RIGA TECHNICAL UNIVERSITY
Faculty of Engineering Economics and Management
Institute for Quality Engineering

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INTELLECTUAL CAPITAL MANAGEMENT AND DEVELOPMENT IN COMPANIES IN LATVIA

Summary of the Doctoral Thesis

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Subfield: Business Management

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Professor, *Dr. oec.*
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PROMOTION THESIS

PRESENTED TO QUALIFY FOR DEGREE OF DOCTOR OF ECONOMICS AT RIGA TECHNICAL UNIVERSITY

The Promotion Thesis has been elaborated at the Institute for Quality Engineering of the Faculty of Engineering Economics and Management at Riga Technical University. The Promotion Thesis to qualify for the degree of Doctor of Economics of the Republic of Latvia is presented for public defence on 09 May, 2017 at Riga Technical University, Faculty of Engineering Economics and Management, 6 Kalnciema str., Room 209.

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I confirm that this Promotion Thesis is presented for public defence at Riga Technical University for being conferred the degree of Doctor of Economics. This Promotion Thesis has not been presented to any other university for obtaining the scientific degree.

Oksana Lentjušenkova …….

Date: ……

The Doctoral Thesis is written in Latvian. It contains an introduction, 3 chapters, conclusions and recommendations, sources of reference, as well as 9 appendices. The Thesis is illustrated by 31 figure and 49 tables. The bibliography contains 208 reference sources. The total volume of the Doctoral Thesis is 167 pages.

The Doctoral Thesis and its Summary are available at the Scientific Library of Riga Technical University.

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GENERAL CHARACTERISTICS OF THE THESIS

Topicality of the research

Over the last thirty years, the approach to company management has fundamentally changed, especially as regards the choice of resources, their quality aspects, and ways of application. These changes are dictated by the processes taking place in the world: globalization, geopolitical processes, the economic crisis, the threat of terrorism, depopulation in different countries and, at the same time, overpopulation in urban areas and in some states, the increasing significance of feminism, nationalism and religious stances in different countries, scientific and technical progress, the emergence and spread of social media, and fast increase of their impact on society. These changes lead to changes in people and their attitude to work and the product that could meet their needs, countries' development priorities are changing, emphasizing the need for innovative and knowledge-based economy.

In order to preserve its position in the market, the company should ever seek new sources of competitive advantages. Today, intellectual capital is often mentioned as one of such sources, it is a unique resource for companies and can provide a certain competitive advantage. Intellectual capital has been acknowledged at the European Union level (the European Commission has funded a number of research projects, such as "MERITUM"), and at the level of various international organizations (such as the Organisation for Economic Co-operation and Development – OECD), which call for greater attention to the use of this resource in the operation of enterprises. However, in the business environment, this resource is associated with difficulties, which reduce the possibilities for its use, for example, copyright protection mechanisms, knowledge accumulation, problems in building storage and exchange systems, staff turnover, lack of financial resources needed for the purchase of the required amount of intellectual capital, problems of recording these resources in accounting, etc. Despite the fact that the concept and nature of intellectual capital have been studied at large, there is a lack of a common understanding of its role in the company's sustainable development along with the changing environment and situation in the world economy and in each separate country. In the scientific literature, intellectual capital is interpreted in different ways: as a resource, as an intangible asset, or as knowledge. This concept has been frequently studied and is still being studied in the context of changes in the company's financial performance or when trying to find out how intellectual capital affects the profit margins and the company's value.

The impact of intellectual capital on the company's operations needs to be analysed at large – it can affect not only the financial, but also non-financial performance, which could be called a long-term financial performance. Using intellectual capital gives rise to a greater positive impact and creates certain value. In the present Doctoral Thesis, intellectual capital is analysed and studied in the context of value creation, and value is analysed from the perspective of creating shared value. This approach is based on the recognition that depending on the strategy and the objectives, the company needs a specific amount of resources of a certain quality. Every company has a specific amount of intellectual capital of a certain quality that could be insufficient to achieve the defined objective. In this case, it is necessary to ensure that there is enough intellectual capital by attracting additional intellectual capital or improving the existing one, in other words – to make investments in intellectual capital. These investments are studied as an intellectual capital development tool, which can be used to create more intellectual capital, improve the quality of the existing capital and create value for all stakeholders involved in this process. Intellectual capital has a dual nature – on the one hand, it is an investment object, on the other hand, it is the result of investments. But it can also be a tool for investments (for example, employees invest their intellectual capital by working in the company). The company uses a variety of components or types of intellectual capital in its operations, and depending on the situation, intellectual capital may perform one or more roles

at the same time, thus creating value for everyone who is directly or indirectly involved in the process.

In the scientific literature, investments in intellectual capital and the potential return on them are studied primarily in the context of financial returns. The researchers have not paid sufficient attention to these investments, and there are several interpretations of the concept of investments, suggesting a lack of a common approach. Research of financial return is mainly related to the way how investment decisions are generally made, which are often based on the forecasts of obtaining profit and other financial benefits. As already mentioned, intellectual capital and investments in it provide a wide range of non-financial benefits for the company; however, they are difficult to measure, so forecasts are not accurate and do not motivate to invest. The author proposes to use the methodology for measuring the social return on investments in order to measure the non-financial results generated by investments and fix them in monetary terms, thus comparing non-financial results with financial results achieved by the company investments in a variety of objects. This approach fosters motivation to invest in intellectual capital and promotes the development of intellectual capital.

Looking at the available data on the use of intellectual capital and investments in Latvia, it can be concluded that the potential is not used; therefore, it may interfere with the targets set in the national planning documents because they are mainly related to innovations and improvement of the competitiveness of the state. National prosperity and competitiveness depends on the competitiveness of the citizens and companies operating in the state. The question arises as to why, despite the increasing importance of intellectual capital in the creation of the company's competitiveness and sustainability, its development in Latvian companies is insufficient.

The **research object** of the Doctoral Thesis is the company's intellectual capital.

The **research subject** of the Thesis is the development of intellectual capital, the factors influencing the impact of intellectual capital on the company's performance, the aspects of intellectual capital management in the implementation of the company's strategy, as well as various correlations in the context of value creation, and the company's sustainability.

The **aim of the Doctoral Thesis** is to create an approach for the company's intellectual capital development and management using modern management science theories and practices in order to ensure sustainable development of the company.

To achieve the aim of the present Thesis, the following **tasks** are put forward:

1) to study the theoretical aspects that reveal the company's intellectual capital formation, development and transformation from resource to capital in today's point of view;
2) to study the nature of investments in the company's intellectual capital and their role in its development;
3) to collect and analyse information on intellectual capital in various companies and its development trends in Latvia, as well as to evaluate the level of the entrepreneurs' understanding of the company's intellectual capital;
4) to identify the factors influencing the development of the company's intellectual capital and their peculiarities in Latvian companies;
5) to evaluate the impact of intellectual capital on the company's performance and to develop a methodology for the calculation of return on investments in intellectual capital;
6) to develop an approach for the development strategy of the company's intellectual capital on the basis of the integrated management system and a holistic view.

Defence hypothesis: by assessing the value created by the company's intellectual capital and integrating the intellectual capital development strategy in the overall business strategy, it is possible to ensure the company's sustainable development.

Theses put forward for defence:

1) as a result of historical development of the company's intellectual capital, its transformation from resource to capital has taken place. Today, the company's intellectual capital is understood as an asset that can create value;
2) the structure of the existing components of the company's intellectual capital is not sufficiently transparent and effectively manageable, so it should be changed by including four components: human capital, business processes or their descriptions, technologies, and intangible assets;
3) investments in intellectual capital are a key tool for its development. Depending on the company's goals and the amount and quality of intellectual capital, the company needs to invest in intellectual capital formation, maintenance or development;
4) the development of the company's intellectual capital and investing in it can lead to both financial and non-financial value. Using non-financial value calculation methodology, which is based on social investment return calculations and theory of joint value creation and stakeholder theory, can contribute to a more accurate decision-making on investments in intellectual capital;
5) the created approach for the company's intellectual capital development strategy can ensure the company's sustainability and contribute to the company's competitiveness.

What serves as the **theoretical and methodological framework** are the economic and management theories, Latvian (S. Babris, J. Caune, E. Gaile-Sarkane, I. Lapiņa, N. Lāce, V. Meņšikovs, I. Mietule, B. Sloka, A. Vītola, I. Vītola, etc.) and foreign scientific and research works (Andriessen, D. G., Bontis, N., Garanina, T., Corrado, C., Dumay, J. C., Edvinsson, L., Guthrie, J. Haskel, J., Kianto, A., Lev, B., Malone, M. S., Mouritsen, J., Naidenova, I., Petty, R., Roos, G., Roos, J., Sichel, D., Sullivan, P., Sveiby, K. E., Stewart, T., Viedma, M. J., Zeghal, D., etc.). An important contribution to the studies of the nature of intellectual capital and its role in the company's development has been given by the European Commission-funded projects "MERITUM", "RICARDIS", "INNODRIVE", "Intellectus", etc.

The informational base of the promotion thesis is built on scientific literature, international scientific publications, laws and regulations, studies, reports and publications of Latvian and foreign researchers, information published by the Central Statistical Bureau and "Eurostat", publications in the press and electronic media.

The author has used analytical and synthetical, induction and deduction, as well as qualitative and quantitative **research methods**, including data collection and analysis, grouping, logical constructive analysis, conceptual (concept) analysis, content analysis, surveys, frequency analysis, mean value analysis, factor analysis, and other methods. Factor analysis and survey respondents' profile analysis which were carried out in the SPSS environment were used for summarizing and analysing the research results. Research data and results were included in tables and figures for better visualisation.

The limitations of the research. A broad range of research issues and problems is connected with intellectual capital, and each of them could and should be thoroughly examined; however, the chosen theme of the Doctoral Thesis and the diversity of the analysed aspects do not allow thoroughly exploring all the related questions. This is the reason why the macro-level was not viewed in depth, and the development efficiency of intellectual capital was neither studied nor evaluated.

The scientific novelty of the Doctoral Thesis

1. The definition of the concept of "intellectual capital" and "investments in intellectual capital" has been refined. These concepts are explored from the perspective of created shared value, with an emphasis on the recognition that intellectual capital is the company's asset that may be transformed into value.
2. A new intellectual capital structure has been created: it is based on the allocation of the company resources and is easy to use for recording intellectual capital in accounting at the company level.
3. A classification of investments in intellectual capital has been designed on the basis of the company's operational activities and a certain period of time. The proposed classification is related to the development of the company's strategy and its implementation on the basis of the defined business objective, the amount of resources and assets needed to achieve the objective.
4. Using the results of the survey and the data processed with the help of factorial analysis, factors influencing the development of intellectual capital have been identified and grouped.
5. A methodology for expressing non-financial results created by investments in intellectual capital in monetary terms has been developed on the basis of the methodology of return calculation of stakeholders' approach and return on social investments.
6. An approach to the company's intellectual capital development strategy has been established on the basis of the integrated management system and the holistic approach, as well as the Deming quality management cycle, stakeholders' theory and created shared value approach.

The practical application of the research. The results of the research have been presented at 11 scientific conferences, various forums, seminars and discussions, as well as used in the implementation of projects. Parts of the Doctoral Thesis and research results have been used when participating in the following projects:

1) European Comission "Erasmus +" programme and "KeyAction 2 – Strategic Partnership" iniciative project "Innovative strategic partnership for European higher education" (ISPEHE), project No. 2014-1-MK01-KA203-000275. Implementation period: 2015–2017. The author participated in the project as an expert, co-author of the methodology of assessing the efficiency of learning, and consultant for e-learning methodology development and implementation;
2) Lifelong Learning Programme Transfer of Innovation, Multilateral Projects, Leonardo da Vinci "Employability and Skills Anticipation Policies: a Social ROI Approach", Project No. 2011-1PT1-LEO05-08605. Implementation period: 2012–2014. The author participated in the project as a member of Sustainable Commitee of Stakeholders;
3) Nordplus Horizontal project "Skills on Demand: Meeting Labour Market Needs" (No. NPHZ-2014/10084). Project stage: 1 September 2014 – 30 October 2015. Project applicant: Albert's College. The author participated in the project as a researcher;
4) several publications of the Doctoral Thesis have been carried out with the support from the State Research programme 5.2. EKOSOC – LV

The theoretical ideas expressed in the Doctoral Thesis have been used by the author in practical work, during the period of eleven years being the manager of a higher education institution (director of a college), designing and implementing its development strategy, preparing the institution's quality management manual with process descriptions and creating software for governing the management processes, as well as developing and implementing a virtual training system.

The Thesis materials have been used in the study courses “Microeconomics”, “Project Management”, “Investment Economics”, “Intellectual Capital Management”.

