

# DISCLOSURE ON INTELLECTUAL CAPITAL IN ANNUAL REPORTS OF NASDAQ OMX BALTIC-LISTED COMPANIES

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**Abstract.** According to the current accounting standards, only a minor part of intellectual capital is presented in financial statements. Nevertheless, more and more companies in Lithuania and abroad reveal information about their intellectual capital in their annual statements. Therefore, the **object** of this paper is the disclosure of information on intellectual capital, and the **aim** is to reveal the trends of disclosure of information on intellectual capital based on annual reports by Nasdaq OMX Baltic-listed companies in the years 2010 to 2012. The main **method** applied in the present article is content analysis. **Results.** On the grounds of the described research methodology, the content analysis of annual reports dated from 2010 to 2012 by Nasdaq OMX Baltic-listed companies was performed. By applying the "QDA Miner" software, intellectual capital-related terms were calculated and distributed into three categories (human, relational, and organizational) in terms of the assets and liabilities. The obtained results of the three countries were compared in order to reveal the trends of development; furthermore, a correlation analysis was conducted to reveal the relationship between the market capitalization of a specific country and the level of disclosure on the intellectual capital of enterprises. **Conclusions.** The present research reveals that the total disclosed information on the intellectual capital of the Nasdaq OMX Baltic-listed companies was increasing each year from 2010 to 2012. On the other hand, the research shows that the trends and the structure of the disclosed information on the intellectual capital are different in each Baltic country. The highest amount of information was revealed by Lithuanian enterprises and the lowest amount is shared by Estonian enterprises. The best-covered information on the intellectual capital presents the employees as an asset while the most scantily revealed information describes intellectual liabilities.

**Key words:** intellectual capital, disclosure, content analysis, Baltic states, annual reports

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## Introduction

Even though the disclosure of data on the intellectual capital of an enterprise is not currently mandatory in financial statements, more and more enterprises both in Lithuania and abroad supply their annual statements with information on their intellectual capital. In terms of the data disclosed in financial statements of businesses of various countries, this fact was researched and covered by a number of scientists (N. Brennan, 2001; K. A. April et al., 2003; E. Oliveras and Y. Kasperskaya, 2004; I. K. Abeysekera and J. Guthrie, 2005; T. H. Ismail, 2008; L. Vaškeliienė and J. Šelepen, 2008; M. L. Bhasin,

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2011; M. C. Branco et al., 2011; M. C. Ling, 2011; A.-L. Mention, 2011; M. Nurunnabi et al., 2011; R. H. Whiting and J. Woodcock, 2011; R. Atan and A. Rahim, 2012; L. Cinquini et al., 2012; M. Cordazzo and P. G. M. C. Vergauwen, 2012; R. Darabi and K. Salmani, 2012; N. M. Husin, 2012; N. M. Ienciu and I.-A. Ienciu, 2012; G. Majdalany and J. Henderson, 2012; A. A. Rashid et al., 2012; N. Asare et al., 2013; J. Ibikunle et al., 2013 and others). However, such a research has never been conducted in the Baltic countries (Lithuania, Latvia, and Estonia). In order to fill this gap, the **object** of this research is the disclosure of information on the intellectual capital, and the **aim** is to reveal the trends of the disclosure of information on the intellectual capital, based on annual reports of the Nasdaq OMX Baltic-listed companies of the years 2010 to 2012. The main **method** applied in the present study is content analysis. In order to achieve a higher precision and objectivity, the *QDA Miner* software was employed.

The paper is structured as follows. Section 1 deals with the concept and structure of the intellectual capital. Section 2 elaborates on former empirical studies on the disclosure of information on the intellectual capital, presented in various academic writings. Section 3 introduces the methodology of the empirical research conducted in this paper. Finally, Section 4 reveals the results of the empirical research and discusses the findings.

## **1. Concept and structure of the intellectual capital**

Due to the intangibility of the intellectual capital, academic writings have not yet arrived at a universally accepted definition and identification of its structure. The term “intellectual capital” as if consists of two parts – “intellect” and “capital”. According to R. Mikulėnienė and R. Jucevičius (2000), the word “capital” has been chosen deliberately. Its concept is often related with investment when seeking to earn more money or to manufacture a higher amount of products, provide more services. It is also important that the capital is economically beneficial to the enterprise that owns it, i.e. it must provide opportunities to earn revenue.

J. K. Galbraith is considered to be the initiator of the concept of the intellectual capital as he employed this term in his letters in 1969. However, extensive researches of the intellectual capital started only in 1996 (P. Stahle and S. Stahle, 2006) when the government of Sweden presented its account “Welfare and Protection” reflecting the hidden resources of the country on the grounds of the *Skandia Navigator* model designed by L. Edvinsson. Meanwhile, M. Solitander (2011) claims that the first usage of the term of the intellectual capital occurred in the article “Brainpower: How intellectual capital is becoming America’s most valuable asset” by T. A. Stewart in 1991. Since this breakthrough, academic writings have been trying to provide unique interpretations or contributions to the concept of the intellectual capital of the pioneering author(s).

When researching the definitions of the intellectual capital, provided by various authors (R. Mikulėnienė and R. Jucevičius, 2000; E. Kačinskaitė, 2008; R. Aleknavičiūtė, 2011; R. Tamošiūnaitė et al., 2012; I. Berzkalne, 2013 and others), one observes that the most common defining words are “knowledge”, “asset”, and “value”. Some authors also relate the intellectual capital with skills and creativity, which, in turn, prompts the generation of new ideas. It should be observed that each enterprise strives to single itself out in the market by the offered product and/or service and its quality, thus creating a positive image (association) in the mind of the clientele, consequently gaining a competitive advantage leading to the increase of sales thus ensuring the creation of added value in the future. One could generalize that the intellectual capital is intangible, most usually related with the knowledge possessed by humans (staff) or the information an enterprise has gathered, which helps to create added value.

