus depriving one of an opportunity of comparing the obtained results among themselves. Consequently, in relation with the aim of the thesis, the Author rejects these methods.

Table 3.

Classification of intellectual capital *evaluation* methods corresponding to the aim of the thesis

Group	Methods assigned	Features
A	CIV EVA TVE / WWKT KCE	These are financial valuation methods allowing to calculate the total value of the intellectual capital of an enterprise (holistic methods) in monetary units (monetary methods), and the calculations are based on the <i>evaluation of the return on assets</i> .
B	MTBV/MTBR Tq MVA IAMV FiMIAM	These are methods of financial valuation allowing to calculate the total value of the intellectual capital of an enterprise (holistic methods) in monetary units (monetary methods), and the calculations are based on the <i>capitalization of market value</i> . Consequently, these methods may be applied only for the enterprises whose market value may be established reliably.

Source: produced by the Author.

Having conducted a synthesis of Group B methods, the Author concludes and claims that the usage of market value in the process of valuation helps one avoid the valuator subjectivity-related disadvantages; this value is precise and possible to establish at any given moment. It measures an enterprise as an entirety by covering both identifiable and unidentifiable objects of the capital as well as the liabilities of the enterprise. The comparison of this value with its book value simply and plainly reveals whether the enterprise possesses any capital which is not presented in its financial statements. It should be highlighted that before establishing the balance value of an enterprise it is useful to check whether the values of the assets and liabilities of the enterprise are similar to their fair values (as the standards of accounting require).

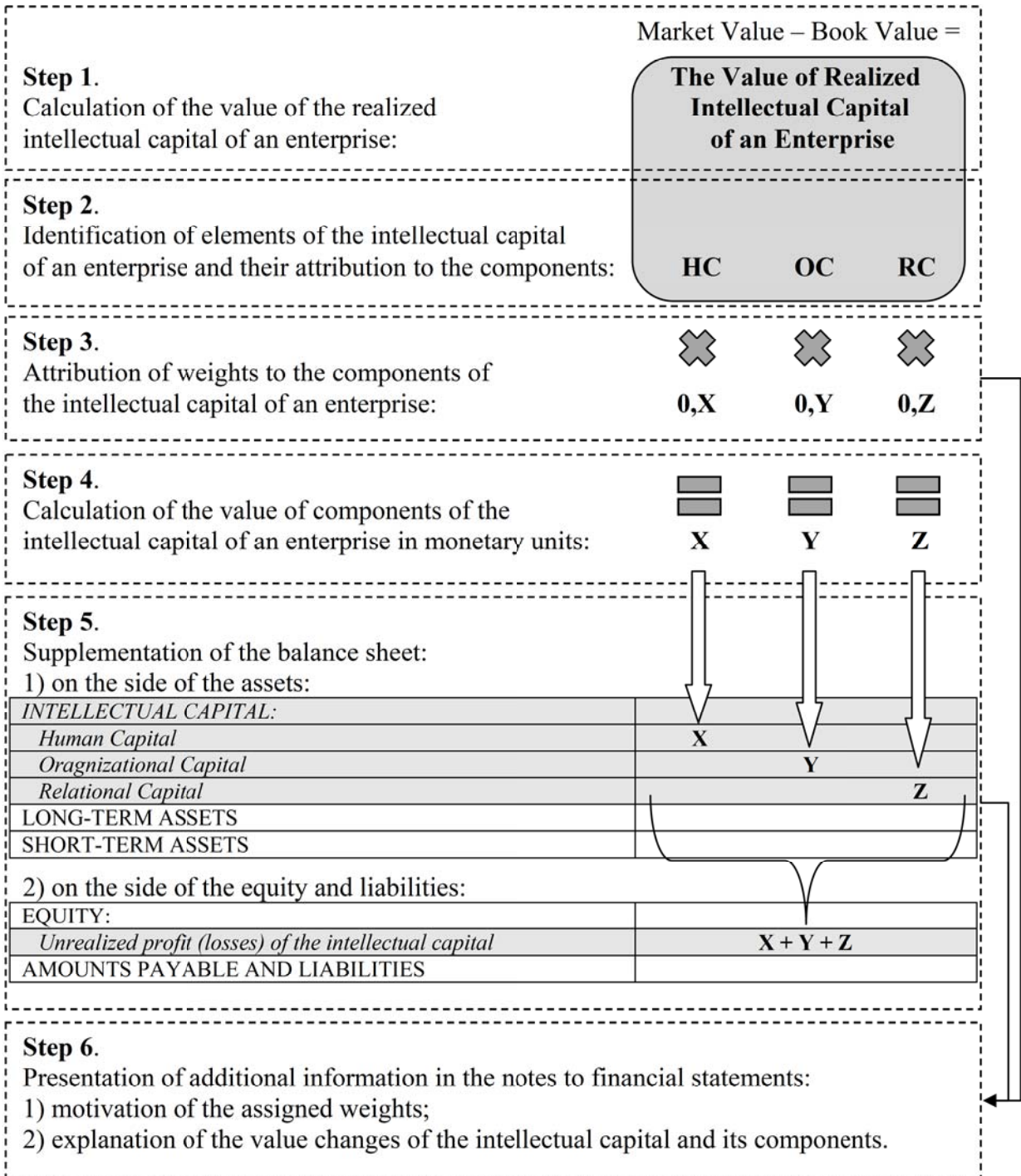
One of Group B methods, namely, FiMIAM by applying the weights established within the enterprise distributes the obtained difference across the three intellectual capital components, i.e. the human, organizational and relational – thus establishing their value in a monetary equivalent. This identification of the values of intellectual capital

components is well-grounded and logical just because of the fact that all the intellectual capital components and elements are interwoven as they are worthless separately; hence, the separation of their values is an extremely complex or even insurmountable challenge. Considering this, *the model of intellectual capital evaluation and presentation in financial statements* is based on principles typical of Group B methods.