Scientific publications. The research results have been reflected in ten publications:

1) Lentjušenkova, O., Lapiņa, I. The Transformation of the Organization’s Intellectual Capital: from Resource to Capital, *The Journal of Intellectual Capital*, 2016, Vol. 17, No. 4, pp. 610–631. (*Scopus*)
2) Lentjušenkova, O., Titko, J., Lapiņa, I. Intellectual Capital Investments: Analysis of the Predicted Outcomes. In: *21st International Scientific Conference, Economics and Management 2016 (ICEM 2016) “SMART and Efficient Economy: Preparation for the Future Innovative Economy” Proceedings*, Czech Republic, Brno, May 19–20, 2016, pp. 94–101.
3) Lentjušenkova, O., Lapiņa, I. Intellectual Capital Investments: Company’s Additional Expenditures or Creating Shared Value? In: *Perspectives of Business and Entrepreneurship Development: Economic, Management, Finance and System Engineering from the Academic and Practioners Views: Proceedings of Selected Papers*, Czech Republic, Brno, 28–29 May, 2015. Brno: Brno University of Technology, 2015, pp. 207–216.
4) Lentjušenkova, O., Lapiņa, I. Factors Influencing Investments in Intellectual Capital: Case of Latvia. In: *Proceedings of the 19th World Multi-Conference on Systemics, Cybernetics and Informatics (WMSCI 2015), Vol. 1*, United States of America, Orlando, 12–15 July, 2015. Orlando: International Institute of Informatics and Systemics, 2015, pp. 82–87. ISBN 978-1-941763-24-7. (*Scopus*)
5) Lentjušenkova, O., Lapiņa, I. Critical Analysis of the Concept of Intellectual Capital Investments. In: *21st Century Academic Forum "Teaching, Learning, and Research in the 21st Century": Conference Proceedings*, United States of America, Berkeley, 21–23 August, 2014. Berkeley: 2015, pp. 104–116. ISSN 2330-1236.
6) Lentjušenkova, O., Lapiņa, I. Intellectual Capital Investments Influence on Entrepreneurship and Economics Performance. In: *Business and Management: 8th International Scientific Conference*, Lithuania, Vilnius, 15–16 May, 2014. Vilnius: Vilnius Gediminas Technical University, 2014, pp. 93–100. ISBN 978-609-457-650-8. e-ISBN 978-609-457-649-2. ISSN 2029-4441. e-ISSN 2029-929X (*ISI Web of Science*)
7) Lentjušenkova, O., Lapiņa, I. Analysis of the Factors Influencing Investments in Intellectual Capital. In: *Proceedings of the 18th World Multi-Conference on Systemics, Cybernetics and Informatics (WMSCI 2014), Vol. 1*, United States of America, Orlando, 15–18 July, 2014. Florida: International Institute of Informatics and Systemics, 2014, pp. 37–42. ISBN 978-1-941763-04-9. (*Scopus*)
8) Lentjušenkova, O., Lapiņa, I. Development of the Concept of the Intellectual Capital Investments. In: *12th Annual BMDA Conference "A Successful 21st Century Organization": Proceedings of Extended Abstracts,* Latvia, 6–8 May, 2014. Riga: Riga Technical University, 2014, pp. 1–4. ISBN 978-9934-10-559-3.
9) Lentjušenkova, O., Lapiņa, I. The Classification of the Intellectual Capital Investments of an Enterprise. In: *Procedia – Social and Behavioral Sciences*, 2014, Vol. 156, pp. 53–57. ISSN 1877-0428. (*ISI Web of Science, Science Direct, EBSCO*)
10) Lentjušenkova, O. Employers Investments in the Human Capital as a Factor Facilitating the Economic Growth. In: *Second International Scientific Conference for PhD Candidates on "Economics, Management and Tourism"*, Bulgaria, Blagoevgrad, 6–8 May, 2011. Blagoevgrad: South-West University "Neofit Rilski", 2011, pp. 140–145. ISSN 1314-3557.

The results of the study were reported in **13 international and local conferences** (Latvia, Lithuania, USA, Czech Republic, Sweden, Bulgaria):

1) *21st International Scientific Conference „Economics and Management 2016" (ICEM 2016)*, Čehija, Brno, 2016. gada 19.–20. maijā. Referāta tēma: *Intellectual Capital Investments: Analysis of the Predicted Outcomes*.
2) *6th International Scientific Conference "21st Century Challenges for Economics and Culture",* Latvija, Rīga, 2016. gada, 7.–8. aprīlī. Referāta tēma: *Intellectual Capital Investments: Perceptions of Latvian Entrepreneurs*.
3) *56th International Riga Technical University Conference "Scientific Conference on Economics and Entrepreneurship (SCEE'2015)"*, Latvija, Rīga, 2015. gada 14.–15. oktobrī. Referāta tēma: *Company' Expectations about the Results from the Intellectual Capital Investments: Case of Latvia*.
4) *The 19th World Multi-Conference on Systemics, Cybernetics and Informatics (WMSCI 2015),* ASV*,* Orlando, 2015. gada 12.–15. jūlijā. Referāta tēma: *Factors Influencing Investments in Intellectual Capital: Case of Latvia*.
5) *„Perspectives of Business and Entrepreneurship Development: Economic, Management, Finance and System Engineering from the Academic and Practioners Views"*, Čehija, Brno, 2015. gada 28.–29. maijā. Referāta tēma: *Intellectual Capital Investments: Company's Aditional Expenditures or Creating Shared Value?*
6) *55th Riga Technical University Conference SCEE'2014 "Scientific Conference on Economics and Entrepreneurship": Proceedings*, Latvija, Rīga, 2014. gada 14.–17. oktobrī. Referāta tēma: Investīcijas intelektuālajā kapitālā un kopīgās vērtības rādīšana kā uzņēmuma darbību veicinoši faktori.
7) *21st Century Academic Forum "Teaching, Learning, and Research in the 21st Century",* ASV, Bērklija, 2014. gada 21.–23. augustā. Referāta tēma: *Critical Analysis of the Concept of Intellectual Capital Investments*.
8) *The 18th World Multi-Conference on Systemics, Cybernetics and Informatics (WMSCI 2014),* ASV, Orlando, 2014. gada 15.–18. jūlijā. Referāta tēma: *Analysis of the Factors Influencing Investments in Intellectual Capital*.
9) *Business and Management: 8th International Scientific Conference*, Lietuva, Viļņa, 2014. gada 15.–16. maijā. Referāta tēma: *Intellectual Capital Investments Influence on Entrepreneurship and Economics Performance.*
10) *12th Annual BMDA Conference "A Successful 21st Century Organization"*, Latvija, Rīga, 2014. gada 7.–9. maijā. Referāta tēma: *Development of the Concept of the Intellectual Capital Investments*.
11) *International Scientific Conference „Economics and Management" (ICEM 2014)*, Latvija, Rīga, 2014. gada 23.–24. aprīlī. Referāta tēma: *The Classification of the Intellectual Capital Investments of an Enterprise*.
12) *Second International Scientific Conference for PhD Candidates "Economics, Management and Tourism"*, Bulgārija, Blagoevgrada, 2011. gada 6.–8. maijā. Referāta tēma: *Employers Investments in the Human Capital as a Factor Facilitating the Economic Growth*.
13) *9th Baltic Conference in Europe "Transitions, Visions and Beyond"*, Zviedrija, Hudinge, 2010. gada 12.–15. jūnijā. Referāta tēma: *Investments in Human Capital as a Factor Facilitating the Economic Growth*.

The scope and content of the Doctoral Thesis. The Thesis is an independent research written in the Latvian language, consisting of an introduction, the content presented in the main parts, conclusions and recommendations, sources of reference, and appendices.

The first part "Theoretical aspects of intellectual capital formation" discusses the formation of intellectual capital, showing its transformation from resource to capital. The author analyses different views on intellectual capital and related concepts. The definition of intellectual capital is refined, and a new structure of intellectual capital is prepared. This section also explores the views on investments in intellectual capital in the scientific literature, and the author analyses the intellectual capital development tools, as well as their nature and types. A definition of investments in intellectual capital is prepared. At the end of this part, the author explores the factors influencing the development of intellectual capital on the basis of the scientific literature and publications in the press.

In **the second part** "Intellectual capital and its development trends in Latvian companies", the author analyses intellectual capital and its development dynamics in Latvian companies on the basis of statistical and publicly available data, by assessing the amount of intellectual capital, company investments in intellectual capital and its development trends. This part contains the results of the author's empirical study, which aimed to identify the importance of intellectual capital and investments in intellectual capital in the company, factors affecting investments at the enterprise level in Latvia, as well as to determine the expected results from investments. This study has revealed the level of Latvian entrepreneurs' understanding of the nature of intellectual capital and its role in the company's development.

The third part "Intellectual capital development to ensure company sustainability" is designed as a presentation of solutions and recommendations for the company's intellectual capital development proposed by the author. For the development of intellectual capital with the help of investments, the author offers a classification of these investments. The author has created an approach to designing intellectual capital development strategy that is based on the integrated management system and the holistic approach. Strategy development and implementation is also based on the Deming quality management cycle "Plan-Do-Check-Act" and the stakeholders' theories and created shared value.

MAIN SCIENTIFIC DEVELOPMENTS OF THE DOCTORAL THESIS

1. THEORETICAL ASPECTS OF INTELLECTUAL CAPITAL FORMATION

1.1. The concept of intellectual capital and the problems in defining it

Intellectual capital was first discussed in the 1970s, when the view that the choice of resources and their uses determine the company's development began to dominate in the theory of economics. A variety of resources were considered to be the company's development sources, but increasingly important were such intangible or invisible assets and intangible resources as knowledge, experience, competence, performance, etc., which later formed the basis for the concept of intellectual capital. With the evolution of views on how and what forms the company's development potential, studies of the nature and role of intellectual capital in the company appeared.

In the scientific literature, this concept was introduced in 1969 by J. K. Galbraith. Later T. A. Stewart (Stewart, 1991) studied this concept and offered one of the first definitions, and also divided intellectual capital into three parts or components: human capital, organizational capital, and relational capital. He defined intellectual capital as patents, processes, management methods, technologies, information about customers and suppliers, as well as experience. In the 1990s, many authors actively focused their research on the nature of intellectual capital, its structure and role in the company's activities. Various authors tried to formulate a definition of intellectual capital through different approaches – by including some elements characterizing the concept or by using the structure of intellectual capital (Brooking, 1996; Edvinsson and Malone, 1997; Roos and Roos, 1997; Stewart, 1991; Sveiby, 1997), or by broadening the concept of knowledge (Bontis *et al.*, 2000; Edvinsson and Sullivan, 1996).

In order to define the concept of intellectual capital, first it is necessary to separately analyse each part of this concept, identifying the explanation and meaning of the concept of "intellectual" and the concept of "capital". Then the concept of intellectual capital could be formulated by combining these two separate concepts. The concept of "intellectual" is mainly attributed to qualities that a person possesses – knowledgeable, sensible, educated, intelligent, spiritual, able to use knowledge, thinking, etc. Whereas, capital is defined as a property, resource, asset, wealth, etc.; therefore, it serves to raise a certain income or benefit (Bishop, 2004; Collin, 2009; Ozegov, 2013; Cambridge dictionary online; Longman dictionary online).

Upon exploring the historical evolution of the concept of "intellectual capital", the author concludes that it is associated with two interrelated views on resources. In the theory of economics, there are two views on resources and, consequently, two views on the formation of profits and competitive advantages. One of the views is the resource-based view (RBV), the other view is the knowledge-based view (KBV). Resources are in the centre of both views, whereas there are differences in the kind of resources taken into account and the way in which the company's competitive advantage is ensured. However, representatives of both views believe that the sources of the company's competitive advantage are not in the external environment but in the company's internal environment.

Upon studying the evolution of the scientific views on the sources of the company's competitiveness, a transformation of these sources can be observed: from resource to intellectual capital. Today, intellectual capital is one of the sources of competitive advantages, which is recognized both by researchers and international organizations (OECD, European Commission, etc.).

Along with the changes in the economic environment and views on the organizational management, a significant change appears in the view on the capital – a transition **from a static**

to a dynamic perspective and placing a greater emphasis on intellectual capital. According to the author, today capital is to be seen from three perspectives:

1) capital as a resource through which goods can be produced and services can be rendered;
2) capital as the object of investments, where the amount and quality of capital can be changed with the help of investments;
3) capital as the result of the company's operations, so that it can be used by the company and its employees, customers and partners, and also society as a whole.

At the company level, all the three aspects are important, but when viewed from the perspective of sustainability, the second and the third aspects are most important because they show capital from the dynamic perspective. These are the aspects that demonstrate the dual nature of capital, i. e.:

1) the company can develop its capital through improvements in accordance with the company's needs. The capital can be developed using a variety of means, including the company's existing capital and by attracting additional capital;
2) as the result of its operations when its own and attracted capital is used, the company can create a larger capital, thereby ensuring the growth of the amount of capital, and, in some cases, quality as well, not only for the company, but also employees, customers, etc. Capital may also have a multiplier effect, i. e., while growing in one company it may grow in society as a whole. This means that capital may be the outcome of operations.