Intellectual capital is a broad and abstract concept; hence, in order to specify it and to define it more precisely, a number of authors suggest considering the structure of the intellectual capital. The pioneering attempt to provide the structure of the intellectual capital is found in 1996 in the works of L. Edvinsson and P. H. Sullivan. In later works, many authors took heed of this pioneering structure or supplemented it with specific structural elements of the intellectual capital.

The development of the structure of the intellectual capital was explored by many authors (R. Mikulėnienė and R. Jucevičius, 2000; H. A. Van Den Berg, 2002; R. Fincham and R. Roslender, 2003; E. Kačinskaitė, 2008; R. Aleknavičiūtė, 2011; R. Tamošiūnaitė et al., 2012; E. B. Campos, 2013). According to R. Mikulėnienė and R. Jucevičius (2000), four ways of explicating the structures of the intellectual capital may be singled out:

- 1) interpretation of the intellectual capital as *three* constituent parts of equal importance, focusing on the staff of the enterprise, its internal processes (structure) and its relationship with the external environment;
- 2) interpretation of the intellectual capital as *two* constituent parts, namely, the staff and the structures of an enterprise (the Scandia model in which the relationship capital is assigned to the organizational capital);
- 3) interpretation of the intellectual capital as *four* constituent parts when, in addition to the usual three segments (human, organizational, and relational), the financial capital is also included (A. Curry and S. Cavendish are usually seen as the initiators of this approach);
- 4) the extension of the structure of the intellectual capital when, in addition to the human and the structural capital (the Scandia model), the intellectual property is also singled out.

In this paper, the authors chose to use the widely accepted structure of the intellectual capital, which highlights three groups – *human* (or staff), *organizational* (or structural),

and *relational* (or relationship, market, consumer) capitals. Even though the terms nominating the structural parts may differ, the essence is still the same. The human / staff capital is related with the staff of the enterprise, the knowledge, skills and experience they possess, and also the culture of the enterprise and its country. The structural capital is considered to be everything that remains when the staff has gone home, i.e. all the semi-material and the already created immaterial and intangible products helping the staff to do their work faster and to achieve a better quality thus creating added value in the enterprise. The relational capital is connected with the external environment of the enterprise, namely, with the consumers, suppliers, and shareholders. However, M. Giuliani (2013) highlights that it is important not only to single out the structural parts but also to consider their interrelationship as each of them is not efficient in itself and does not create any added value.

When researching the concept of the intellectual capital and its structure, it has been found that most authors only emphasize its asset aspect. M. Garcia-Parra et al. (2009) claim that, despite the abundance of concepts, methods, and models dealing with the evaluation of the intellectual capital, they are not finite as the potential liabilities and risks related with the intellectual capital are not taken into consideration. A number of authors (M. G. Harvey and R. F. Lush, 1999; I. Caddy, 2000; I. K. Abeysekera, 2003; M. Garcia-Parra et al., 2009; C. D. Stam, 2009; F. De Santis et al., 2013; M. Giuliani, 2013), being inspired by the double-inscription line of thought, have established that the intellectual capital of an enterprise may not only generate added value but also decrease it (i.e. the economic obligation which represents the responsibility of the enterprise to transfer economic resources or provide services to other entities in future). This decrease of the added value was called “intellectual liabilities”. It is thus claimed that the intellectual capital equals the balance of the intellectual assets and the intellectual liabilities.

Some authors (M. G. Harvey et al., 1999; I. Caddy, 2000; I. K. Abeysekera, 2003; M. Garcia-Parra et al., 2009; C. D. Stam, 2009; M. Solitander, 2011; M. Giuliani, 2013; F. De Santis et al., 2013) provide independent and different interpretations of intellectual liabilities. After generalization, it is possible to claim that intellectual liabilities are immaterial debts, obligations, contingencies and shares of the enterprise stemming from its intellectual capital, which decrease the value of the intellectual assets by giving part of them to a creditor; it could be all the actions to be taken to achieve or empower intellectual assets, but not the ineffective use of them, which should be recognized as an impairment. However, most of the authors agree that the liabilities have the same structure as the intellectual assets, i.e. they consist of the human, organizational, and relational liabilities. Also, intellectual liabilities are divided into internal (which may be controlled by the enterprise) and external (beyond the control of the enterprise). According to C. D. Stam (2009), enterprises are unwilling to reveal their intellectual liabilities and usually pay insufficient attention to this area.

## **2. Empirical studies on the disclosure of information on intellectual capital**

Around the world, the importance of the revelation of information on the intellectual capital has been rapidly growing. According to L. Vaškeliėnė and J. Šeļepen (2008), one of the key issues is the incompatibility of the information needs of the “new” economy with the offer of information on financial accounting by the “old” economy. With the developing needs of investors and other consumers of the information provided by enterprises, the disclosure of information on the intellectual capital has been gaining in popularity. In some countries, in addition to annual financial statements, information of non-financial type is being disclosed ever more frequently. This information is shared not only in annual statements but also in other publications (conferences, internet websites, prospectuses) and occasionally even in independent reports on the intellectual capital.

According to a number of authors (K. A. April et al., 2003; N. Steenkamp and D. Northcott, 2007; J. Guthrie et al., 2007; J. G. Vargas-Hernandez and M. R. Noruzi, 2010; N. M. Husin, 2012), the development of the theoretical concept of the intellectual capital was followed by an attempt to have it evaluated and measured. Countless models have been devised; however, their usefulness and real-life application are still being attempted to improve. As all the models are flexible and the applied methodologies differ, the obtained values are worthless as they cannot be compared among themselves. Consequently, the idea to identify the share of the intellectual capital together with the information provided to the stakeholders and entities was elaborated.