Development of a model of intellectual capital evaluation and presentation in financial statements. The theoretical *model of intellectual capital evaluation and presentation in financial statements* consists of six steps (Figure 4). *Step One* is the calculation of the difference between the market value and the book value of the enterprise which is equaled to the value of the realized intellectual capital of the enterprise. It should be remarked that this idea originates in IAVM method. In *Step Two*, within the enterprise, those elements of the intellectual capital are identified which define and explain the future monetary flow. Then they are assigned to the corresponding components of the intellectual capital of the enterprise. In *Step Three*, on the grounds of *Step Two*, the weights of the components of the intellectual capital of the enterprise in the general context are outlined in order to reflect the relative influence and importance of each of them upon the entirety of the intellectual capital. This step should be performed by the management of the enterprise on the grounds of their experience and on the basis of their understanding of value creation within the enterprise. It should be noted that additional regulation and/ or recommendations for *Steps Two* and *Three* are required at national or regional levels; these steps could apply various quantitative non-monetary and qualitative methods of intellectual capital valuation; however, this requires a more profound research into the methods of the intellectual capital *measurement* that has not been performed in the framework of this thesis.

On the grounds of the established weights of the components of the intellectual capital within the enterprise, *Step Four* calculation represents the discovery of the value of intellectual capital components in monetary units. These values are consequently presented in the balance sheet of the enterprise (*Step Five*): 1) in the assets side by including the additional position “*Intellectual capital*” and its components “*Human capital – HC*“, “*Organizational capital – OC*” and “*Relational capital – RC*” while 2) the position of “*Equity*” on the side of the equity and liabilities of the balance sheet is supplemented with a line “*Unrealized profit (losses) of the intellectual capital*” thus

restoring the expenses that the enterprise underwent when maintaining its intellectual capital which were treated as expenses (in the case of profitability) or when acknowledging consequences of inefficient use of the intellectual capital (in the case of losses).



Source: created by the Author.

Figure 4. The model of intellectual capital evaluation and presentation in financial statements

On the grounds of *Step Six* of the model, the explanatory note should contain additional information in order to explain the values of the intellectual capital and its components presented in the balance sheet better: 1) to ground and argument the weight attributed to specific components of the intellectual capital of the enterprise; and 2) in order to explain alterations of the value of the intellectual capital and its components. This step also requires useful additional regulation(s) and/ or recommendations at regional or national levels.

Consequently, if enterprises apply this model, they not only present the values of the realized intellectual capital and its components in the balance sheet but also provide motivation for the calculation of these values and the explanation of changes in the notes to financial statements. As a result, external information users are supplied with additional information on the capital possessed by the enterprise while creation, filling in and presentation of new statements is avoided.

3. APPLICATION OF THE MODEL OF INTELLECTUAL CAPITAL EVALUATION AND PRESENTATION IN FINANCIAL STATEMENTS IN LITHUANIAN ENTERPRISES

This part establishes the methodology of the research of the model application and assessment of the obtained results. On the grounds of this methodology by employing data of annual statements of publicly listed enterprises operating in dairy products and alcohol industries of the Republic of Lithuania, the possibilities of integrating *the model of intellectual capital evaluation and presentation in financial statements* developed by the Author of the thesis into the system of financial accounting and the significance of the model for the decisions based on the information provided in financial statements are evaluated.

Methodology of the research of the application of the model. *The object of the research* is the model of intellectual capital evaluation and presentation in financial statements. *The aim* is to assess the applicability of the model and its significance for consumers decisions based on the information presented in financial statements. In order to achieve the aim, the following *objectives* were set in the research: 1) to highlight issues encountered in application of the model in practice; and 2) to analyze the

significance of the integration of the model into the system of financial accounting regarding the decisions taken by external information users.

Methods of the research. In order to achieve the set objectives, the inductive method of research was selected. Induction is a method of empirical research of phenomena when, after the investigation of specific objects and the discovery of a specific quality of the phenomena, a conclusion is drawn that all the objects belonging to the class possess the same quality (R.Plečkaitis, 1978; quoted from: R.Tidikis, 2003). Research statements are correspondingly set to be followed during the course of the empirical research: T(1). *The model of intellectual capital evaluation and presentation in financial statements is not* applicable in practice; and T(2). Financial statements supplemented with data on the intellectual capital of an enterprise **do not alter** the results of financial analysis conducted on the basis of these statements. In order to verify the selected claims, case study was selected. This research involves document and content analysis methods.

Sample of the research. When establishing the sample of the research, it was considered that the core data element necessary for the application of the model is the market value of an enterprise. In Lithuania, the market value may be reliably established only for these enterprises whose shares are publicly traded in the market. There are 33 enterprises of this type. Enterprises have been selected for this research considering the branch of economy they represent and the date since which they have been continually listed. These enterprises and branches of industry were attempted to be selected whose data may be compared both among enterprises and between/ among branches of industry. As a result, eight enterprises operating in the branch of industry “food and beverages” have been selected for further analysis, four of which are involved in alcohol production and trade (AB Anykščių Vynas, AB Gubernija, Company group ALITA, AB and AB Vilniaus degtinė) while the four others deal with the production and trade of dairy products (AB Pieno žvaigždės, AB Rokiškio sūris, Vilkyškių pieninė, AB and Žemaitijos pienas, AB). A four-year period from 2009 to 2012 inclusive was selected for exploration.