The nature of intellectual capital at company level differs fundamentally from the nature of intellectual capital that is discussed in the two existing views on resources – RBV and KBV.

1.2. Intellectual capital and the company's value

Today, the company's intellectual capital is significant just **as the capital that has value in its own right and can create a value**. Thus, according to the author, intellectual capital should not be analysed as a resource, but it needs to be analysed as the company's asset that objectively exists and can ensure the company's competitive advantage. The author concludes that over time, along with the development of RBV and KBV and the changes in the sources of the company's competitive advantage from resource to intellectual capital, intellectual capital has also transformed from resource to capital.

It should be noted that in the scientific literature, the understanding of value differs. This is due to the concept interpretation in different social groups and different situations. In management science and economics, the concept of "value" is closely related to the value chain theory, according to which the company performs a set of strategically linked activities in order to create value, i. e., creation of products and transfer of value from the company to its customers and back (Porter, 1985). There are four types of value analysed in the scientific literature:

1) economic value associated with earnings and profits (Brodin and Anderson, 2008; Dowlatshahi, 2010; Škapa and Klapalova, 2012). Production costs can be reduced and productivity can be increased with the help of cutting edge materials and technologies. Modern management methods can help in selecting the right resources in the right amount, reducing communication defects, optimizing service time, etc.;
2) environmental and social value has become important and is constantly growing under the influence of stakeholders and laws and regulations. Some aspects are related to the reduction of environmental pollution (Krikke, 2011; Huppes and Ishikawa, 2009), but there are also aspects related to the development of green marketing and promotion of ecological products (Hazen *et al*., 2012; Huang *et al*., 2012). Also corporate social responsibility has a significant role in the creation of social value;

3) customer value is created by satisfying customer needs and by promoting customer loyalty (Lee and Lam, 2012; Mollenkopf *et al*., 2007). This value is enhanced by offering after-sales service, ensuring use of ecological raw materials and recycling of packaging, the lowest price, as well as enhancing the company's reputation (Jayaraman *et al*., 2012) and promoting brand awareness (Michaud and Lierena, 2011);
4) information value which is created by managing the flow of information about customer behaviour and the production and supply chain, the factors influencing the company's operations, etc. This value can be an incentive for the creation of the aforementioned three values (Shenkel *et al.*, 2015).

Thus, it can be concluded that value can be analysed both from the financial as well as non-financial perspectives. Non-financial value can be regarded as long-term financial value, since originally created non-financial value can generate future cash flow (for example, promote customer loyalty), and accordingly create financial value.

1.3. Components of intellectual capital

Apart from the concept of intellectual capital, different authors distinguish a variety of intellectual capital components or form its structure in different ways. Intellectual capital is traditionally divided into three groups/components: human capital (in the sense of the company's human capital), organizational capital, and relational capital. Each component of intellectual capital consists of several elements, which are defined differently by different researchers. In general, common trends can be observed in the distribution of these elements, whereas the main differences are in the element names.

The components of intellectual capital include elements which exist not only in an intangible form, but, in some cases, also in a tangible form, for example, computer disks, business process descriptions, etc. Human capital includes most of the elements that are associated with knowledge and expertise. Organization capital comprises the elements obtained by using the company's human capital, as well as those elements that can be created outside the company. Relational capital consists of elements which ensure successful sales of the company's product in the market, also in the long term.

The author concludes that the structure of intellectual capital at the company level does not provide transparency and efficient management of intellectual capital because:

1) according to the theory of microeconomics, intellectual capital is not included in the classification of resources or factors of production;
2) in the theory of accounting, the concept of "intellectual capital" is hardly ever used. Instead, there is the concept of "intangible assets". International Accounting Standard 38.SGS (IFRS, 2002) defines what can be included in the intangible assets, also using the term "intellectual capital". However, the structure of intellectual capital significantly differs from the structure which exists in the scientific literature. The structure used in 38.SGS is based on the investment object, i. e., how or where the organization's financial resources are spent.

At the company level, the author offers to structure intellectual capital into four components, which would allow the company to easily record them in the accounts, use them and analyse their changes. In the present Thesis, the author uses the following definitions of the components of intellectual capital.

Human capital or an individual with their physical and mental abilities, including their knowledge and skills, mind-set, ability to act in a certain way, in a certain sphere and environment (Lapiņa, 2010).

Business processes or their descriptions that are formalized descriptions of the company's operations or procedures that allow systematizing all processes and minimizing the company's dependence on the human resources and their turnover (Jardon and Martos, 2012).

Technologies. Upon summarizing definitions available in the scientific literature, the author concludes that in the context of intellectual capital as an asset, technologies should be understood as the use of a set of scientific findings, methods and techniques in business processes that result in a product manufactured or services rendered.

Intangible assets. According to international standards (38.SGS), "an intangible asset is an identifiable non-monetary asset without physical substance". However, these standards recognize that in some cases, it could also have a tangible form, such as a computer disk. Among the intangible assets the author includes the results of research and knowledge created in research, patents, brands, licenses, databases of the company's customers, suppliers, etc., marketing research and marketing plans.

Upon studying the historical evolution of the concept of "intellectual capital" and the nature of the concepts related to intellectual capital, the author offers her own definition: **intellectual capital is the organization's asset** that includes the organization's human capital, business processes (procedures and their descriptions), technologies, and intangible assets that can be transformed into tangible and intangible value.

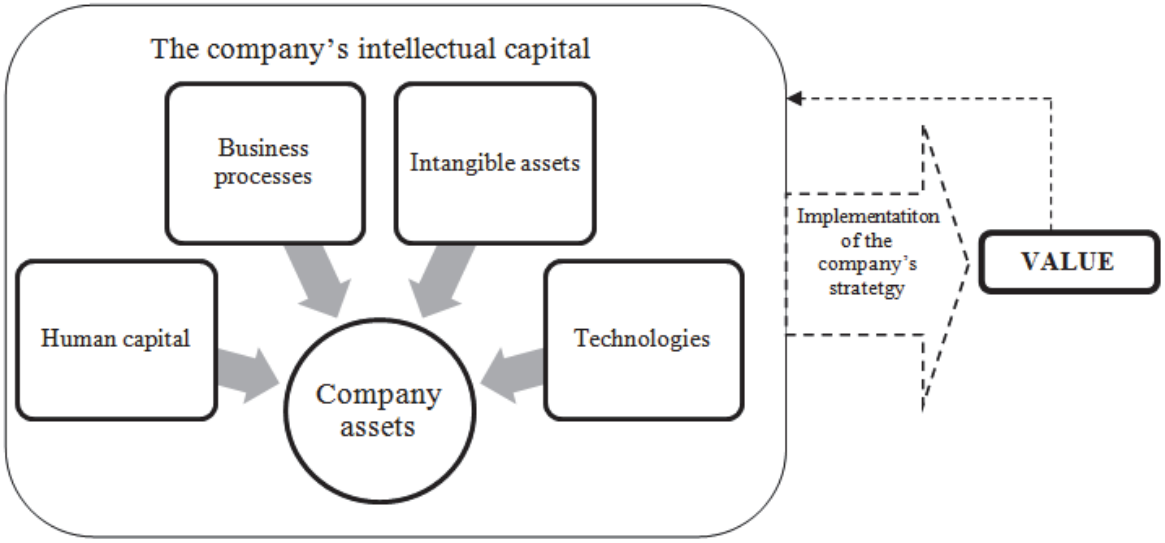

Fig. 1.1. The content scheme of the definition of "intellectual capital" (scheme designed by the author).

The author understands value as a set of all four types of values – economic, social, environmental, consumer and informational –, taking into account the concepts of understanding the value and common value defined in the stakeholders' theory. This means that by using intellectual capital and implementing the operational strategy, which is based on the interests of all stakeholders, a common value is created. Part of this value can become a company's intellectual capital, which in the future can also be used for investments in intellectual capital (for example, knowledge of consumer behaviour, experience in project management, higher qualification of employees, etc.). This value can be both financial and non-financial.

1.4. Investments in intellectual capital

The concept of intellectual capital can be analysed from three aspects, two of which are related to the dual nature of capital: capital as an investment object and capital as a result of the company's operations. Both aspects are related to the company's sustainability, where the main role is played by intellectual capital and its development. The development of intellectual capital is based on the company's business strategy, operational characteristics and resources at its disposal, and the amount of capital, including intellectual. If the amount of resources and capital is not sufficient for realizing the company's strategy, then in order to maximize the amount of resources and capital, the company has to take a decision to raise additional resources and capital or to improve their quality or to change its business strategy so that it is possible to implement it within the limits of the existing resources and capital. In the first case, the company will have to make additional investments, including investments in intellectual capital. The outcome of the investments can provide different results for the company: increase the amount of resources and capital, as well as change their quality.

In the Doctoral Thesis, the author analyses one type of company investments – investments in intellectual capital. The author believes that investments in intellectual capital can serve as an intellectual capital development tool, because investments can help the company to increase the amount of its intellectual capital and change the quality of the company's intellectual capital.

Up to the 1990s, when economics and management science were focused on resource-based approach, investments were defined as investments in physical capital in order to achieve profit. In the Soviet Union, the term "capital investment" was used instead of "investment" while the nature of the concept and the expected results were the same. Along with the changing trends in management science and economics, the nature of the concept "investment" and the outcomes of investments changed too. Investments in intellectual capital in this period (up to the end of the 1990s) were not studied from the aspect of value creation. Research generally mentioned the company's value and its changes as a result of investments. After 2010, along with the development of studies on the role of intellectual capital in the company's competitiveness, especially in the long term perspective, relationships between investments in intellectual capital and value creation started to appear in the scientific literature (Zeghal and Maaloul, 2011; Molodchik *et al*., 2012). Three stages can be observed in the evolution of the concept of "investments in intellectual capital":

1) investments in intellectual capital are considered to be different types of expenses: in advertising, R & D, and human resources (Hall *et al*., 1986; Chauvin and Hirshey, 1993);
2) investments in intellectual capital are defined as "activities" which may result in achieving the company's strategic objectives and creation of new intangible resources, as well as increasing the value of intangible resources (Canibano *et al*., 2001);
3) investments in intellectual capital are defined as the source of value added and the tool for improving the company competitiveness (Zeghal and Maaloul, 2011).

Despite the large number of studies on investments in intellectual capital, there is no uniform approach among researchers to the understanding of this concept and definition. After the content analysis conducted by the author with the help of the software NVivo 10 using 80 articles of researchers from Scopus, Science Direct and EBSCO, it can be concluded that:

1) most often the following expenses are used as investments in intellectual capital: the company's investments in human capital, expenditure on R & D, expenditure on IT, labour costs, training costs. Different kinds of expenditure are defined as investments in intellectual capital mainly in the studies about the impact of investments on the company's financial performance and the company's value;
2) researchers often use the term "expenses" as a synonym for the term "investments". However, the results of content analysis showed that these words are not synonymous. Not always expenses are investments, because the term "investments" is related to investing, but the term "expenditure" is related to payments for a certain product. In a situation where the company buys a certain product at a certain price, and this forms the actual expenses, these expenses can be considered to be investments. For example, if the company buys IT software, then these costs are investments in intellectual capital;
3) investments in intellectual capital not only affect the company's financial, but also non-financial performance. Impact on the company's performance is ambiguous: there are studies which show positive effects, there are also studies where a significant impact from investments has not been observed. The differences are also observed depending on the region, for example, studies conducted in Russia have noted that the effect of investments in intellectual capital is not significant as compared to investments in physical capital;
4) investments in intellectual capital positively affect the company's value. Most studies that demonstrated a significant positive effect were carried out using the data on companies in the US, the UK and Asian countries.

Upon summarizing the approaches and interpretations of the definitions of investments in intellectual capital found in the literature, the author proposes to refine the definition: **investments in intellectual capital are the company's investments in a variety of intangible assets, information and communication technologies, business processes and human resources in order to create both financial and non-financial value**.

The definition refined by the author contains the following essential aspects:

1) investments in intellectual capital are defined as investments rather than expenses, as the content analysis carried out by the author showed that investments and expenses are not synonymous;
2) in the scientific literature, investments in intellectual capital are viewed as separate expenses in separate components or elements of intellectual capital, but the author views investments in all components of intellectual capital in accordance with the author's proposed structure of intellectual capital;
3) investments are viewed from the perspective of value creation, including non-financial value.

These three aspects specify the nature of investments in intellectual capital and are related to the structure of intellectual capital and value creation.