Such researches usually involve data which are most easily accessible in different countries, namely, financial statements. According to L. Vaškeliėnė and J. Šeļepen (2008), some enterprises, in addition to the mandatory reports, also submit IPO (initial public offering/ stock market launch) prospectuses featuring information on the enterprise and the most likely risks in its activity. Since the structure of this report is not strictly regulated, it will most likely foreground the strengths of the enterprise. It is believed that the value of an enterprise rises after the publication of IPO offers, and investors see it in a more positive light. The information presented on the website of an enterprise may serve as an alternative source of information.

In order to systemize various empirical researches conducted in the field of the disclosure of information on intellectual capital, comparison by continents with the further revelation of the common trends was preferred. Upon exploring some empirical researches conducted in Asia during the last decade (Table 1), it was established that the highest amount of information is revealed on the human (or, in some cases, relational) capital. It is possible to generalize that the revelation of the intellectual capital prominently depends on the selected country (e.g., in India or Bangladesh little is revealed, while in Sri Lanka and Hong Kong the revealed information has been steadily growing in scope). Besides, the authors investigated the relationship among various enterprise aspects (e.g.,

TABLE 1. Empirical studies on disclosure of intellectual capital in Asia

Author (year)	Country	Research sample	Research method	Main conclusions
I. K. Abeysekera, J. Guthrie (2005)	Sri Lanka	Annual statements of the years 1998–2000 of top 30 Colombo Exchange-listed enterprises	Content analysis	Financial statements of Sri Lanka enterprises feature a high amount of information related with the intellectual capital; however, the term itself is not employed. Data on the relational capital are mostly provided.
M. L. Bhasin (2011)	India	Financial statements of the years 2007 to 2009 of 16 Indian IT enterprises	Content analysis	Out of 39 terms, only 18 were discovered. A large majority of terms found in the annual statements were encountered only once. The most common term is the “intellectual property rights”. Only two out of the 16 enterprises mention the term “intellectual capital”.
M. Nurunnabi, M. Hossain, Md. Hossain (2011)	Bangladesh	Financial statements of the years 2007 to 2009 of 90 enterprises listed in Bangladesh	Content analysis	Despite the growth of the market during the recession period, it has been found that enterprises are not inclined to reveal their intellectual capital. Besides, also the industry branch and the size of an enterprise have an impact on the disclosure of intellectual capital.
M. C. Ling (2011)	Hong Kong, China	IPO prospectuses of the years 2008 (48 enterprises) and 2009 (73 enterprises) listed in Hong Kong	Content analysis	An increase of the disclosure of the intellectual capital was observed. It was established that with a higher number of key words, the disclosure of the intellectual capital also increases. Staff-related capital is mostly revealed. During the researched period, more intellectual capital was disclosed by the financial sector.
R. Darabi, K. Salmani (2012)	Iran	Financial reports of the years 2005 to 2010 of 184 enterprises listed in South Tehran	Correlation analysis and linear regression	Staff-related capital is usually revealed.
R. Atan, A. Rahim (2012)	Malaysia	Financial reports of the year 2009 of 104 Ace market Bursa (Malaysia) listed enterprises	Content analysis	Relational capital is mostly disclosed. The applied regressive analysis has also showed that there is a 37.7% relationship between the disclosure of the intellectual capital and the indices of the enterprise (its size, industry branch, profitability and auditor). The most prominent causal relationship was observed between the type of the auditor plus the industry branch and the disclosure of the intellectual capital.

TABLE 1 (continued). Empirical studies on disclosure of intellectual capital in Asia

Author (year)	Country	Research sample	Research method	Main conclusions
A. A. Rashid, M. K. Ibrahim, R. Othman, K. F. See (2012)	Malaysia	IPO prospectuses of the years 2004 through 2008 of 130 Ace market Bursa (Malaysia) listed enterprises	Multiple regression analysis	Relationship was observed between the disclosure of the intellectual capital and the size of the managerial board, its independence, age of the enterprise, lever, insurers and the list of the board members. However, the changeability of the management, the size of the enterprise and the auditors showed no impact on the disclosure of the intellectual capital.
G. Majdalany, J. Henderson (2012)	United Arab Emirates	Financial reports of the years 2010 and 2011 of 124 enterprises listed in the UAE	Content analysis	It was established with a 95% reliability that there is a direct positive relationship between the disclosure of the intellectual capital of an enterprise and its ROE.

Source: compiled by the authors.

its size, the value of the market, the auditor, the industry branch, ROE, etc.) and the level of the disclosure of information. The strongest relationship was identified between the industry branch and the disclosure of the intellectual capital.

Having analyzed some empirical researches conducted in Europe (Table 2), it has been established that enterprises are willing to reveal the highest amount of information on the relational capital and in some cases on the human capital. However, when the relationship between the enterprise activity-based indices and the revealed information on the intellectual capital was explored, the results were not uniform, and each country yielded different relationships. The results of the empirical researches conducted in Lithuania show that the general disclosure of information on the intellectual capital decreased in the years 2003, 2006, and from 2009 to 2012 are compared. The most plausible cause is the fact that since 2007, Exchange-listed enterprises are no longer mandated to present their annual statements-prospectuses. It was also discovered that the extent and structure of the disclosed information on the intellectual capital in Lithuania depend on the industry branch while attention is focused on the organizational and human capital.

Upon investigating a number of empirical researches conducted in other continents (Table 3) it has been established that enterprises are inclined to present the highest amount of information on the relational capital. When investigating the relationship between various enterprise activity-related indices and the revelation of information on the intellectual capital, it has been established that there exists an extremely strong relationship between the industrial branch of an enterprise and the revelation of intellectual capital.