Organization and course of the research. In order to accomplish Objective One, the instrumentation of the research was described which is based on systematic implementation of the steps of the verified model. In the course of the research, publicly

available information posted on the internet was being used, i.e. the data of the annual statements of the enterprises and the data of the stock exchange internet website was being employed. Data on the elements of the intellectual capital of the enterprises (Step Three of the model) and the weights assigned to the components (Step Four of the model) were obtained by using alternative methods, namely, by performing content analysis of the publicly posted data.

In order to implement Objective Two, financial analysis of the enterprises was conducted on the grounds of information presented in the financial statements of these enterprises: horizontal, vertical and financial ratios (profitability, turnover and financial leverage) were considered. On the basis of this information, the research statement T(2). *Financial statements supplemented with data on the intellectual capital of an enterprise* **do not alter** the results of financial analysis conducted on the basis of these statements is divided further and verified in terms of five operative claims:

T(2)₁: Supplementation of the balance sheet assets side with the data on the intellectual capital of an enterprise **does not alter** the results of horizontal and vertical analysis;

T(2)₂: Supplementation of the balance sheet equity and liabilities side with the data on the unrealized profit (losses) of the intellectual capital of an enterprise **does not alter** the results of horizontal and vertical analysis;

T(2)₃: Supplementation of the balance sheet with the data on the intellectual capital of an enterprise **does not alter** the results of the analysis of financial profitability ratios;

T(2)₄: Supplementation of the balance sheet with the data on the intellectual capital of an enterprise **does not alter** the results of the analysis of financial turnover ratios;

T(2)₅: Supplementation of the balance sheet with the data on the intellectual capital of an enterprise **does not alter** the results of the analysis of financial leverage ratios.

These statements have been selected by the Author of the thesis for verification in both selected branches of industry (alcohol and dairy industry) separately; hence, each statement is split into two and ten operative claims T(2)_{1A}, T(2)_{1P}, T(2)_{2A}, T(2)_{2P}, T(2)_{3A}, T(2)_{3P}, T(2)_{4A}, T(2)_{4P}, T(2)_{5A} and T(2)_{5P} are verified where index *A* stands for the

industry branch of alcohol while index P stands for the industry branch of dairy products. The outlined statements are empirically verified in the course of the research. *Microsoft Excel* software is employed for statistical and graphical data processing.

Results of the model application. Having implemented Objective One, four core issues in the implementation of the verified model in real life were established. The first issue is the *impossibility of the establishment of the market value of these enterprises whose shares are not traded in the market*. In order to eliminate this drawback, a method or methods offering reliable establishment of the value of a specific enterprise in monetary units should be involved into the model of intellectual capital evaluation and presentation in financial statements. However, this requires additional research in the field of enterprise value establishment which was not conducted in the framework of this thesis. On the other hand, investment decisions are usually taken by individuals involved into the stock market and they are mostly interested in those enterprises whose shares may be traded in the market.

The second issue of the practical application is the *identification of elements of the intellectual capital of an enterprise and their attribution to the components of the intellectual capital of the enterprise*. The third issue in the application of this model is closely related with the previous one; it is the *assignment of weights to the components of the intellectual capital of the enterprise*. In order to help enterprises properly implement these steps of the model, additional regulations or recommendations may be required and useful which would: 1) extensively explain the concept of specific elements of the intellectual capital of an enterprise; 2) present potential methods for their identification and assignment to components of the intellectual capital; and 3) recommend ways for assigning weights to specific components of the intellectual capital of an enterprise.

The fourth issue regarding application is the *presentation of data in the notes to financial statements*. Here, additional regulations are also required and useful at national or regional levels. In order to harmonize the type and shape of information, the minimal scope of information related with 1) the assignment of weights to specific components of the intellectual capital of an enterprise and 2) changes in the values of the intellectual capital and its components should be presented in the notes to financial statements.

Considering the issues of the model identified during the practical research it is

possible to claim that the developed model of intellectual capital evaluation and presentation in financial statements is applicable in practice and providing that the necessary regulations and/ or recommendations are passed/ drafted it may be successfully integrated into the system of financial accounting. *On these grounds, the Author of the thesis negates the research statement T(1).*

When dealing with Objective Two, a research of the impact of the model integration into financial accounting taking into consideration the effect on decisions taken by external information users was conducted. The generalized data of the investigated operative statements is presented in Table 4. When exploring the obtained results, it is evident that six out of ten operative statements were negated which determined the negation of the initial research statement.

Table 4.

Results of verification of the operative statements and negation of the initial statement

No.	Claim	Result
T(2) _{1A}	Supplementation of the balance sheet assets side with the data on the intellectual capital of an enterprise does not alter the results of horizontal and vertical analysis	Negative
T(2) _{1P}		Negative
T(2) _{2A}	Supplementation of the balance sheet equity and liabilities side with the data on the unrealized profit (losses) of the intellectual capital of an enterprise does not alter the results of horizontal and vertical analysis	Negative
T(2) _{2P}		Negative
T(2) _{3A}	Supplementation of the balance sheet with the data on the intellectual capital of an enterprise does not alter the results of the analysis of financial profitability ratios	Affirmative
T(2) _{3P}		Negative
T(2) _{4A}	Supplementation of the balance sheet with the data on the intellectual capital of an enterprise does not alter the results of the analysis of financial turnover ratios	Affirmative
T(2) _{4P}		Affirmative
T(2) _{5A}	Supplementation of the balance sheet with the data on the intellectual capital of an enterprise does not alter the results of the analysis of financial leverage ratios	Affirmative
T(2) _{5P}		Negative
T(2)	<i>Financial statements supplemented with data on the intellectual capital of an enterprise do not alter the results of financial analysis conducted on the basis of these statements</i>	Negative

Source: produced by the Author.