There are relatively few sources where authors have classified and systematized investments in intellectual capital. Mostly the classification of investments in intellectual capital is made following three main objectives: to determine the business value of intellectual capital as part of the company's market value (Andriessen and Tiessen, 2000; Brooking, 1996; Pulic, 2000), to determine the size of intellectual capital in the company (Canibano *et al*., 2002; Mouritsen, Bukh *et al*., 2001), and to define the impact of intellectual capital on the company's operations (Chen *et al*., 2005; Piekkola, 2011).

The classifications of investments in intellectual capital reflected in the scientific literature do not correspond to the modern approach to management, and their use is limited:

1) part of the classifications is made on the basis of the traditional structure of intellectual capital, which, as mentioned above, is difficult to use in management and accounting;
2) part of the classifications is made on the basis of individual elements of intellectual capital, rather than the entire structure as a whole, such as investments in databases and software, training, reputation, etc.

Therefore, there is a need to develop a different classification of investments in intellectual capital on the basis of the author's proposed intellectual capital structure.

1.5. Factors influencing the development of the company's intellectual capital

Factors that influence the development of intellectual capital have not been sufficiently explored. The author studies the development of intellectual capital, using investments in intellectual capital as a tool. Upon summarizing the results of previously performed research on the factors influencing the development of the company's intellectual capital, the author has grouped these factors according to a number of characteristics:

1) depending on the company's ability to control the impact of its development factors that affect the company's performance;
2) according to the impact of factors on the company's sphere of activity.

The scientific literature most often analyses factors affecting the company's financial results; so one of the assumptions of the Thesis – that the entrepreneurs' motivation is focused on financial results even when taking decisions about the development of intellectual capital has been confirmed. This motivation is stronger in cases when companies lack financial resources and the economic situation of the state is not stable from a financial point of view.

According to the author of the present Thesis, the most important factor determining the development of intellectual capital and, at the same time, also one of the preconditions for its development is the entrepreneurs' understanding of the nature of intellectual capital and its role in the company. However, as shown by the analysis of the scientific literature, there is no common approach and understanding of the concepts of "intellectual capital" and "investments in intellectual capital" among scientists.

The author analyzes intellectual capital emphasizing its dual nature, and defines intellectual capital as an asset that transforms into value, thus focusing on the dynamic approach to the nature of intellectual capital, within which it is viewed from the value creation aspect for all the stakeholders.

Upon summing up the findings in the scientific literature and the results of the research conducted by the author, it can be concluded that the author's assumption about the fact that the past thirty years have seen a transformation of intellectual capital from resource to capital, and its role in the company has fundamentally changed is confirmed.

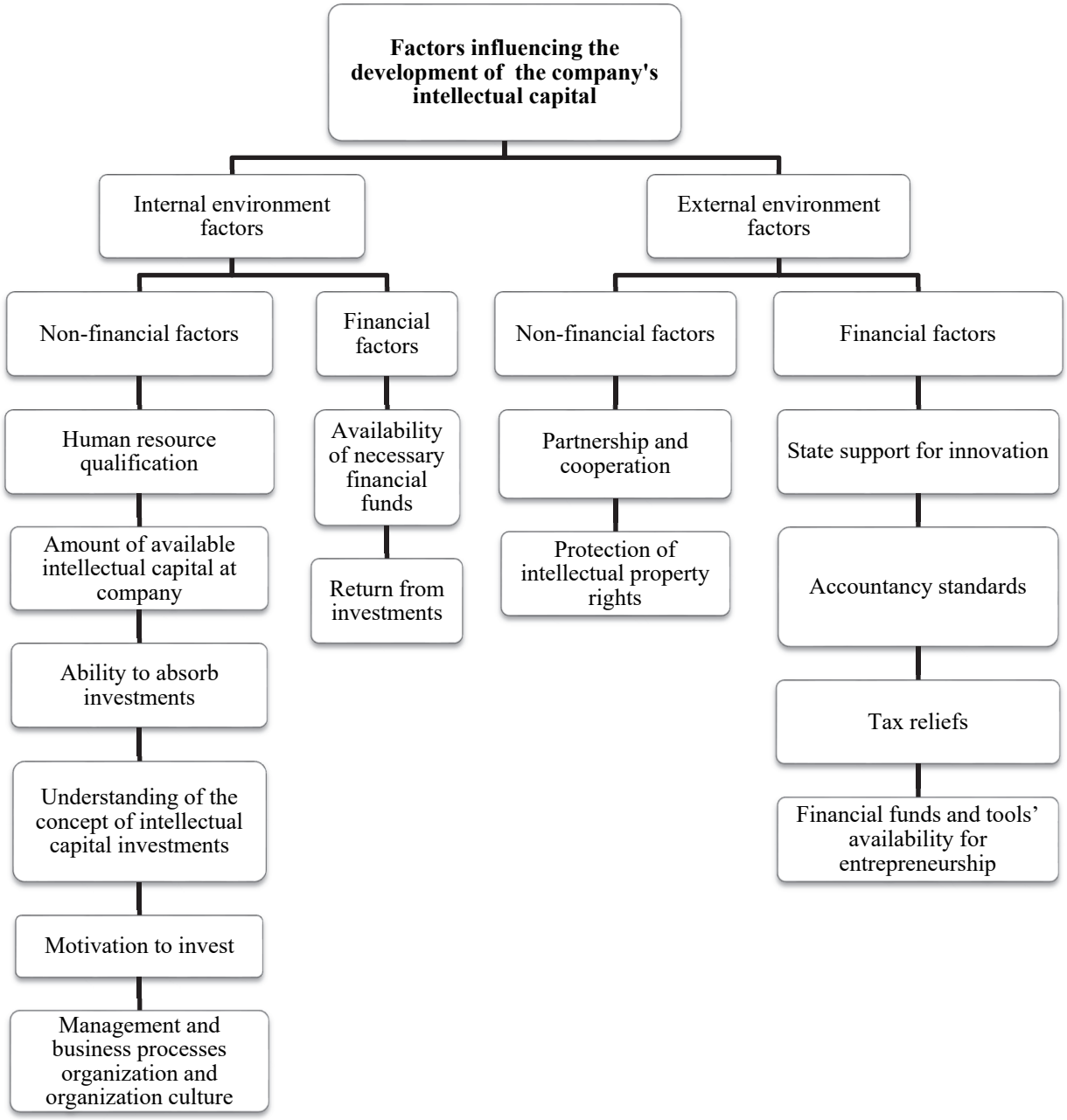

Fig. 1.2. Factors influencing the development of the company's intellectual capital (scheme designed by the author).

In order to develop the company's intellectual capital in Latvia, it is important to determine the level of Latvian entrepreneurs' understanding of intellectual capital and investments in it, as well as the significance of factors influencing the development of intellectual capital. It is also necessary to check one of the author's assumptions that, by investing in intellectual capital, entrepreneurs first expect financial return, whereas non-financial return is less important. In the next part of the Doctoral Thesis, the author gives a general overview of the intellectual capital in Latvian companies and a summary of the results of the empirical study conducted by the author to find out entrepreneurs' understanding of the nature and development of intellectual capital.

2. INTELLECTUAL CAPITAL AND ITS DEVELOPMENT TRENDS IN LATVIAN COMPANIES

The amount of intellectual capital in a particular Latvian company is difficult to determine because of the limitations of the information available. In Latvia, as in many states of the world, it is not obligatory to submit a report on the amount of intellectual capital and its changes. Laws and regulations and accounting standards do not require recording of information about the amount of intellectual capital and its development dynamics in the company's financial statements.

After studying common trends in the development of intellectual capital in Latvian companies, it can be concluded that entrepreneurs do not pay enough attention to the potential of intellectual capital in the growth of the company. The author assumes that this is due to the fact that entrepreneurs do not understand the nature of intellectual capital and its role in the company. The author's assumption has been confirmed during the research, and other factors influencing the intellectual capital have been identified.

2.1. Overview of intellectual capital and investments in intellectual capital in Latvian companies

Upon summarizing the information available in Latvian, European Union and World Bank statistics about the company investments in separate intellectual capital components, it can be concluded that:

1) access to the statistics in Latvia, the European Union and the world is limited and the data are published irregularly and with a large time lag. This hinders objective assessment of the situation, because the understanding of intellectual capital and its role in assessing and determining the amount of return is ambiguous, and the possibilities for recording data in accounting are also limited;
2) company investments in ICT, innovation and intangible assets show that companies prefer acquisition of tangible assets or making investments where there is a clear benefit or return. For example, investments in machinery and equipment constitute a large part in the structure of ICT;
3) the company's choice of investment objects can be explained by its material and technical condition when investments are necessary to improve it;
4) the structure, amount and dynamics of investments show that most companies are currently in the stage of intellectual capital formation, i.e., the period when the company has to establish the required amount of capital to achieve its objectives. This is shown by the data on company achievements in the field of innovations, as well as expenditure on innovations and R&D, which is a part of company development investments in intellectual capital.

The information existing in the Latvian and European statistical databases does not give a complete picture of the amount of intellectual capital and its investments in Latvian enterprises. The fact that the Latvian laws and regulations do not require companies to prepare and submit reports on the company's intellectual capital is not conducive to improving the situation.

In order to be able to offer suggestions for the improvement of the situation, it is necessary to find an answer to the question what forms intellectual capital in Latvian companies and how it is formed. To understand how the company's intellectual capital is formed, the author studied the Latvian entrepreneurs' understanding of the nature and structure of intellectual capital, the factors influencing the development of intellectual capital, and the expected results from investments in intellectual capital.

2.2. Intellectual capital in Latvian companies: results of empirical study

In this research, the author conducted a survey with the purpose to assess the role of intellectual capital and investments in intellectual capital in the company, the factors influencing it at the level of Latvian companies, as well as the expected results from investments. In order to reach the target, the following tasks were defined:

1) to determine the opinion of respondents about the nature of intellectual capital;
2) to determine the importance of intellectual capital components in the perception of respondents;
3) to determine the opinion of respondents on the concept of "investments in intellectual capital";
4) to identify the importance of investments in intellectual capital in the perception of the respondents;
5) to determine the importance of the expected results from investments in intellectual capital in enterprises, as well as to group these results;
6) to determine what factors are important for respondents when deciding on investments in intellectual capital, as well as to group the influencing factors.

The respondents' database was built on the basis of information provided by the Latvian Association of Personnel Management, Latvian Business Efficiency Association, Latvian Employers' Confederation Vidzeme Division, and Latvian Quality Association. The total number of respondents is 203 companies.

The survey results show that what most Latvian entrepreneurs understand by intellectual capital is the knowledge of the company employees (see Fig. 2.1). A relatively small share of respondents (13.3%) agrees with the author's definition of intellectual capital. Some entrepreneurs indicated that what they understand by intellectual capital is both the employees' knowledge and the company's non-financial and intangible resources.

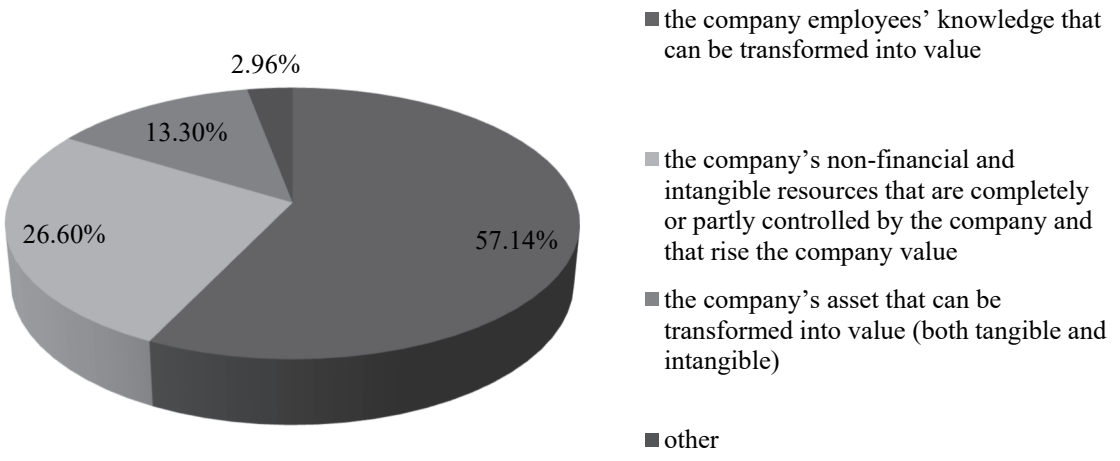

Fig. 2.1. Entrepreneurs' opinion on the concept of intellectual capital (scheme designed by the author).

The author concludes that the majority of entrepreneurs do not have an in-depth understanding of the nature of intellectual capital – what they understand by intellectual capital is only one element of intellectual capital. This limited understanding can create stereotypes about the role of intellectual capital in the company's activities, limiting the company's development potential. There is a risk that the company might not pay enough attention to the

intellectual capital in its possession because intellectual capital is not considered as an asset that can create value. One of the reasons could be difficulties in evaluating this asset, as well as problems in calculating the return on the asset.