TABLE 2. Empirical studies on disclosure of intellectual capital in Europe

Author (year)	Country	Research sample	Research method	Main conclusions
N. Brennan (2001)	Ireland	Financial statements of 11 knowledge-based enterprises listed in Ireland	Content analysis	Low disclosure of the intellectual capital. Attention is mostly paid to the relational capital while the human capital is essentially ignored.
E. Oliveras, Y. Kasperskaya (2004)	Spain	Financial statements of the years 1998–2002 of 14 enterprises listed in Spain	Content analysis	It was established that during the researched period the added value of the enterprises was decreasing. The general disclosure of the intellectual capital was low but it was increasing year-to-year. The relational capital was mostly revealed.
M. J. A. B. Dielis (2007)	7 countries: France, Spain, Italy, Germany, the Netherlands, the USA, Sweden	Financial statements of the years 2004–2006 of 25 enterprises with the highest market value listed in each country	Content analysis	It was established that the disclosure of the intellectual capital was increasing each year; the highest amount of information was disclosed in France. In terms of industry branches, the highest level of intellectual capital disclosure was observed in the telecommunications sector.
L. Vaškeliienė, J. Šeļepen (2008)	Lithuania	IPO prospectuses of the years 2003 and 2006 of 17 enterprises listed in the Exchange of Lithuania	Content analysis	An empirical research established that in 2006 (when comparing with the data of 2003), on average 26% more information on the intellectual capital of an enterprise was disclosed. Almost a half of all the disclosed information in both 2003 and 2006 consisted of the information on the human capital.
A. L. Mention (2011)	Europe	Financial statements of 5 European banks from 2001 to 2009	Content analysis	The relational capital is mostly revealed. A prominent growth of the revelation of the organizational capital is observed. Besides, growth of information on other types of the intellectual capital (relational and human) is also observed.
M. C. Branco, C. Delgado, C. Sousa, M. Sa (2011)	Portugal	Financial statements of the years 2008–2009 and other annual reports available online	Content analysis	The research has shown that only annual financial statements exhibit relationship between the size of an enterprise and the disclosure of the intellectual capital. Also, the industry branch only partially affects the disclosure of the intellectual capital.



Author (year)	Country	Research sample	Research method	Main conclusions
D. Branswijck, P. Everaert (2012)	The Netherlands and Belgium	Financial statements and IPO prospectuses of the years 2005–2009 of 55 enterprises listed in the Netherlands and Belgium	Content analysis	It was observed that enterprises are inclined to disclose more information on the intellectual capital in IPO prospectuses than in the annual financial statements.
L. Cinquini, E. Passetti, A. Tenucci M. Frey (2012)	Italy	Sustainability reports of the years 2005 and 2006 of 37 enterprises listed in the Exchange of Italy	Content analysis	Information on the human capital is mostly disclosed.
M. Cordazzo, P. G. M. C. Vergauwen (2012)	The United Kingdom	IPO prospectuses of the years 2005–2007 of biotechnology enterprises listed in London Exchange and London Alternative Investment Market	Index of disclosure	It was established that the intellectual capital was better revealed in the IPO prospectuses of the enterprises listed in the London Exchange. There is a dependence between the maturity and independence of the management board and the disclosure of the intellectual capital; the age and size of the enterprise have no impact.
N. M. Ienciu, I. A. Ienciu (2012)	Romania	Financial statements of the year 2008 of 68 enterprises listed in Bucharest Exchange	Content analysis	There is no relationship between the disclosure of the intellectual capital and the turnover, the size of an enterprise, the number of its staff and the industry branch. The only discovered relationship is between the financial data of the enterprise and the disclosure of its intellectual capital.
R. Huggins, M. Weir (2012)	Scotland	48 small knowledge-intensive business service firms	Questionnaire produced by Scotland's Intellectual Asset Centre in 2006	Depending on the size and the industry branch, enterprises exhibit differences in terms of their evaluation of their intellectual capital.
A. Ramanauskaitė, K. Rudžionienė (2013)	Lithuania	Annual presentations of the years 2009–2012 of 8 joint stock companies listed in the Exchange of Lithuania	Content analysis	In comparison with the results of the initial research by L. Vaškeliėnė and J. Šeļepen (2008), the decrease of the disclosure of the intellectual capital by 29% is observed. It is explained by the fact that the presentation of IPO prospectuses has not been mandated in Lithuania since 2007.

Source: compiled by the authors.

TABLE 3. Empirical studies on disclosure of intellectual capital in other countries

Author (year)	Country	Research sample	Research method	Main conclusions
K. A. April, P. Bosma, D. A. Deglon (2003)	South Africa	Annual financial statements of the 20 largest enterprises listed in South Africa	Content analysis, questionnaire	The sector of mountaineering reveals less information on the intellectual capital. The most common area of the presentation of information is that of the relational capital.
T. H. Ismail (2008)	Egypt	Annual statements of the year 2007 of 30 enterprises listed in Egypt	Empirical research, questionnaire	Low revelation of information on the intellectual capital. Usually, elements of the relational capital are disclosed.
R. H. Whiting, J. S. Woodcock (2011)	Australia	Annual statements of the year 2006 of 70 enterprises listed in Australia	Theoretically motivated explication method	Disclosure of information on the intellectual capital is low. The relational capital is covered most of all. Relationship was observed between the branch of industry of an enterprise plus its auditor and the disclosure of information on the intellectual capital. Meanwhile, ownership concentration, leverage and listing age had no impact on the disclosure of information on the intellectual capital.
J. Ibikunle, V. C. Oba, C. Nwifo (2013)	Nigeria	Financial statements of the years 2005–2009 by 2 enterprises listed in the Exchange of Nigeria per branch of industry	Content analysis	The size of an enterprise and the branch of industry it represents has an impact on the disclosure of information on the intellectual capital. No dependence between the revelation of information on the intellectual capital and the profitability of the enterprise was discovered.
N. Asare, J. M. Onumah, S. N. Y. Simpson (2013)	Ghana	Annual statements of the years 2006–2010 of 25 enterprises listed in Ghana	Content analysis	High level of disclosure of information on the intellectual capital; more than a half of the intellectual capital-related key words were observed in financial statements. Annually, a slight increase of the disclosure of information on the intellectual capital is observed. Most information deals with the relational capital.