When generalizing on the conducted research, it may be stated that financial statements supplemented with data on the intellectual capital of an enterprise **do alter** results of the financial analysis conducted on the grounds of these statements. Considering this in the context of the opinion of J.Mackevičius that 1) the current financial statements provide insufficient information which does not meet the needs of internal and external information users under the permanently changing conditions of the

competitive market and that 2) financial statements are required to present such information which should help information users take the right decisions, evaluate events of former, current and future periods, organize economically rational and efficient activity (J.Mackevičius, 2006), the Author concludes that the integration of *the model of intellectual capital evaluation and presentation in financial statements* into the system of financial accounting will provide analysts with additional data for the implementation of analysis thus reducing the limitations of the information which is currently provided in financial statements.

CONCLUSIONS

1. Having analyzed the essence of the intellectual capital and its typical qualities, a *definition of the intellectual capital* has been developed. It was established that this is resources having no tangible form which are created, purchased or maintained within an enterprise where, together with the material and financial capital of the enterprise, these resources contribute to the creation of the added value. The intellectual capital may be divided into minor constituent parts – components and elements. This definition highlights that 1) the intellectual capital has no material (tangible) form or that this form is not predominant; 2) the intellectual capital may be purchased, produced or merely maintained within an enterprise irrespective of the ownership rights (e.g. the human capital cannot belong to an enterprise; however, the enterprise may invest into it or employ other methods of its involvement into the value creation process); 3) the intellectual capital is divided into components and elements; and 4) the intellectual capital or its components/ elements cannot operate separately as such; they function only in their entirety and together and only together with other resources of the enterprise will the value creation be possible in the future.
2. Having researched constituent parts of the intellectual capital presented in academic works, a *structural scheme of the intellectual capital* was developed by singling out three components of the intellectual capital: the human capital, the organizational capital and the relational capital. Taking into consideration the needs and the specificity of the enterprise, all of them may be split into minor constituent parts – elements – which may be grouped on the grounds of the content analysis of various academic works:

- the group of the *elements of the human capital*: 1) education; 2) development and training; 3) work-related knowledge; 4) innovativeness; 5) employee-related characteristics; and 6) employee relationship;
 - the group of the *elements of the organizational capital*: 1) intellectual property; 2) management and technological processes; 3) information and networking systems; 4) corporate culture and management philosophy; 5) management of contacts; and 6) renewal and development;
 - the group of the *elements of the relational capital*: 1) company image; 2) market share; 3) business collaborations; 4) customers; and 5) financial contacts.
3. Having researched and systemized the conducted empirical research in various countries regarding the trends of the presentation of information on the intellectual capital of an enterprise to external information users it was established that: 1) by considering the needs of information users, in their financial and other annual statements, enterprises have been presenting more and more information about their intellectual capital; 2) by releasing various intellectual capital-related information, enterprises do not use the term “intellectual capital”; 3) enterprises see the human capital as the most important type and cover it in their financial statements most of all (even though the relational capital is highlighted more prominently in some countries); 4) the predominant form of the intellectual capital-related information presentation is qualitative, e.g. diagrams, photos, texts, tables (using no numerical values); 5) the extent, type, order and form of the presented intellectual capital-related information differ from country to country due to the level of development and differences in requirements set in the political, social and economy spheres; and 6) enterprises lack a systematic methodology and guidelines for presentation of the intellectual capital. It was discovered that many academic works highlight the need to standardize the presentation of the information on the intellectual capital of an enterprise as peculiarities of the enterprise culture and the attitudes of the managerial staff obstruct the natural development of the process and hamper the achievement of the main objective, namely, *the provision of more data on the objects creating value of the enterprise to external information users so that the data could be comparable between/ among different enterprises, industry branches or regions.*

4. Having generalized on the suggested methods of intellectual capital valuation, a scheme of classification of these methods is suggested. It outlines four classes of *methods of intellectual capital valuation*: I. *According to general principles of valuation* (four groups of methods are singled out: Market capitalization, Return on assets, Direct intellectual capital and Scorecard). II. *According to the valued objects* (two groups of methods are highlighted: Holistic and Atomistic). III. *According to the use of a monetary unit in the valuation process* (two groups of methods are listed: Monetary and Non-monetary). IV. *According to the expression of the valuation result* (four groups of methods are enumerated: Financial valuation, Value measurement, Value assessment and Measurement). It was established that at least sixty different methods are suggested for the valuation of the intellectual capital of an enterprise. Most of them are based on scorecard, assess specific components of intellectual capital and do not employ monetary units in the process of valuation; as a result, the expression of the valuation result is non-monetary, i.e. it is qualitative and presented as text or quantitative and presented as an index.

Besides, a *system of classification of valuation methods according to the expression of the valuation result* was also developed. It clearly shows the most prominent features of specific valuation methods and is a good means when striving to harmonize the terms used in this field. It was discovered that all the methods suggested for the valuation of the intellectual capital should be referred to as *valuation methods* which are useful to divide in terms of the expression of the result into: 1) methods of *evaluation* and 2) methods of *measurement*. The expression of the methods of evaluation is quantitative monetary, and all the methods of the group of *financial valuation* are assigned to this group. The expression of the result of the *measurement* methods is quantitative non-monetary or qualitative, and *value measurement* methods, *value assessment* methods and *measurement* methods are attributed to this group.