The respondents' understanding of the concept of "investments in intellectual capital" is ambiguous (see Fig. 2.2).

Almost an equal number of respondents view business expenses in workforce training (24.1 %), expenses for research, science and innovations (R & D) (23.2 %) as investments in intellectual capital and also agree with the author's proposed definition of investments in intellectual capital (22.2 %). Most respondents (30.5 %) choose the statement that lists the elements of intellectual capital. The author concludes that this statement is understandable for entrepreneurs because it lists well-known and clear things that need certain expenses to purchase or develop. The author's proposed definition also lists similar elements of intellectual capital, but the majority of respondents have not chosen it. It can be concluded that entrepreneurs probably do not pay attention to or do not understand all the aspects of value creation, i. e., they do not associate investments in intellectual capital with value creation.

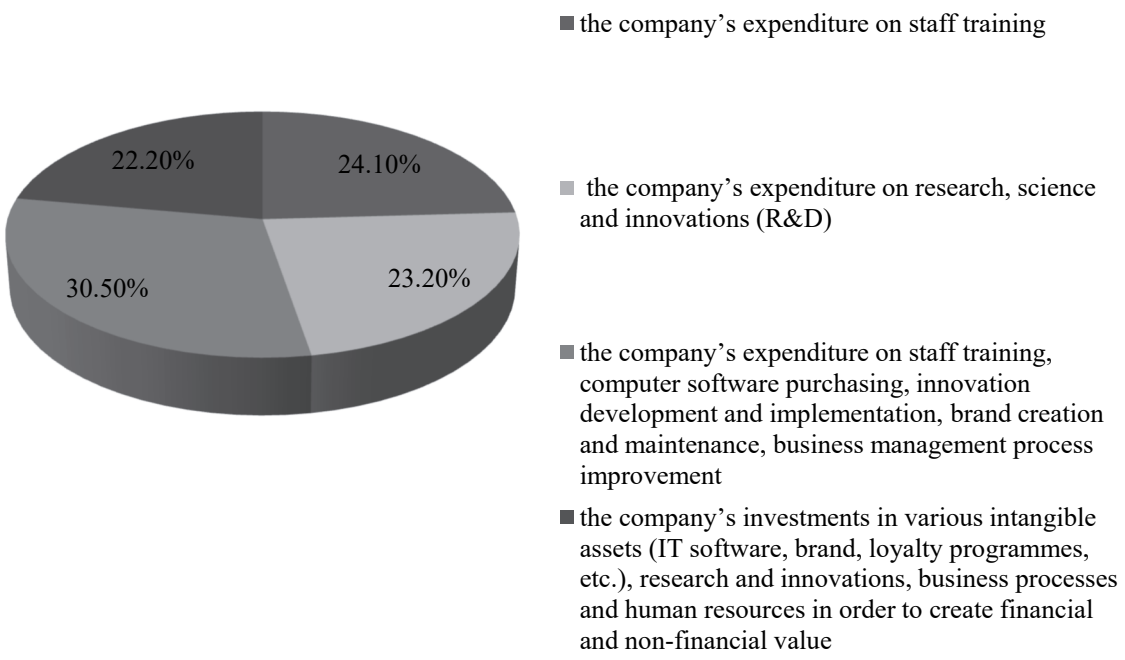

Fig. 2.2. Respondents' views on the concept of "investments in intellectual capital" (scheme designed by the author)

The survey results also show a certain inconsistency in the responses to the questions – what most entrepreneurs understand by intellectual capital is employees' knowledge, but when responding to the question about the nature of investments in intellectual capital they note that investments are the company's expenses on a number of intellectual capital elements besides knowledge. Similar answers are given about the value creation aspect: when responding to the question about the nature of intellectual capital, entrepreneurs choose a variety of statements, but most prefer exactly those which mention the value creation aspects. By contrast, when responding to the question of the nature of investments in intellectual capital, the majority of respondents prefer the statements which do not mention the value creation aspect. The author concludes that entrepreneurs associate intellectual capital with value, while investments in intellectual capital are not linked to value. This creates a lack of understanding of these two

concepts and their mutual relationship, and it can interfere with the success of the company and hinder taking the right management decisions.

Respondents were offered to evaluate the importance of the outcomes of investments in intellectual capital. The results are ranked from most important in the perception of respondents to least important. Profit is the most important expected result from investments in intellectual capital. The survey results show that the most important results from investments are financial, and also those non-financial results that are very closely linked to financial results and are relatively easy to determine. Latvian entrepreneurs put customer satisfaction improvement in the second place after profit growth, understanding that without customer satisfaction there is no real use for everything else.

To group the expected results from investments in intellectual capital, the author carried out a factorial analysis in the SPSS environment. After analysis, all the expected results were divided into four groups:

1) F1 (Image and Cooperation). The survey data processing showed that companies expect that investments in intellectual capital will also give non-financial results, which help to create a positive image of the company in society, also in the perception of stakeholders, thus encouraging cooperation with partners, as well as customer loyalty, which in turn could contribute to financial return on investments;
2) F2 (Financial Performance). Most often, companies expect financial results from investments. It was also confirmed by the calculation of average value. However, this group also includes one non-financial result – customer satisfaction, which is closely related to both other financial results. This confirms one of the author's assumptions that non-financial and financial results from investments in IC are interdependent, and non-financial results contribute to the financial results;
3) F3 (Effectiveness and Efficiency). This result group is linked to the financial results from investments. Entrepreneurs expect investments to increase efficiency which manifests itself in various aspects: both in terms of productivity and profitability growth, and as a potential cost reduction in the future;
4) F4 (Human Resource Quality). This group combines non-financial results that are related to employees or improving the quality of human resources. When making investments, it is possible to create and also increase the company's human capital; as a result, the intellectual capital grows too. The results of this group can directly and indirectly affect the results of the rest of the group, since this group contains resources that can help to achieve other results.

During the research, factors that affect the development of intellectual capital and the decision on investments in intellectual capital were identified. Using factorial analysis, all factors have been grouped and four groups of meta-factors were established:

1) the first factor F1 (Financial Resources) brings together all the elements related to the financial resources available in the company as well as financial incentives: state aid, access to financial instruments, tax relief, financial resources of the company, the possibility to record investments in accounting. The survey results indicate that what is important for entrepreneurs is that all the factors are related to finances – both the financial resources in the company and the possibility to attract additional funding from outside. An important factor is the aid which companies could receive from the state: both the direct aid in the form of grants and subsidies, as well as indirect support, such as tax relief;

2) the second factor F2 (Company Potential) brings together elements that are related to the company's potential to invest and to make use of the investment: the amount of intellectual capital, the company's ability to make effective use of investments, qualification of human resources. The company's potential to invest in intellectual capital is partly determined by the company's size, its ability to use investments, and the qualification of human resources. If the company considers the amount of its own intellectual capital as sufficient then the incentives to invest without external environmental impacts will not be large. Conversely, if the company will attract or invest amounts that do not meet the company's capability (usually defined by resource quantity and quality of resources, including qualification of human resources), then the efficiency of investments and return on them will not be large;
3) the third factor F3 (Business Culture and Motivation) combines elements related to business process organization and organizational culture, as well as the company's motivation to invest in intellectual capital, including understanding of investments: business process system and organizational culture, reluctance to make investments. Business process organization in the company depends on the understanding of these processes. Whereas, organizational culture is often the result of business process organization, because these two things are interrelated and also complement each other. Today, it is necessary to have business process descriptions, which are a component of the company's intellectual capital; they determine the communication between the company and stakeholders, which forms a particular organizational culture. For example, they can describe the process of exchanging staff experience working on different tasks or projects or with different groups of customers. Effective business process organization facilitates the company's ability to use investments, because the process organization results in increased business capacity;
4) the fourth factor F4 (Risks) combines factors which entrepreneurs could consider as risk factors when deciding on investments: business cooperation in the industry and at inter-sectoral level, uncertain return on investments and expected results, copyright protection. As mentioned in the first part of the Thesis, the author used content analysis and concluded that the concept of "investments in intellectual capital" is related to the concept of "risk". Investments in intellectual capital are as risky as any other investments. This meta-factor combines those factors that create doubts in entrepreneurs when they make investments. Entrepreneurs often do not cooperate out of fear of competitors and possible leakage of information. The fear that the intellectual property generated from investments can go to a rival company, as well as failure to obtain the planned return on investments is one of the factors why companies do not invest in intellectual capital.

The survey results confirmed the author's assumption of the Latvian entrepreneurs' understanding of intellectual capital and investments in it. The main problem is inconsistency in the understanding of these two concepts and view on the concept of "investments in intellectual capital" without including the value creation aspect.

The survey results showed that what entrepreneurs often understand by intellectual capital is only one component of intellectual capital, while investments in intellectual capital according to entrepreneurs contain all the components. The fact that entrepreneurs do not include the value creation aspect in the nature of the two concepts indirectly suggests that entrepreneurs do not link intellectual capital with possibilities for value creation.

The research results showed that the entrepreneurs appreciate those results which guarantee financial value. But entrepreneurs also recognize the importance of non-financial results such as improving customer satisfaction, provided that they help to create or increase the financial value. Factor analysis led to grouping of other expected results, which combines

both financial and non-financial value. The author concludes that entrepreneurs perceive the financial and non-financial results, which are derived from investments separately, as interrelated.

Upon studying the factors influencing the development of intellectual capital, the author divided all the factors into four groups, putting emphasis on the environment in which the factor works, and the results that intellectual capital can provide.

However, the survey results showed another grouping of factors related to the company's sphere of activity: finance, business potential, risk, and business culture. This grouping shows that all the factors are interrelated and the company is a complex system, which is influenced by various factors.

The study results show the problems that need to be resolved at the company level and also outside it in order to ensure the development of intellectual capital and, as a result, the company's sustainability. These problems are related to different aspects: both the understanding of the nature and significance of intellectual capital and the availability of funds, as well as the motivation to develop the intellectual capital and the ability to get a return on the utilization of intellectual capital and its development in the company.

3. INTELLECTUAL CAPITAL DEVELOPMENT TO ENSURE COMPANY SUSTAINABILITY

3.1. Intellectual capital development strategy

Today, the company's competitiveness and sustainability are closely related to the company's development aspects. When planning the company's operations, it is necessary to choose such resources and their exploitation strategy which will provide a competitive advantage for both the present and the future. Intellectual capital is a unique resource with a dual nature, which can create value for the company and is a value in its own right. With the help of these unique characteristics of intellectual capital, the company can create a competitive advantage which can make the company's product special and highlight it among similar products. Creation and preservation of a competitive advantage can be ensured by continuous development of intellectual capital in the company. From the sustainability perspective, the development of intellectual capital creates value not only for the company but also other stakeholders. Using the integrated management system and process approaches, the author offers an intellectual capital development strategy design and implementation approach to ensure the sustainability of the company, in its implementation one of the main outcomes is created shared value.

Classification of investments in intellectual capital

The author believes that one of the main tools in the development of intellectual capital is investments. Investments in intellectual capital are necessary for the company to promote its competitiveness and also to maintain or create a competitive advantage. In order to take a decision on the investments, it is necessary to clearly formulate the company's business objectives. The author offers a classification of investments based on grouping the investments according to the directions and the sequence of investments in time (intellectual capital formation, maintenance and development investments) and the previously (in Part 1 of the Thesis) proposed structure of intellectual capital into four components (see Fig. 3.1). The author's classification helps to assess what investments are needed for the company depending on its objectives and the amount and quality of the existing intellectual capital. Thus, the efficiency of the decision on investments is improved because investments are made where they are needed.

Investments in intellectual capital formation. If the amount of the company's intellectual capital is not sufficient to achieve its objectives, first it needs to carry out initial investments. These investments are the basis for the company's efficient operation and further growth and allow it to create a competitive advantage. For example, it is impossible to develop cooperation if there is nothing to offer to the company's business partners, it is impossible to use new knowledge if the employees are inexperienced and have minimum knowledge required to perform their jobs.

Investments in the maintenance of intellectual capital. These investments are necessary to preserve the amount of the company's intellectual capital at a certain level, and it also allows it to preserve the existing competitive advantage. For example, in order to keep the customers, customer loyalty programs and bonus systems are developed, but to ensure continued efficient management, communication and control systems are improved.

Investments in the development of intellectual capital. These investments are necessary for the company's full development and creation of new competitive advantages. They are used, for example, to develop cooperation with partners, for employee training – acquiring and use of new skills, and for marketing expenses.