Source: compiled by the authors.

To sum up, scholarly writings aiming to identify the level of disclosure of information on the intellectual capital usually apply content analysis and investigate financial statements presented by listed enterprises. Findings of the researches show that most commonly enterprises present information on the relational capital. However, the findings of the researches are not uniform when analyzing the dependence between the disclosure of information on the intellectual capital and other enterprise activity-related indices. This may be determined by cultural, political, and methodological differences.

### 3. Methodology of the empirical research

Content analysis is extremely popular when investigating the extent, structure, and trends of the disclosure of information on the intellectual capital. Most usually, annual financial statements provided by enterprises are selected as the object of the research since they are issued regularly, usually regulated, truthful and representing the core information about the enterprise. Most researchers conduct content analysis in temporal and location terms, i.e. they compare the data of several years or countries. The amplest choice is faced when the researcher needs to decide upon the unit of coding the choices being that of word, sentence, paragraph, phrase, index, etc. This method is easily applied and the researcher gets lots of freedom when deciding which aspect or perspective to employ when seeking to reveal the selected topic. However, the selected research analysis methodology directly determines the obtained results and their comparability.

No joint research covering the disclosure of information on the intellectual capital of the enterprises representing the Baltic countries listed in Exchange markets has been conducted yet, and no comparative research has been produced, either; only occasional researches covering only one country have been produced. Besides, most previous researches have been focusing only on the asset aspect of the intellectual capital. That is why the present research is aimed to extend its scope so that to cover intellectual assets and intellectual liabilities. Thus, the **object** of the present research is the disclosure of information on the intellectual capital of enterprises, and the **aim** is to establish the extent of the disclosure of information on the intellectual capital in the financial statements of the years 2010 to 2012, presented by the enterprises listed in the NASDAQ OMX Baltic Stock Exchange. The following **objectives** were set for this research: 1) to establish the extent, structure, and trends of the revealed information on the intellectual capital in the Baltic countries in general; 2) to compare the extent and structure of information on the intellectual capital in enterprises representing the Baltics by comparing the countries and assessing the changes occurring during the investigated period; 3) to establish the (non-) existence between the index of market capitalization and the disclosure of information on the intellectual capital. The **sample** of the research is the financial statements dated 2010 to 2012 by all the enterprises listed in the NASDAQ OMX Baltic Stock Exchange. This research applies the method of content analysis implemented on the basis of 6 **stages** of content analysis as indicated by A. Ramanauskaitė and K. Rudžionienė (2013).

*Stage 1. A representative sample of data is gathered for the analysis denoted by authenticity, meaningfulness, and reliability.* For this research, all the audited annual statements presented by enterprises listed in the NASDAQ OMX Baltic Stock Exchange were selected, including also annual presentations. All in all, the statements presented by 79 enterprises in 2010 and 78 enterprises in 2011 and 2012 were investigated. It should be noted that some enterprises in addition to the regular annual statements also

present various supplementary reports (e.g., social responsibility reports, yearbooks, etc.); however, this research did not take them into consideration as their presentation is not mandated and not all the subjects of the research have presented them.

**Stage 2.** *A system of components and elements of the intellectual capital is designed, where the employed terms and categories are defined; three levels may be employed: components, elements, and indices.* The present research preferred to employ the classification designed in the research by G. Majdalany and J. Henderson (2013) where intellectual capital is split into intellectual assets and liabilities which are further divided into the human, organizational, and relational components. To provide sufficient details, a list of terms defining each component is composed.

**Stage 3.** *Units of calculation are set forth.* The present research prefers the unit of a word and a word group (a phrase). Tables and pictures as a unit of calculation were rejected as the visual information is lost when rendering downloaded and scanned annual reports of enterprises into the *MS Word* by *ABBYY FineReader* software. All in all, 498 terms are featured in the research (Table 4).

TABLE 4. Intellectual capital categories and number of terms.

Category	Number of terms	Examples of the most popular terms
Human assets	158	Employees, Education, Knowledge, Competence, etc.
Relational assets	133	Customers, Goodwill, Stakeholders, Marketing, etc.
Organizational assets	146	Processes, Procedures, Network, Technologies, etc.
Human liabilities	13	Internal Competitions, Risk of Losing Key Employees, etc.
Relational liabilities	17	Bad Word Of Mouth, Poor Corporate Reputation, etc.
Organizational liabilities	31	Past Performance, Poor Knowledge, Cost of Ignorance, etc.
<b>Total:</b>	<b>498</b>	

Source: G. Majdalany and J. Henderson (2013).

**Stage 4.** *Rules of codification are defined including the scale / system of coding.* It was established that when a targeted term (a word or a word unit) is discovered, it is given the weight of 1 whereas the remaining words and their segments not found in the list of terms derived for the research are given the weight of 0. In other words, the frequency of mentioning the terms listed in Table 4 in the annual statements is investigated.

**Stage 5.** *The scanning / overview of the selected data is conducted together with the analysis of the calculation units by employing the devised system of the elements of the intellectual capital.* In order to implement this research objectively and exhaustively, the *QDA Miner* software was employed. First of all, all the financial statements previously converted into *MS Word* were also transferred into this software. Next, the *WordStat* mode is employed, and, by producing a vocabulary (after composing the structure of

the search engine based on Table 4 and assigning the corresponding terms), the content analysis is conducted.

**Stage 6.** *A system for calculating the qualitative characteristics is designed by covering the identification of the presence / absence of the relevant term and the establishment of its frequency. Then, the relationship between the characteristics of the revealed information and other factors is investigated in order to find out whether the size of an enterprise, the industry branch it represents, and other factors explain differences in the practices of presenting information on the intellectual capital.* The present research aims to find out the general trends of the disclosure of information on the intellectual capital in the Baltic countries in terms of extent as well as of structure, time, and locality.