5. Having explored the theoretical and practical aspects of nineteen methods of intellect capital *evaluation*, possibilities of their integration into the financial accounting were explored. It was established that five of them may be applied in the financial accounting and are thus suitable for the development of a model, four methods may be applied and the remaining ten methods are not applicable or cannot be applicable

because of complicated or unclear guidelines of application. During the research, two groups of methods with possible application were developed: **Group A methods** are methods of financial valuation allowing the calculation of the total value of the intellectual capital of an enterprise (holistic methods) in monetary units (monetary methods) whose calculations are based on the evaluation of the *return on assets*; and **Group B methods** which are methods of financial valuation allowing to calculate the total value of the intellectual capital of an enterprise (holistic methods) in monetary units (monetary methods) whose calculations are based on the *capitalization of market value*. On the grounds of synthesis of these methods it was established that the use of the market value in the process of valuation (Group B methods) helps to avoid drawbacks related with the subjectivity of the valuator (Group A methods). This value is precise and possible to establish at any given moment. It measures an enterprise as an entirety by covering both identifiable and unidentifiable objects of the capital of the enterprise. The comparison of this value with its book value simply and plainly reveals whether the enterprise possesses any capital which is not presented in its financial statements. Considering this, *the model of intellectual capital evaluation and presentation in financial statements* is based on the principles of Group B methods.

6. A theoretical *model of intellectual capital evaluation and presentation in financial statements* consisting of six steps has been developed. **Step One** is the calculation of the difference between the market value and the book value of the enterprise which is equaled to the value of the *realized* intellectual capital of the enterprise. In **Step Two**, within the enterprise, those *elements* of the intellectual capital are identified which define and explain the future monetary flow. Then they are assigned to the corresponding *components* of the intellectual capital of the enterprise. In **Step Three**, on the grounds of *Step Two*, the *weights* of the components of the intellectual capital of the enterprise in the general context are outlined in order to reflect the relative influence and importance of each of them upon the entirety of the intellectual capital. On the grounds of the established weights of the components of the intellectual capital within the enterprise, **Step Four** calculation represents the discovery of the *value* of intellectual capital components in monetary units. These values are consequently presented in the *balance sheet* of the enterprise (**Step Five**): 1) on the

assets side, above the position “Non-current assets”, by including the additional position “*Intellectual capital*” and its components “*Human capital*”, “*Organizational capital*” and “*Relational capital*” while 2) the position of “Equity” on the side of the equity and liabilities of the balance sheet is supplemented with an additional line “*Unrealized profit (losses) of the intellectual capital*” thus restoring the expenses that the enterprise underwent when maintaining its intellectual capital which were treated as expenses (in the case of profit-making) or when acknowledging consequences of inefficient use of the intellectual capital (in the case of loss-making).

On the grounds of **Step Six** of the model, the *notes to financial statements* should contain additional information in order to explain the values of the intellectual capital and its components presented in the balance sheet better: 1) to ground and argument the weights attributed to specific components of the intellectual capital of the enterprise; and 2) in order to explain fluctuations of the value of the intellectual capital and its components. Having applied this model, enterprises would not only present the values of the intellectual capital and its components in the balance sheet but would also provide motivation for the calculation of these values and the explanation of changes in the notes to financial statements. As a result, external information users would be supplied with additional information on the capital possessed by the enterprise while creation, filling in and presentation of new statements would be avoided.

7. For the application and verification of the *model of intellectual capital evaluation and presentation in financial statements*, the empirical methodology of research was applied. The inductive method of research was selected, and two investigation statements were produced: T(1). *The model of intellectual capital evaluation and its presentation in financial statements is not applicable in practice*; and T(2). Financial statements supplemented with data on the intellectual capital of an enterprise **do not alter** the results of financial analysis conducted on the basis of these statements. The researched statements are verified by conducting case analysis in eight Lithuanian enterprises operating in two industry branches (manufacturing and trade of alcohol and dairy products). After the completion of the research of the application of the *model of intellectual capital evaluation and presentation in financial statements*, the following issues in application were revealed: **First**. *The establishment of the market*

value of the enterprises whose shares are not traded in the market. In order to eliminate this drawback, a method(s) allowing reliable identification of a specific enterprise in monetary units should be integrated into the method. The **second** issue of the practical application is the *identification of elements of the intellectual capital within an enterprise and their attribution to the components of the intellectual capital of the enterprise.* The **third** issue in the application of this model is closely related with the second issue; it is the *assignment of weights to the components of the intellectual capital of the enterprise.* In order to help enterprises suitably implement these steps of the model, additional regulations or recommendations may be required and useful which would: 1) extensively explain the concept of specific elements of the intellectual capital of an enterprise; 2) present potential methods for their identification and attribution to components of the intellectual capital; and 3) recommend ways for assigning weights to specific components of the intellectual capital of an enterprise.

Considering the issues of the model identified during the research it is possible to claim that the developed *model of intellectual capital evaluation and presentation in financial statements* is **applicable in practice** and provided that the necessary regulations and/ or recommendations are passed/ drafted it may be successfully integrated into the system of financial accounting. *On these grounds, the Author of the thesis negates the research statement T(1).*

8. When dealing with the significance of the integration of *the model of intellectual capital evaluation and presentation in financial statements* into financial accounting upon decisions taken by external information users, financial analysis of the researched enterprises was conducted in terms of horizontal, vertical and financial ratios (profitability, turnover and leverage) were considered. On the basis of this information, the research statement T(2) claiming that *financial statements supplemented with data on the intellectual capital of an enterprise do not alter the results of financial analysis conducted on the basis of these statements* was further divided into five operative statements, and each of those was investigated for both researched branches of the industry. On the grounds of the conducted analysis, 6 out of 10 operative research statements were negated. This led to the **negation** of the initial research statement. It produces proof that financial statements supplemented

with data on the intellectual capital of an enterprise **affect and alter** results obtained from financial analysis based on these financial statements. This leads to a conclusion that the integration of *the model of intellectual capital evaluation and presentation in financial statements* into the system of financial accounting will provide analysts with additional data for conducting data analysis thus decreasing the limitedness of the information provided in the currently presented financial statements.