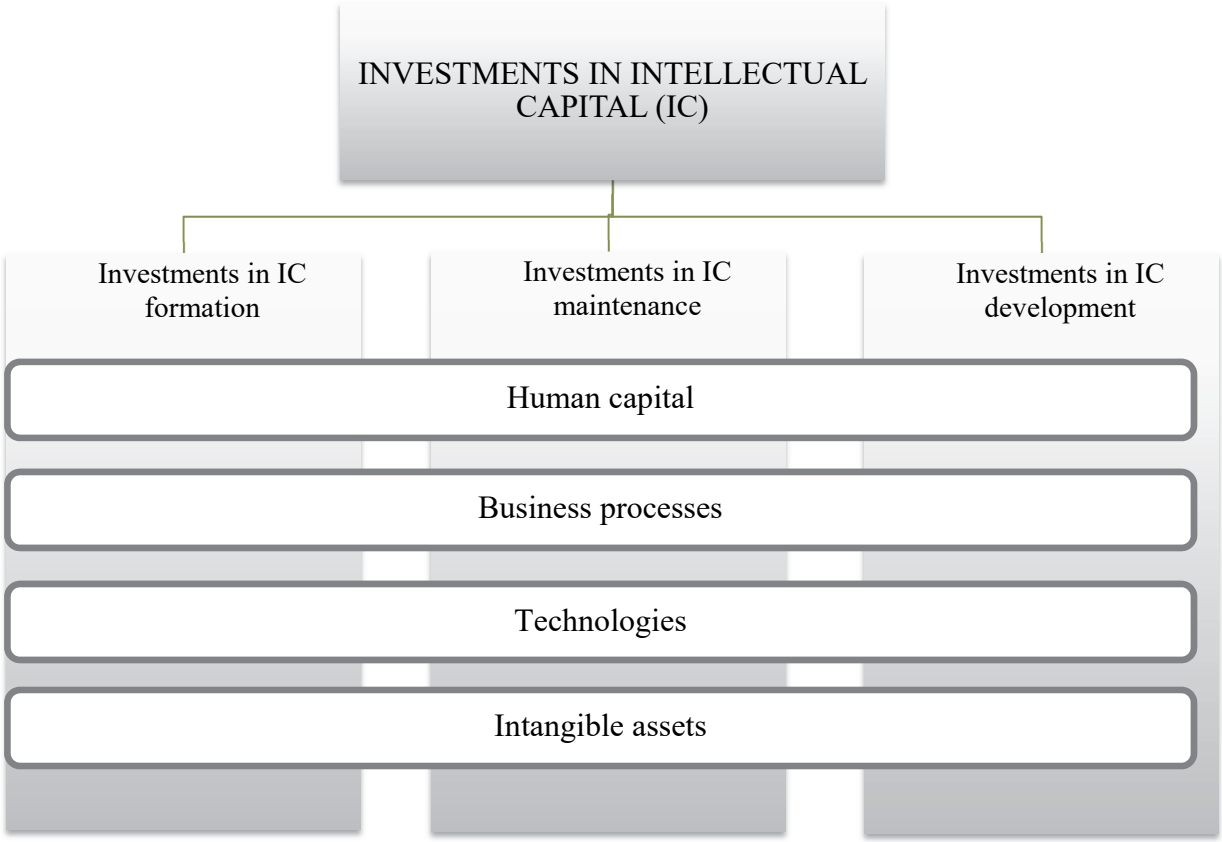

Fig. 3.1. Classification of investments in intellectual capital by company functional spheres and time period (scheme developed by the author).

The integrated management approach to the formation of intellectual capital development strategy

The management and development of each individual component of intellectual capital form a separate management system in the company. In order to successfully implement the intellectual capital development strategies, they need to be included in the company's overall strategy using an integrated management approach. One of the prerequisites for the integration of separate strategies is using a holistic approach to the organization of the company's operations and planning the company's strategy.

When planning the development of intellectual capital, the organization of the company's operations and its management system should be viewed together, i.e., intellectual capital development strategy has to be incorporated into the company's overall strategy. This strategy is implemented in certain circumstances which are influenced by internal and external environmental factors, thus ensuring integration of one of the systems into another system by using the holistic approach and the integrated management approach. The author examines the development of intellectual capital, offering to build the development strategy by using an approach in which the intellectual capital development strategy is integrated into the company's overall strategy as its integral part. Such integration of the strategy is possible using the company's management systems that integrate the intellectual capital, taking into account those aspects of development that correspond to the company's objectives. The required business process and procedure descriptions are integrated into the existing process and procedure descriptions, subordinating them to the quality standards of the company.

Depending on the defined objective, the company should determine the required amount and quality of intellectual capital. Where there is non-compliance of the amount and/or quality of intellectual capital with the defined objective, the company should decide whether to change

the objective or to make the necessary investments. If the company chooses the second option, then pursuant to what amount and/or quality of intellectual capital the company possesses in the initial period (when defining the objective) and what amount and/or quality of intellectual capital will be required to achieve that objective, three types of investments are possible. The investment type is determined according to the classification of investments in intellectual capital created by the author: investments in intellectual capital formation (IICF), maintenance (IICM), or development (IICD) (see Fig. 3.2 – respectively IICF, IICM, IICD).

An important aspect in developing the strategy of intellectual capital is also the stakeholders' approach. In order to ensure sustainable operation it is necessary to take into account the interests of stakeholders when defining the company's objective. If the company's internal investment sources are not sufficient, then the company can use the stakeholders' funds for investments in the company's intellectual capital. In this case, investments can be both financial and non-financial – i. e., the stakeholders' intellectual capital. The stakeholders may participate in the company's activities investing their intellectual capital and get return on their investments – financial or non-financial – upon the implementation of the strategy.

Table 3.1.

The result of investments in intellectual capital for the company stakeholders
(table developed by the author)

Stakeholders	**Possible result from investments**
Owners	Profit, reputation, personal development, growth of the company's intellectual capital
Employees	Higher qualifications and experience, higher remuneration, position, better working conditions
Customers	Product quality, service
Partners	Lower costs, economy of time and resources, increased competitiveness, reputation
Society	Higher level of prosperity and qualification of the population, availability of infrastructure

The company processes are related to business functions or functional spheres. These in turn are closely related to the company's use of resources for achieving the objective. For example, the development of human capital goes hand in hand with human resource management, ensuring safe work environment, use of financial management in line with the ongoing business processes and quality standards. When investing in human capital and along with changes in the qualitative and quantitative aspects of any component of intellectual capital, the company will have to change or improve business processes and procedure descriptions. Development of the other components of intellectual capital is similar, so the development of intellectual capital becomes a part of unified enterprise management system, and intellectual capital development is integrated in all company functions. Company functions are transformed into processes, and it allows the company to achieve the expected results.

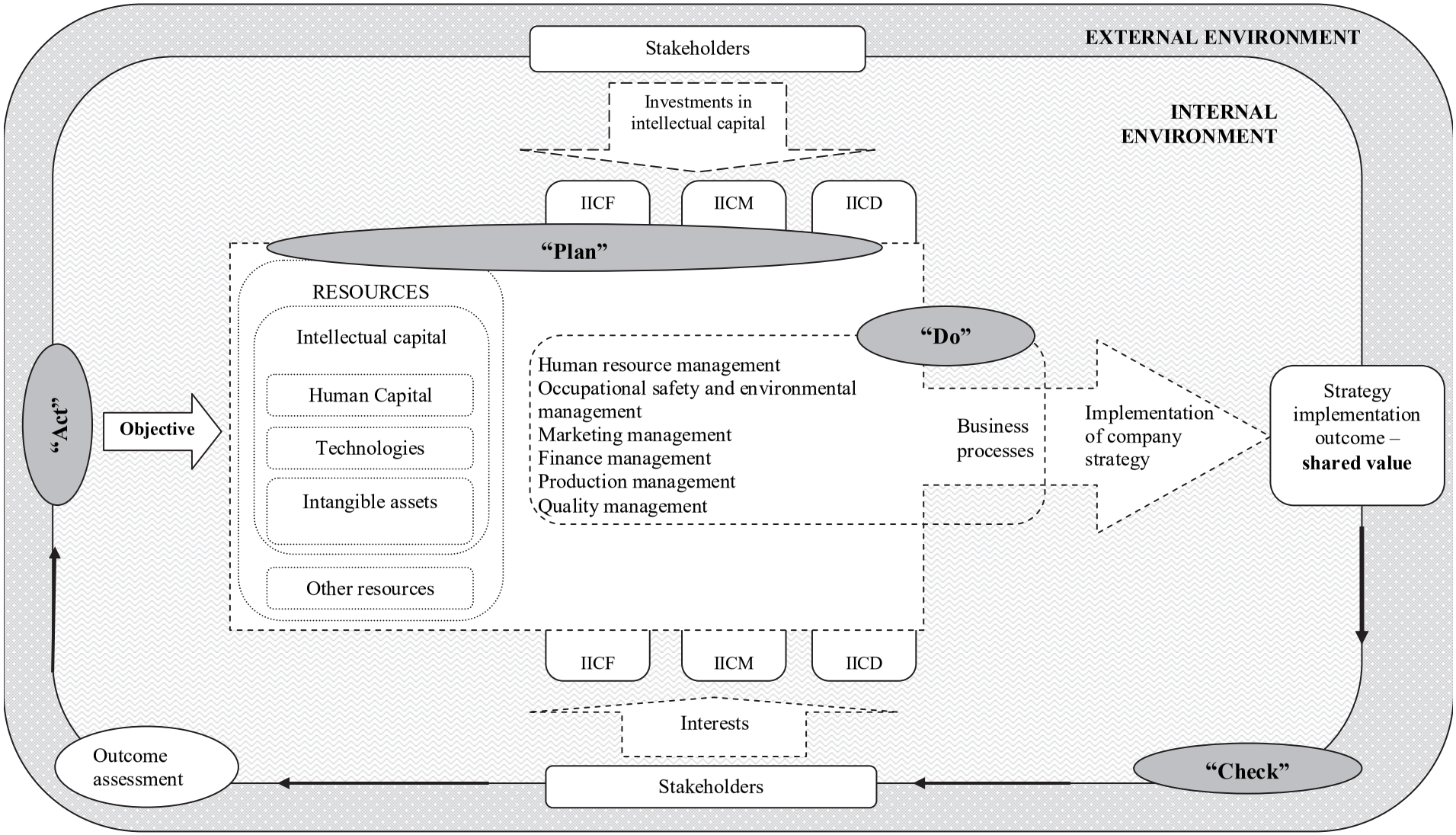

Fig. 3.2. Approach to the formation and implementation of intellectual capital development strategy (scheme developed by the author).

By implementation of intellectual capital development strategy and integrating it into the company's overall strategy, the company implements a unified strategy, using a common resource base, managing common business processes and performing common business functions. Thus, the company is managed as a system consisting of several components. Strategy implementation outcomes need to be examined and compared with the defined objective.

Realizing the intellectual capital development strategy within the company's strategy, it is expected to achieve the defined objective and then, through the implementation of the company's strategy, a certain value is created. An important aspect in completing the proposed intellectual capital development strategy is the stakeholders' approach, which is essential for the company to ensure sustainability. In the scientific literature, the company's sustainability is often associated with the concept of "created shared value" (Porter and Kramer, 2011). Today, a successful business strategy is based on created shared value, taking into account society interests and values. In order to ensure a sustainable growth of the company, the company has to set up a strategy which includes stakeholders' interests and values, as well as attracts and uses the stakeholders' intellectual capital. In order to implement a successful strategy, several conditions in the internal and external environment are to be observed:

1) formulation of the company's objective and notification of stakeholders;
2) determination of the stakeholders' value (including comparison), which is a very expensive process and in the Latvian situation only a small number of companies can afford it;
3) motivation to cooperate and share intellectual capital;
4) the level of the company's organizational culture without which the accumulation and sharing of intellectual capital is almost impossible, but these processes are an important factor that determines the effectiveness of the strategy;
5) a certain quality level of intellectual capital;
6) a certain amount of intellectual capital to ensure achieving the company's objectives;
7) a certain amount and types of investments in intellectual capital.

The author concludes that by using the integrated management approach and the holistic approach, intellectual capital development strategy is integrated into the company's overall strategy that allows the company to work using a single strategy. In this case, the development of intellectual capital becomes an integral part of the company's operations, and it functions together with all other company systems and is integrated in all ongoing business processes in the company. By integrating the stakeholders' approach and created shared value in the company's management and strategy development, the company is able to ensure its sustainable development.