**Research limitations.** As a pilot version of the *QDA Miner* software was employed with the use restricted to 30 days or 30 actuations, it underwent a number of limitations related to the amount of information, its coding and data processing. That is why in this research the primary goal to conduct the content analysis in each enterprise separately was abandoned. The data were limited to 3 years and 3 countries. It negatively affected the correlation analysis conducted further in this research as well.

#### 4. Research findings

First of all, a general research of the revelation of information on the organizational capital in the Baltic countries as testified by the financial statements of the years 2010 to 2012 was conducted. As shown in Table 5, the researched financial statements featured 160 terms out of 498 terms selected for this research. The highest amount of the mentioned terms belong to the category of the organizational assets while the lowest amount of terms relates to the category of the intellectual liabilities; e.g., no terms referring to the relational liabilities were found while the other categories were represented by only a couple of terms. As mentioned above, this repeatedly proves that enterprises are inclined to evaluate the prospects of their activity optimistically or are unwilling to reveal negative information in their financial statements.

TABLE 5. The amount of the employed terms without considering the frequency of their application in financial statements presented in the Baltic countries in 2010–2012

Category	Number of terms (basic)	Number of terms, mentioned in financial statements
Human assets	158	51
Relational assets	133	45
Organizational assets	146	61
Human liabilities	13	1
Relational liabilities	17	0
Organizational liabilities	31	2
<b>Total:</b>	<b>498</b>	<b>160</b>

Source: compiled by the authors.

Having considered not only the mentioning of the terms but also the frequency of their occurrence, somehow different trends may be observed. The obtained yearly results of content analysis are presented in Table 6. Thus, the highest amount of the revealed information deals with the human assets (24,080 cases including repetitions) while 13,111 cases (including repetitions) of references to the human assets were found. If comparisons with researches conducted in other countries were to be drawn, the Baltic countries may be singled out for giving preference to the human component of the intellectual capital rather than to the relational component.

TABLE 6. The amount of the mentioned terms (considering the frequency of their mentioning) in the financial statements presented by enterprises from the Baltic countries in the years 2010 to 2012

Category \ Year	2010		2011		2012		Total	
	<b>Human assets</b>	7447	50%	8015	50%	8618	51%	24080
<b>Relational assets</b>	3386	23%	3529	22%	3746	22%	10661	22%
<b>Organizational assets</b>	4023	27%	4462	28%	4626	27%	13111	28%
<b>Human liabilities</b>	0	0%	0	0%	1	0%	1	0%
<b>Relational liabilities</b>	0	0%	0	0%	0	0%	0	0%
<b>Organizational liabilities</b>	0	0%	2	0%	3	0%	5	0%
<b>Total</b>	<b>14856</b>	<b>100%</b>	<b>16008</b>	<b>100%</b>	<b>16994</b>	<b>100%</b>	<b>47858</b>	<b>100%</b>
<b>Growth</b>	-		<b>8%</b>		<b>6%</b>		<b>14%</b> (2010 to 2012)	

Source: compiled by the authors.

A number of trends were established in the field of presenting information on the intellectual capital during the years 2010 to 2012, namely, each year enterprises present more and more data on their intellectual capital (during the researched period, the amount of the presented information increased by 14%). Nevertheless, enterprises reveal only the asset aspect of this capital as terms related to intellectual liabilities have been found to be few (and no references to relational liabilities were found at all). That is why further in this research only the asset aspect of the intellectual capital is investigated. It was also discovered that throughout the researched period the structure of the revealed information remained the same (roughly, 50% of information deals with the human assets, about 27% information concerns organizational assets, and 23% information represents relational assets). Besides, the most frequently occurring terms in specific categories of the intellectual assets are: employees (human assets, total mentioning: 5400 times), customers (relational assets, total mentioning: 2898 times), and procedure (organizational assets, total mentioning: 2321 times).

Should the research results be distributed in terms of countries (Fig. 1; LT = Lithuania, LV = Latvia and EE = Estonia), observations may be drawn that the information on the

intellectual assets disclosed by Lithuanian enterprises is denoted by its structure (more than a half of the presented information highlights human assets while the amount of information concerning the relational assets and the organizational assets is roughly the same) and by its extent (the amount of the disclosed information was growing every year). Meanwhile, the amount of the information on the intellectual capital, provided by Latvian enterprises, grew from 2010 to 2011 but showed a decreasing trend in 2011–2012. The data presented by Estonian enterprises decreased in amount in 2010–2011 but increased in 2011–2012 thus even exceeding the level achieved in the year 2010.