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REZIUMĖ

Temos aktualumas. Įprasta, jog įmonės periodiškai atskleidžia savo veiklos rezultatus išoriniams informacijos vartotojams pateikdamos finansines ataskaitas. Jose pateikiama informacija, jos forma, minimali apimtis ir pobūdis yra reglamentuoti ir privalomi kiekvienai toje teisinėje aplinkoje veikiančiai įmonei. Tokiu būdu išoriniai informacijos vartotojai, pasitelkę įvairius finansinius rodiklius, gali lyginti įmones tarpusavyje ir priimti pagrįstus investicinius sprendimus. Tačiau dėl spartaus ekonomikos vystymosi ir verslo procesų plėtros finansinių ataskaitų teikiama informacija tampa ribota ir nesugeba patenkinti išaugusių išorinių informacijos vartotojų poreikių.

Pastaruoju metu sudėtinga priimti pagrįstus investicinius sprendimus vadovaujantis tik įmonių finansinėse ataskaitose pateikiama informacija, kadangi vis svarbesnę reikšmę rinkoje dėl savo gebėjimo kurti pridėtinę vertę įgauna intelektinis kapitalas. Tačiau tik maža jo dalis pagal galiojančius apskaitos standartus pateikiama įmonių finansinėse ataskaitose, nes dažnai netenkina vieno iš turto pripažinimo apskaitoje kriterijų – patikimo įvertinimo. Todėl didžioji intelektualio kapitalo dalis pagal galiojančius apskaitos principus nevertinama ir neatskleidžiama išoriniams informacijos vartotojams dėl šiam kapitalui būdingo neapibrėžtumo ir neapčiuopiamumo. Dėl to išoriniai informacijos vartotojai apie įmonę ir jos veiklą gauna tik dalį informacijos, o tai tiesiogiai daro įtaką jų priimamiems sprendimams. Todėl rinkos dalyvių dėmesys tokio pobūdžio informacijai vis auga, o iš to kyla poreikis naujiems vertinimo metodams, kurie leistų įmonėms patikimai nustatyti intelektualio kapitalo ar atskirų jo sudedamųjų dalių vertę. Ši informacija padėtų atskleisti ir pagrįsti įmonės potencialą augti, gebėjimus kurti pridėtinę vertę, o ta pačia metodika apskaičiuotos vertės sudarytų sąlygas įmonių tarpusavio lyginimui.

Įvertinus aptartus probleminius analizuojamos temos aspektus suformuluota **mokslinė problema** – *kaip finansinėse ataskaitose pateikti informaciją apie įmonės intelektualinį kapitalą?* Šiame darbe sprendžiant mokslinę problemą siekiama: 1) *praktiškumo* – taip išvengiant didelės apimties, sudėtingų ir subjektyvių intelektualio kapitalo vertinimo sistemų; 2) *kiekybinės piniginės* rezultato išraiškos – tokiu būdu sudarant sąlygas tarpusavio palyginimui ir 3) į finansinės apskaitos sistemą *integruotos* intelektualio kapitalo apskaitos ir atskaitomybės.

Šio **tyrimo objektas** – įmonės intelektualio kapitalo įvertinimas.

Tyrimo tikslas – sukurti ir pritaikyti įmonės intelektualio kapitalo įvertinimo ir pateikimo finansinėse ataskaitose modelį.

Disertacijoje, siekiant šio tikslo, sprendžiami tokie **uždaviniai**:

- 1) išanalizuoti intelektualio kapitalo esmę ir atskleisti jam būdingas savybes;
- 2) iširti intelektualio kapitalo struktūrą ir nustatyti jo sudedamąsias dalis;
- 3) išnagrinėti ir susisteminti atliktus empirinius tyrimus vertinant informacijos apie įmonės intelektualinį kapitalą pateikimo išoriniams informacijos vartotojams tendencijas;
- 4) susisteminti mokslo darbuose siūlomus intelektualio kapitalo vertinimo metodus;
- 5) išnagrinėti intelektualio kapitalo *įvertinimo* metodų teorinius ir praktinius aspektus bei įvertinti galimybę juos integruoti į finansinę apskaitą;
- 6) sukurti teorinį įmonių intelektualio kapitalo įvertinimo ir pateikimo finansinėse ataskaitose modelį;
- 7) parengti tyrimo metodiką sukurto modelio pritaikymui;
- 8) nustatyti intelektualio kapitalo įvertinimo ir pateikimo finansinėse ataskaitose modelio integravimo į finansinės apskaitos sistemą galimybes ir reikšmę finansinių ataskaitų pagrindu priimamiems sprendimams.

Tyrimo metodai. Analizuojant teorinius intelektualio kapitalo ir jo struktūros aspektus bei nustatant atskirų jo sudedamųjų dalių tarpusavio ryšį, darbe taikyti šie bendramoksliniai tyrimo metodai: sisteminė ir lyginamoji mokslinės literatūros šaltinių analizė, sintezė, sisteminimas ir apibendrinimas. Nagrinėjant empiriniuose tyrimuose atskleidžiamas informacijos apie įmonės intelektualinį kapitalą pateikimo išoriniams informacijos vartotojams tendencijas bei standartizavimo poreikį naudotasi duomenų sisteminimo ir lyginamosios analizės metodais.