3.2. Return on investments in intellectual capital and possibilities for its determination

Investments in intellectual capital provide both financial and non-financial results, and several stakeholders receive those results. The investment incentives are closely linked with the stakeholders' value system and their ideas about the return on these investments, which may be both financial and non-financial. The non-financial return is difficult to measure. When deciding on investments in intellectual capital, the investor cannot clearly determine the potential return, particularly in cases when financial results are important. As shown by the author's findings, the most important expected results from investments in Latvian companies are directly associated with the financial return. However, investments in intellectual capital can provide different kinds of results, and non-financial results can contribute to the improvement of the company's financial performance, but when Latvian entrepreneurs do not see clear financial benefits and work in conditions of limited financial resources, they often decide not to invest in intellectual capital. In order to determine a return on investments, it is

necessary to have one method which combines and uses the stakeholders' approach and the possibility to define and measure the financial and non-financial results. Here social return on investments – SROI – can serve as a basis. In this case, the ratio to be calculated can be called intellectual capital return on investments or ICROI.

Successful use of this method requires:

1) clear identification of the stakeholders that will make investments and that will be affected by the changes resulting from investments (Step 1 in SROI methodology);
2) determination of changes occurring as a result of investments with the help of the influence card, as well as determination of change indicators and measuring them in terms of money (Steps 2 and 3 in SROI methodology);
3) determination of the impact of each result (Step 4 in SROI methodology);
4) calculation of the return on the investments made (Step 5 in SROI methodology).

The author proposes to use the following stakeholders: owners, employees, customers, partners, and society. Depending on the objective of investments, each of the stakeholders involved would expect different results, which complement each other. For example, investments in staff training are beneficial for the employees who acquire new knowledge, for the owners of the company provided that labour productivity increases, for customers when product quality improves (or service quality improves, which is also an integral part of the product), and for the state if the employees' remuneration changes and the company's net turnover increases. Often, investments are carried out simultaneously in several intellectual capital components. In such cases, these investments interact, providing a greater return on the condition that the investment process is carefully planned. It is necessary to clearly define the sequence of steps of the investment process and resources needed to ensure smooth running of the process and control. This phase results in clearly defined changes anticipated for each stakeholder.

The author has defined the possible results and indicators for each type of investments in accordance with the proposed classification of investments in intellectual capital (see Fig. 3.3). It is important to note that for each result its own indicator should be used. If the company makes investments and there are several stakeholders, the indicator can be used once, i.e., if several results can be measured by a single indicator, then the results should be grouped or other indicators to measure results should be found.

In order to determine the impact of the expected results on the company's performance, it is necessary to determine the extent to which the pre-defined results could be obtained if the investments are not made, and the extent to which the results are attributable directly to the company or how much influence other stakeholders have in ensuring the results (whether the result has been solely dependent on the company or there are other organizations or persons that affect the outcome, i. e., how large is the company's contribution to the acquisition of the results). In the impact map, two parameters should be set: the results regardless of activities, and the allocation factor. Determining these parameters is important because the pre-defined results are to be reduced in terms of money according to the size expressed as a percentage. This has to be done in order to determine the return on investments made by the company. At this stage, it is important not only to determine these parameters, but also to explain how they are derived.

The achieved results and their impact on the company's activities and the stakeholders could diminish with the time, so another parameter – reduction factor – should be included in the impact map; this factor is also expressed as percentage – by how many per cent the impact of results on the company's operations will decrease. This parameter is taken into account when calculating the results generated by annual investments in money terms, with a corresponding reduction of the percentage of the result of each subsequent year. Reduction factor is used

starting from the second year after investments. At this stage, the impact of the result caused by investments is calculated, which is the adjusted investment outcome in monetary terms.

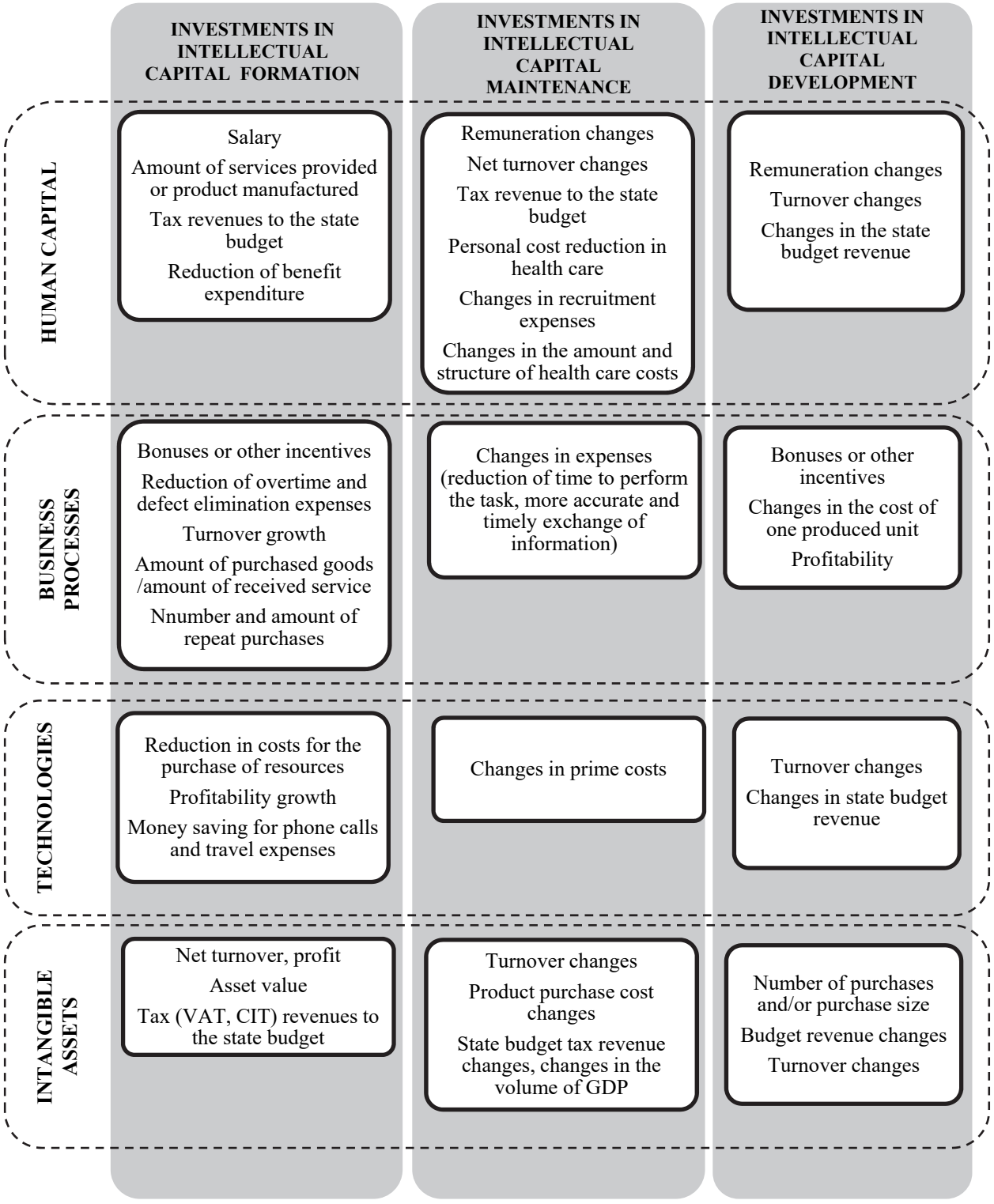

Fig. 3.3. Expected results and indicators to determine the return on investments in intellectual capital (scheme developed by the author).

The return is calculated on the basis of the assumption that today money is more valuable than tomorrow, and therefore return calculation is based on the principle of discounting

or calculation of the present value of the future income. The time period which is normally used for the calculation of the present value is five years. It should be noted that if investments are made during the period when the results are achieved, for example, after a year or two, then these investments should be discounted in the same way as the exposure value when calculating the present value. The proposed methodology can be used to calculate the return on investments in intellectual capital. The calculations made within this research show that these investments in intellectual capital create value which is several times higher than the amount of investments, so the proposed methodology can serve as a tool for the calculation of return on investments in intellectual capital. Taking into account the result of the calculation before deciding to invest in intellectual capital, the amount of investments could be increased if the company has the necessary financial resources and the motivation to make such investments.

3.3. Impact of intellectual capital on business results

When scientists began to use the concepts "intellectual capital" and "investments in intellectual capital", there emerged the issue of the impact of intellectual capital and investments in intellectual capital on the company operations and the economic development of the state as a whole. Most scientists study the impact of investments in intellectual capital at the micro-economic level, i. e., at the company level. At the macro-economic level, the impact and importance of investments in intellectual capital are explored by international organizations such as the Organisation for Economic Co-operation and Development (OECD), as well as various organizations within international projects, such as MERITUM (European Commission, 2002).

What has been studied most often is the impact of investments in intellectual capital:

1) on the company's financial indicators, such as profit, asset value, the company's market value, etc.;
2) on the company's non-financial indicators such as productivity, business process efficiency, competitiveness, consumer loyalty, etc.

The degree of influence depends on the following factors:

1) the synergies arising between the parts of intellectual capital. Some researchers, such as Tseng (Tseng *et al.,* 2005) and Huang (Huang *et al.,* 2005, 2008), note that there has been a synergistic and multiplier effect that occurs between the parts of intellectual capital;
2) the amount and structure of business assets. Often, companies have not established an optimal structure of assets, which could ensure effective achievement of the company's objectives (Naidenova *et al.*, 2013);
3) the intellectual capital management processes. The company's financial performance is dependent not only on the amount of intellectual capital and investments in intellectual capital, but also on the quality of capital management processes. The less organized these processes are, the smaller is the efficiency of investments in intellectual capital (Joshi *et al.*, 2013);
4) the geographical region and the stages of its economic and political development. Most studies have been carried out in Asia (Taiwan, China, Malaysia) in the technology, manufacturing, banking, and pharmaceutical sectors. In these countries, a significant diversity of the impact amount has been observed. The main causes of these differences are the economic situation of the state and support for innovations at the national level (as laid down in the laws and regulations and/or granted funding). Investments in intellectual capital contribute to the profitability, productivity and incomes in countries with high intellectual capital intensity (Piekkola, 2011).

The analysis of the scientific literature shows that intellectual capital has a different impact on the company's performance, and in most cases, a positive effect has been observed and proven. But researchers note that the impact of intellectual capital on the company's performance depends on several factors, among them the most important influencing factors are the company's resource structure and the resource use strategy.

3.4. Prerequisites for promotion of intellectual capital development

Intellectual capital and its development create the company's competitive advantage and contribute to the company's sustainability, but successful development of intellectual capital at the company level in Latvia in the long term depends on some preconditions. These prerequisites could become "catalysts" for the development of intellectual capital not only at the company level but also society as a whole.

The first prerequisite is associated with one of the conclusions to be drawn from the author's empirical study on the development of intellectual capital in Latvian enterprises. The study results confirmed the author's assumption that Latvian entrepreneurs lack a thorough understanding of the nature of intellectual capital. This can be a serious obstacle to the development of intellectual capital in companies and in the country as a whole. One of the reasons of poor understanding is outdated business resource classification, which, according to the author, should be changed.

The second prerequisite is attributable to the poor access to statistical information on the amount and structure of the company's intellectual capital. Both in Latvia and the European Union, limited statistical information on the amount of intellectual capital is available, there are no data on all the intellectual capital components – on those in the traditional structure of intellectual capital mentioned in the scientific literature (human capital, organizational capital, relational capital) as well as in the author's proposed structure (human capital, technologies, intangible assets, business processes). The information available is also limited in time, i. e., information is available for only one or two periods of time that are five and more years older.

CONCLUSIONS AND RECOMMENDATIONS

On the basis of modern economics and management theories and the results of empirical study made by the author, the analysis of theoretical and practical aspects of intellectual capital formation and development, the analysis of the factors influencing these aspects, as well as solutions developed by the author for intellectual capital development have lead to the following **conclusions.**

1. The nature of intellectual capital at the company level differs fundamentally from the nature of intellectual capital, which is viewed from the resource-based and knowledge-based perspective. Over time, with the development of both the resource-based and knowledge-based views and change of the company's competitive advantage sources from resource to intellectual capital, a transformation of intellectual capital from resource to capital has taken place. Today, the company's intellectual capital is important just as capital, which is a value in its own right and can create value.
2. Today, the existing structure of intellectual capital at the company level does not provide transparency of intellectual capital and efficient management. At the company level, intellectual capital should be structured in four components: human capital, business processes or their descriptions, technologies, and intangible assets.
3. In this Doctoral Thesis, investments in intellectual capital have been studied as one of the intellectual capital development tools. Investments in the company's intellectual capital are to be understood as the company's investments in various intangible assets, technologies, business processes and human resources in order to create both financial and non-financial value.
4. Scientists use various classifications of investments in the company's intellectual capital, based on individual elements of intellectual capital, rather than the entire structure as a whole. They are used to assess the company's intellectual capital or to calculate return on investments in intellectual capital.
5. The author of the present Thesis has designed a classification of investments based on grouping the investments according to the directions and the sequence of investments in time (intellectual capital formation, maintenance and development investments) and the structure of intellectual capital proposed by the author. Using this classification can help the company's management in taking a decision on investments according to the defined strategic objective.
6. The information in the Latvian and European statistical databases does not give a complete picture of the amount of intellectual capital and investments in it in Latvian companies. The structure, amount and dynamics of investments show that companies prefer acquisition of tangible assets or making investments where there is a clear benefit or return. For example, investments in machinery and equipment constitute a large part in the structure of ICT.
7. The results of the author's empirical study show that the majority of Latvian entrepreneurs do not have an in-depth understanding of the nature of intellectual capital and its role in the company's development. What entrepreneurs often understand by intellectual capital is only one of its elements – the knowledge of employees. Also, the importance of intellectual capital elements as assessed by entrepreneurs shows a contradictory tendency – the knowledge, experience, scientific research and their results are considered to be key elements, while the expenditure on labour and R & D in Latvian companies is among the lowest in the European Union.
8. The results of empirical study partly confirmed one of the author's assumptions about the entrepreneurs mostly expecting financial results from investments, i. e., profit. The analysis showed the interdependence between the financial and non-financial results from investments, i. e., non-financial results may be affected by the financial results and vice versa.