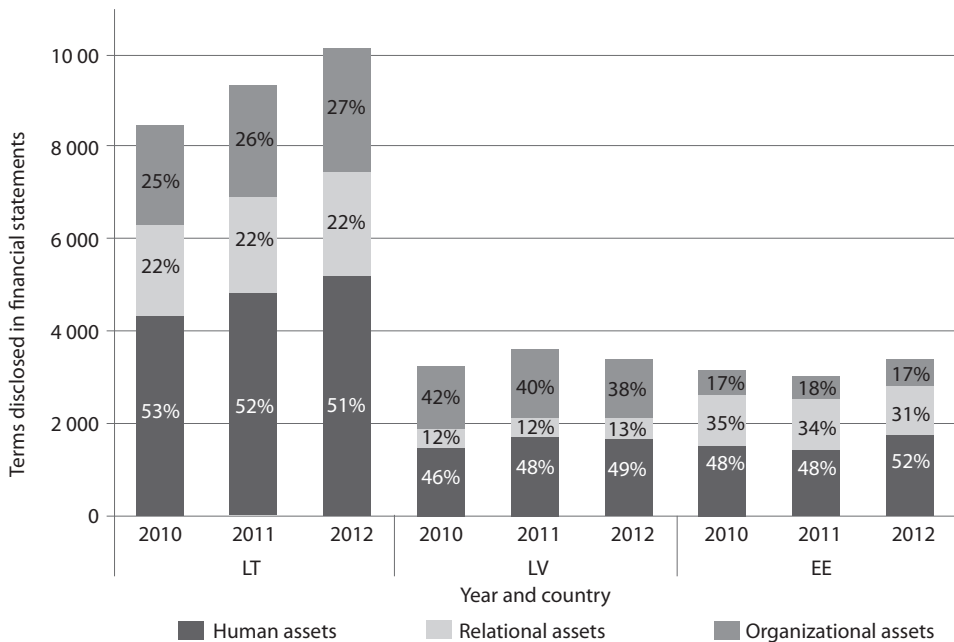


FIG. 1. Disclosure of information on intellectual assets in the Baltic states in years of 2010–2012

Source: Own work.

When the structure of the information on the intellectual capital as presented by enterprises from the Baltic countries is considered, it is evident that all the countries primarily focus on the human assets reaching about 50% of the whole amount of information dealing with the intellectual capital. The relational aspects were most frequently highlighted in Estonia and least frequently referred to in Latvia. Meanwhile, when the information on the organizational assets is considered, it is evident that it is the most frequently introduced in Latvia and the least frequently in Estonia. The general trends during this period are that the amount and structure of the presented information in Latvia and Estonia remained roughly the same, while in the case of Lithuania the amount was steadily growing, while the structure was undergoing slight shifts (the share of the



information on the human assets was decreasing at the expense of the increasing amount of information on the organizational assets if the ratios of the presented information were to be considered).

It is also possible to draw a conclusion that the highest amount of information on the intellectual capital was disclosed by Lithuanian enterprises. However, this fact may have been impacted by the different number of listed enterprises in the researched countries. That is why the decision was taken to calculate the average level and structure of the information on the intellectual capital per enterprise (Fig. 2; LT = Lithuania, LV = Latvia, EE = Estonia). The obtained results evidently show that the highest amount of information on the intellectual capital is disclosed by Lithuanian enterprises as the average extent of the disclosed information on the intellectual capital per enterprise is the highest. In this context, the lowest amount of the information on the intellectual capital is presented in Estonia.

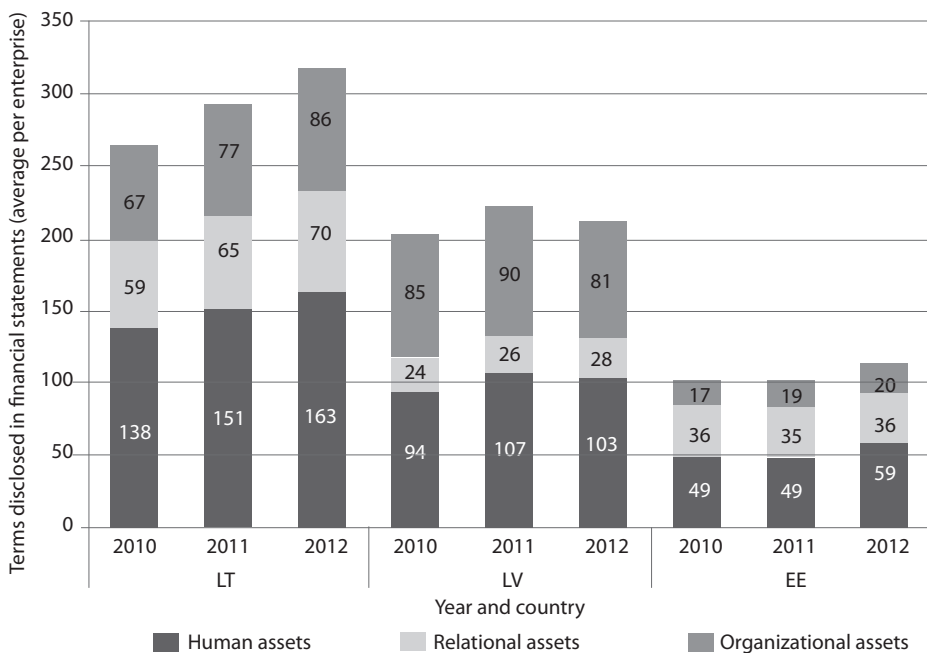


FIG. 2. Disclosure of information on intellectual assets in the Baltic states in the years 2010–2012 (average per enterprise)

Source: own work.

Table 7 presents indices of the capitalization of the market, the level of disclosure of information on the intellectual capital and its structure during the study period. Market capitalization indicates the general value of an enterprise in the market (which

is the number of shares multiplied by the price of one share in the market). It depends on the fluctuation of the price of the shares of the enterprise and on the emission of a particular number of shares (Swedbank, 2009). Capitalization depends on multiple factors. According to R. V. Lukošius (2014), in addition to the external environment of an enterprise (the phase of a cycle of economy, inflation, the rate of interest, etc.), this index is essentially determined by the internal characteristics of the enterprise. The current research conducted a correlation analysis between the data on the capitalization of the market of the Baltic countries and the indices of the disclosure of information on the intellectual capital. Based on research limitations presented in the methodological part, the possibility that the obtained results of the correlation analysis may be unreliable due to the limited scope of the researched data (the data of only three years were explored) should not be rejected. In order to verify these findings, the research should be expanded further. Still, in this paper, a qualitative evaluation was accomplished.