Tiriant mokslo darbuose siūlomus intelektualio kapitalo vertinimo metodus, jų teorinius ir praktinius aspektus, darbe naudoti mokslinės literatūros sintezės, grupavimo, sisteminimo, aprašomosios ir lyginamosios analizės metodai. Kuriant įmonių intelektualio kapitalo įvertinimo ir pateikimo finansinėse ataskaitose modelį taikyti dedukcijos, sintezės, lyginimo ir modeliavimo metodai.

Teorinis įmonės intelektualio kapitalo įvertinimo ir pateikimo finansinėse

ataskaitose modelis tikrinamas Lietuvos įmonių pavyzdžiu taikant indukcinį įrodinėjimą. Suformuluoti tiriamieji teiginiai tikrinami taikant atvejo, dokumentų ir turinio analizės metodus. Vertinant modelio integravimo į finansinės apskaitos sistemą galimybes ir reikšmę finansinių ataskaitų pagrindu priimamiems sprendimams, naudoti aprašomosios bei lyginamosios kiekybinių duomenų ir santykinių rodiklių analizės bei grafiniai metodai. Statistiniam bei grafiniam duomenų apdorojimui naudota „Microsoft Excel“ programa.

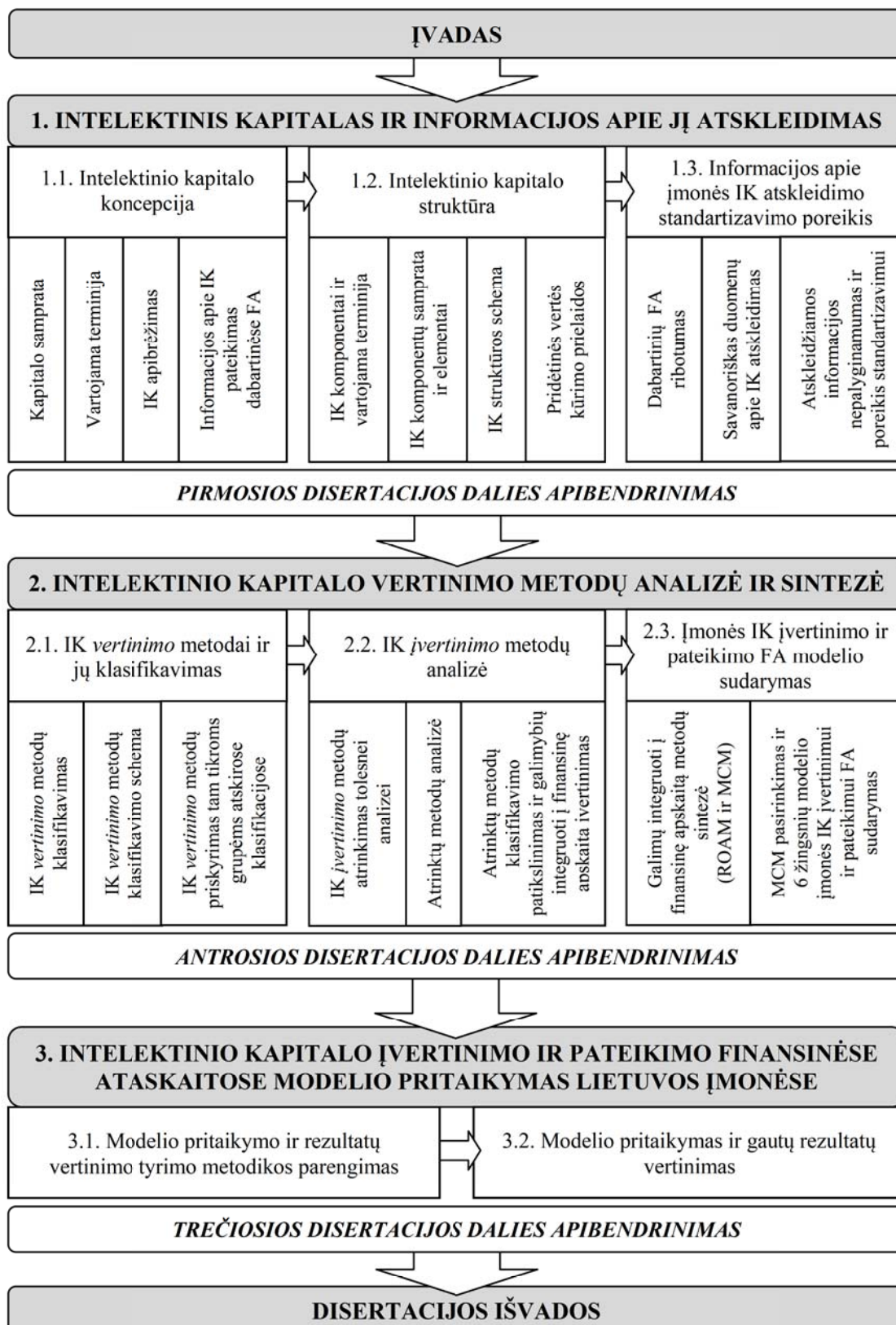
Tyrimo apribojimai. Disertacijoje analizuojamas kapitalas yra fiziškai neapčiuopiamas, neturi konkrečios kainos ir yra nesuskaičiuojamas. Norint šį kapitalą kuo tiksliau įvertinti, dauguma tyrimų orientuojasi į intelektualio kapitalo vertinimą vadybos tikslais, dėl ko siūlomi modeliai yra didelės apimties ir sudėtingi, o jų rezultatas dažniausiai yra kokybinis ir ne visada palyginamas. Šiame darbe siekiama sudaryti tokį intelektualio kapitalo įvertinimo modelį, kuris leistų įvertinti įmonės intelektualinį kapitalą piniginiiais vienetais, būtų nesudėtingai pritaikomas praktikoje bei galėtų būti integruotas į finansinės apskaitos sistemą, taip išvengiant atskiros intelektualio kapitalo apskaitos, papildomų ataskaitų apie jį kūrimo bei teikimo. Todėl toks darbo krypties pasirinkimas iš dalies riboja gaunamų rezultatų tikslumą.