TABLE 7. Indices of market capitalization and disclosure of the information on the intellectual capital in the Baltic countries, 2010–2012

Country Years	LT			LV			EE		
	2010	2011	2012	2010	2011	2012	2010	2011	2012
<b>Market capitalization (MC), mln. EUR</b>	4220	3139	2992	942	826	843	1685	1241	1769
<b>Human assets disclosure (HAD)</b>	4427	4847	5209	1502	1709	1654	1518	1459	1755
<b>Correlation (MC to HAD)</b>	-0.93216933			-0.993347516			0.7591111		
<b>Relational assets disclosure (RAD)</b>	1890	2072	2230	389	418	450	1107	1039	1066
<b>Correlation (MC to RAD)</b>	-0.931420264			-0.767443364			0.7032566		
<b>Organizational assets disclosure (OAD)</b>	2130	2459	2738	1359	1437	1297	534	566	591
<b>Correlation (MC to OAD)</b>	-0.933842152			-0.208317586			0.0780549		
<b>Total intellectual assets disclosure (IAD)</b>	8447	9378	10177	3250	3564	3401	3159	3064	3412
<b>Correlation (MC to IAD)</b>	-0.932613359			-0.920400613			0.8074128		
<b>Correlation (Total MC to IAD)</b>	-0.756138707								

Source: compiled by the authors.

When analyzing the obtained results, a prominent negative correlation between the disclosure of the information on the intellectual capital and the market capitalization indices in Lithuania should be noted. The common explanation is the decrease of the market capitalization in the country throughout the period coinciding with the increase of the disclosure of information on intellectual assets and its specific components. The data of Latvia show that when the total extent of the disclosed information on the intellectual capital is considered, a strong negative correlation with the market capitalization index is observed; however, when the relationship with specific components of the intellectual capital is investigated, a very weak relationship is discovered for the organizational

assets, a very strong relationship is observed for the human assets, and a strong relationship is identified for the relational assets and the market capitalization index. When the data obtained in Estonia are analyzed, the relationships are only positive. A strong positive relationship is observed between the general information on the extent of the intellectual assets and the market capitalization, whereas no relationship was found for the organizational assets. Medium-strong relationships were found for the human and relational capital as compared with the index of market capitalization. Should the general relationship between the market capitalization and the information on the intellectual capital in the Baltic countries be discussed, it is possible to claim that a negative medium-strong relationship is observed.

In conclusion, the following statements may be presented on the basis of the conducted empirical research: 1) the investigated financial statements most commonly feature terms related with the organizational assets (the frequency of repetition is *not* taken into consideration); 2) the explored financial statements most frequently use terms related with the human assets (about 50% of all the terms found in the research; the frequency of mentioning *is* taken into consideration); 3) the listed enterprises from the Baltic countries are not inclined to disclose information on their intellectual liabilities (related terms were essentially not found in the explored financial statements); 4) the total amount of information revealing the intellectual capital was increasing in the Baltic countries every year; 5) the structure of information on the intellectual capital as presented by enterprises from the Baltic countries essentially remained the same during the study period (2010–2012); 6) Lithuanian enterprises reveal the largest amount of information on their intellectual capital if countries are compared; they also lead if the amount of the revealed information per one enterprise is calculated. Estonian enterprises show the lowest amount of information; 7) Lithuania was the only of the three countries where the amount of disclosed information on the intellectual capital grew every year; 8) the conducted correlational analysis has shown that in Lithuania there exists a strong negative relationship between the market capitalization and the level of disclosure of information on the intellectual capital and its specific components while in Latvia and Estonia the relationship was not stable.

## **Conclusions**

It is most common to distribute the intellectual capital into three parts: human (or staff), organizational (or structural), and relational (or relationship, market, consumer) capital(s). Even though the terms denominating these structural parts of the intellectual capital differ, the essence remains the same. The human capital is related with all the employees of the enterprise, the knowledge they possess, their skills and experience, and also with the culture of the enterprise and the whole country. The structural capital is

considered to be everything that remains after the staff has gone home, i.e. all the semi-material and the already created immaterial intangible products aiding the employees to perform their work better and to achieve superior quality thus creating added value in the enterprise. The relational capital deals with the external environment of the enterprise, i.e. its consumers, suppliers, and shareholders. However, most authors highlight only the asset side of the intellectual capital. This leads to the increased frequency of the investigation of intellectual liabilities, which may impose a negative impact on the activity of an enterprise. It is claimed that the intellectual capital equals the difference between the intellectual assets and the intellectual liabilities.

When striving to establish the level of disclosure of information on the intellectual capital, scientists usually employ content analysis and research financial statements by listed enterprises. The results of such researches show that the highest amount of information is disclosed on the relational capital. However, results of such researches are not uniform when the interrelationship between the disclosure of information on the intellectual capital of an enterprise and other indices related with the activity of the enterprise are considered. This may have been determined by cultural, political, and methodological differences of the concerned countries.

The results of the empirical research conducted in the Baltic countries showed that:

- 1) the investigated financial statements most commonly feature terms related with the organizational assets (the frequency of repetition is *not* taken into consideration);
- 2) the explored financial statements most frequently use terms related with the human assets (about 50% of all the terms found in the research; the frequency of mentioning *is* taken into consideration);
- 3) listed enterprises from the Baltic countries are not inclined to disclose information on their intellectual liabilities (related terms were essentially not found in the explored financial statements);
- 4) the total amount of information revealing the intellectual capital was increasing in the Baltic countries every year;
- 5) the structure of information on the intellectual capital as presented by enterprises from the Baltic countries essentially remained the same during the study period (2010–2012);
- 6) Lithuanian enterprises disclose the largest amount of information on their intellectual capital if the countries are compared; they also lead if the amount of the disclosed information per one enterprise is calculated. Estonian enterprises disclose the lowest amount of information;
- 7) Lithuania is the only of the three countries where the amount of the disclosed information on the intellectual capital grew every year;
- 8) the correlational analysis has shown that in Lithuania there exists a strong negative relationship between the market capitalization and the level of the disclosure of the information on the intellectual capital and its specific components, while in Latvia and Estonia this relationship is not stable.

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