Disertacijos struktūra. Darbą sudaro įvadas, trys pagrindinės dalys ir išvados. 5 paveiksle (IK – intelektualinis kapitalas; FA – finansinės ataskaitos; ROAM – kapitalo pelningumos metodai; MCM – rinkos kapitalizacijos metodai) pateikta loginė disertacinio tyrimo schema, atspindinti iškeltų uždavinių sprendimo seką.

Pirmojoje dalyje analizuojama kapitalo samprata ir jos vieta ekonomikoje, tiriama intelektualio kapitalo koncepcija bei jam įvardyti vartojami terminai, nagrinėjama jo struktūra ir atskleidžiamos pridėtinės vertės kūrimo prielaidos. Taip pat pabrėžiama informacijos apie intelektualinį kapitalą pateikimo išoriniams informacijos vartotojams svarba bei apibendrinami mokslinių tyrimų apie tokių duomenų savanorišką atskleidimą tiek Lietuvoje, tiek visame pasaulyje rezultatai.

Antrojoje dalyje analizuojami įvairūs mokslo darbuose intelektualio kapitalo vertinimui siūlomi metodai, kurių integravimo į finansinės apskaitos sistemą galimybių vertinimo pagrindu pasirinkta apibendrinta šių metodų klasifikavimo schema. Siekiant išsiskelto darbo tikslo, atrinkti ir plačiau nagrinėjami devyniolikos metodų teoriniai ir praktiniai aspektai, išskiriami jų privalumai ir trūkumai bei įvertinamas praktinis jų

pritaikomumas. Atrinktų metodų analizės ir sintezės pagrindu sukurtas teorinis intelektualinio kapitalo įvertinimo ir pateikimo finansinėse ataskaitose modelis.



Šaltinis: sukurta autorės.

5 pav. Disertacinio tyrimo loginė schema

Trečiojoje dalyje sukurta modelio taikymo praktikoje bei gautų rezultatų įvertinimo tyrimo metodika. Modelio pritaikymui pasirinktos Lietuvos pieno ir alkoholio pramonės šakose veikiančios akcinės bendrovės. Pasinaudojus šių įmonių metinių ataskaitų duomenimis pritaikytas intelektualinio kapitalo įvertinimo ir pateikimo finansinėse ataskaitose modelis. Atskleistos jo integravimo į finansinės apskaitos sistemą galimybės ir įtaka finansinių ataskaitų teikiamos informacijos pagrindu priimamiems sprendimams.

Darbo mokslinį naujumą atskleidžia šie gauti rezultatai:

- sukurta *intelektinio kapitalo struktūros schema*;
- suformuluotas *intelektinio kapitalo apibrėžimas*;
- sudaryta intelektualinio kapitalo *vertinimo metodų klasifikavimo pagal rezultato išraišką sistema*, kuri aiškiai parodo esmines atskirų vertinimo metodų grupių savybes ir yra gera priemonė siekiant suderinti šioje srityje vartojamus terminus.
- sukurta intelektualinio kapitalo *vertinimo metodų klasifikavimo schema* bei sudarytas apibendrintas intelektualinio kapitalo *vertinimo metodų klasifikavimo sąrašas*, atskleidžiantis kai kurių metodų tarpusavio panašumus (dėl jų priskyrimo toms pačioms grupėms atskirose klasifikacijose);
- sukurta gamybos veiksnių klasifikavimo schema, atskleidžianti *kapitalo vietą* ir skirstymą ekonomikoje.

Darbo praktinė reikšmė. Sukurtas teoriškai argumentuotas ir empiriškai patikrintas *Intelektinio kapitalo įvertinimo ir pateikimo finansinėse ataskaitose modelis*. Atsižvelgus į sėkmingą jo pritaikymą, šiuo modeliu siūloma papildyti finansines ataskaitas ir reglamentuoti įmonių prievolę į jas įtraukti ir duomenis apie intelektualinį kapitalą. Tokiu būdu būtų išvengta papildomų ataskaitų kūrimo bei pildymo, o išoriniai informacijos vartotojai gautų daugiau duomenų investiciniams sprendimams priimti.

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3. RAMANAUSKAITĖ, Agnė. “Intelektinio kapitalo interpretacija šiuolaikinės rinkos sąlygomis: teorinis tyrimas.” In *Apskaita, auditas, analizė: mokslas inovacijų ir globalizacijos kontekste*: Tarptautinės mokslinės konferencijos mokslo darbai. Vilnius, 2012, p. 573–581 (part 2), ISBN 978-609-459-028-3.
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11. Presentation “Trends of the Disclosure of Information on Intellectual Capital in Financial Statements in Lithuanian Enterprises” at 18th International Scientific Conference *Economics and Management – ICEM*, 2013 April, Kaunas, Lithuania.
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Fields of Scientific Interest

Intellectual capital and its valuation
Tax policy
Audit

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