9. The entrepreneurs pointed out that the most important factors that affect the development of intellectual capital are connected with finances – both the company's existing financial resources and the possibility of rising additional funding from outside the company.
10. Intellectual capital and investments in it are difficult to define and measure, as they often create non-financial or intangible value. The scientific literature mentions more than forty methods used to assess the impact of intellectual capital, but they are usually associated with the evaluation of the company's financial performance.
11. In the Doctoral Thesis, methodology of calculating the rate of return on investments in intellectual capital has been developed on the basis of the methodology of calculating the social return on investments. The proposed methodology allows expressing the generated non-financial value in financial terms, and it takes into account not only the value it creates for the company but also for the stakeholders. The methodology includes indicators for each component of the company's intellectual capital for the evaluation of the value created. The developed methodology has been approbated at Albert College in the calculation of the return on investments made in intellectual capital.
12. An essential precondition for the development of the company's intellectual capital is a change of the company's management's approach. The approach proposed by the author for the preparation of the company's intellectual capital development and management strategy envisages integrating the intellectual capital development and management strategy in the company's overall strategy. This can be achieved by using the integrated management system, process and holistic approach, as well as the joint value creation and stakeholders' theory.

On the basis of the results of the research, individual solutions to problems are offered, and the author puts forward the several **recommendations.**

For Companies

- To revise the significance of the investment objects, redirecting the financial flow to the intellectual capital objects.
- When taking decisions on investments, to use the methodology for calculating the return on investments proposed in this Doctoral Thesis.
- To use the prepared approach to form the strategy in order to realize the company's development potential and ensure its sustainability.

For The Ministry of Education and Science of the Republic of Latvia and the institutions under its supervision, higher education institutions, training companies

- Intellectual capital development is important not only for an individual company but also for the state as a whole, because the state's prosperity depends on the welfare of the population. Entrepreneurs' understanding of the nature of intellectual capital and its role in the company's activities and development should be improved. The Ministry of Education and Science of the Republic of Latvia and the institutions under its supervision should pay particular attention to both the school subjects of economics and entrepreneurship and the content of textbooks. It is recommendable to change business resource classification, which is outdated, and include intellectual capital into this classification.

For the Ministry of Economics of the Republic of Latvia, the Investment and Development Agency of Latvia, as well as industry associations

- The results of the study showed that the Latvian entrepreneurs lack understanding of the nature of intellectual capital. The Ministry of Economics of the Republic of Latvia, the Investment and Development Agency of Latvia, as well as industry associations should

organize information events and training on the role and importance of intellectual capital in the company's activities and the possibilities of calculating the created value.

For the Ministry of Finance of the Republic of Latvia

- Taking into account the difficulties of calculating intellectual capital and recording the investments in accounting, the Ministry of Finance of the Republic of Latvia in cooperation with the Latvian Association of Accountants need to review the company's accounting methodology for long-term investments and clearly define the company's investments in intellectual capital, the types of eligible expenditures and recording them in accounting.
- Taking into account the limitations of statistics and other publicly available information about the company's intellectual capital, the Ministry of Finance of the Republic of Latvia has to set out requirements under which companies are to provide information about the structure, amount and dynamics of their intellectual capital, without significant increase in the company's burden as regards reporting and preparation of information.
- During the research, the factors influencing the development of intellectual capital were identified. According to the Latvian entrepreneurs, the most important of all the factors are related to the availability of funds with particular emphasis on state aid in a direct and indirect way. The Ministry of Economics and the Ministry of Finance of the Republic of Latvia have to assess the possibility of awarding grants to companies that invest in intellectual capital in accordance with the set criteria and the national development priorities.

For Central Statistical Bureau of Latvia

- In Latvia, the organization of data collection on the company's intellectual capital and the amount of investments is done at an insufficient level. In order to assess the amount of intellectual capital and its dynamics in Latvian companies, CSB should regularly collect and publish data that describe the company's intellectual capital, such as the expenditure on staff training, technology development/purchase, costs of patents and licenses, etc.

The solutions and recommendations proposed in the promotion thesis can be used in the company operations in order to promote their sustainability, as well as in the work of state institutions for creating conditions and environment which would promote the sustainability of the organization and, consequently, all the country's development in the long term.

The theoretical and practical importance of the promotion thesis is in the organized methodical base that describes the key concepts, provides a solution to the development of the company's intellectual capital and the identification and measurement of its results, which can serve as a basis for further exploration and improvement of intellectual capital development aspects at the company and national level. With the help of the proposed solutions and recommendations it is possible to change the entrepreneurs' understanding of the nature of intellectual capital and its role in the company. As a result, companies can change and improve their business strategy by integrating intellectual capital development strategy into the overall strategy, thus ensuring the possibility of creating common value for the stakeholders and promoting the company's sustainability.

Upon summarizing the results of the research, the author concludes that the aim put forward in the introduction of the Doctoral Thesis has been achieved, the defence theses are justified, and the hypothesis is proven.

LIST OF LITERATURE AND SOURCES

1. Andriessen, D. and Tissen, R. (2000), *Weightless Wealth; find your real value in a future of intangible assets*, Financial Times Prentice Hall, London.
2. Bontis, N., Chua, W. and Keow, C. (2000), "Intellectual capital and business performance in Malaysian industries", *Journal of Intellectual Capital*, Vol. 1, No. 1, pp. 85–100.
3. Brodin, M. H. and Anderson, H. (2008), "Recycling calls for revaluation", *Supply Chain Management*, Vol. 13, No. 1, pp. 9–15.
4. Brooking, A. (1996), *Intellectual Capital*, Cengage Learning EMEA, Hampshire.
5. Cambridge dictionary online (2016), "Meaning of "intellectual" in the English Dictionary", available at http://dictionary.cambridge.org/dictionary/english/intellectual (accessed on February 10, 2016).
6. Canibano, L., Sánchez, M. P., García-Ayuso, M. and Chaminade, C. (2002), "Guidelines for managing and reporting on intangibles: Intellectual Capital Report", available at http://www.pnbukh.com/files/pdf_filer/MERITUM_Guidelines.pdf (accessed on February 10, 2014).
7. Chauvin, K. W. and Hirshey, M. (1993), "Advertising, R&D Expenditures and the Market Value of the Firm", *Financial Management*, Vol. 22, No. 4, pp. 128–140.
8. Chen, M. (2005), "An empirical investigation of the relationship between intellectual capital and firms ' market value and financial performance", *Journal of Intellectual Capital*, Vol. 6, No. 2, pp. 159–176.
9. Collin, P. (2009), *Dictionary of Business*, A&C Black Business Information and development.
10. Dowlatshahi, S. (2010), "A cost-benefit analysis for the design and implementation of reverse logistics systems", *International Journal of Production Research*, Vol. 48, No. 5, pp. 1361–1380.
11. Edvinsson, L. and Sullivan, P. (1996), "Developing a Model for Managing Intellectual Capital", *European Management Journal,* Vol. 14, No. 4, pp. 356–364.
12. Edvinsson, L. and Malone, M. S. (1997), *Intellectual Capital: Realizing Your Company's True Value by Finding Its Hidden Brainpower*, HarperBusiness, New York.
13. Edvinsson, L. and Malone, M. S. (1997), *Intellectual Capital: The Proven Way to Establish Your Company's Real Value by Measuring Its Hidden Values*, Piatkus, London.
14. Encyclopedia Britannica, available at http://www.britannica.com (accessed on February 10, 2016).
15. European Commission, Directorate – General for Research (2006), "Reporting of Intellectual Capital to Augment Research, Development and Innovation in SMEs", available at http://ec.europa.eu/invest-in-research/pdf/download_en/2006-2977_web1.pdf (accessed on February 15, 2014).
16. Hall, R. A ., Grilliches, Z. and Hausman, J. A. (1986), "Patents and R&D: is there a Lag?", *International Economic Review*, Vol. 27, No. 2, pp. 265–283.
17. Hazen, B. T., Wu, Y., Cegielski, C. G. and Allison, L. (2012), "Consumer reactions to the adoption of green reverse logistics", *International Review of Retail, Distribution and Consumer Research*, Vol. 22, No. 4, pp. 417–434.
18. Huang, C. and Liu, C. (2005), "Exploration for the Relationship between Innovation, IT and Performance", *Journal of Intellectual Capital*, Vol. 6, No. 2, pp. 97–119.
19. Huang, C. M. and Wang, M. (2008), "The Effects of Economic Value Added and Intellectual Capital on the Market Value of Firms: An Empirical Study", *International Journal of Management*, Vol. 25, No. 4, pp. 722–731.
20. Huppes, G. and Ishikawa, M. (2009), "Eco-efficiency guiding micro-level actions towards sustainability", *Ecological Economics*, Vol. 68, No. 6, pp. 1687–1700.
21. IFRS (2002), "International Accounting Standards (IAS 38 Intangible Assets)", available at http://www.ifrs.org/IFRSs/Pages/IFRS.aspx (accessed on February 12, 2016).
22. Jardon, C. M. and Martos, M. S. (2012), "Intellectual capital as competitive advantage in emerging clusters in Latin America", *Journal of Intellectual Capital*, Vol. 13, No. 4, pp. 462–481.
23. Jayaraman, V., Singh, R., and Anandnarayan, A. (2012), "Impact of sustainable manufacturing practices on consumer perception and revenue growth", *International Journal of Production Research*, Vol. 50, No. 5, pp. 1395–1410.
24. Joshi, M., Cahill, D., Sidhu, J. and Kansal, M. (2013), "Intellectual Capital and Financial Performance: an Evaluation of the Australian Financial Sector", *Journal of Intellectual Capital*, Vol. 14, No. 2, pp. 264–285.
25. Krikke, H. (2011), "Impact of closed-loop network configurations on carbon footprints", *Resource Conservation and Recycling*, Vol. 55, No. 12, pp. 1196–1205.
26. Lapiņa, I. (2010), *Human Capital Development and System of Education in Latvia*, Summary of Promotion Thesis, RTU Publishing House, Riga.
27. Lee, C. K. M. and Lam, J. S. L. (2012), "Managing reverse logistics to enhance sustainability of industrial marketing", *Industrial Marketing Management*, Vol. 41, No. 4, pp. 589–598.
28. Longman dictionary for contemporary English Online (2016), "Meaning of "intellectual" and "capital", available at http://www.ldoceonline.com/ (accessed on February 10, 2016).

29. Michaud, C. and Lerena, D. (2011), "Green consumer behavior", *Business Strategy Environment*, Vol. 20, pp. 408–420.
30. Mollenkopf, D., Rabinovich, E., Laseter, T. M. and Boyer, K. K. (2007), "Managing internet product returns", *Decision Science*, Vol. 38, No. 2, pp. 215–250.
31. Molodchik, M. A., Shakina E. A. and Bykova, A. (2012), "Intellectual Capital Transformation Evaluating Model", *Journal of Intellectual Capital*, Vol. 13, No. 4, pp. 1–13.
32. Mouritsen, J., Larsen, H. T. and Bukh, P. N. (2001a), "Valuing the future intellectual capital and supplements at Scandia", *Accounting, Auditing & Accountability Journal*, Vol. 14, No. 4, pp. 399–422.
33. Mouritsen, J., Larsen, H. T. and Bukh, P. N. (2001b), "Intellectual capital and the "capable firm: narrating, visualising and numbering for managing knowledge", *Accounting Organizations and Society*, Vol. 26, No. 7/8, pp. 735–762.
34. Naidenova, I., and Parshakov, P. (2013), "Intellectual capital investments : evidence from panel VAR analysis", *Journal of Intellectual Capital*, Vol. 4, No. 13, pp. 634–660.
35. OECD (2013), "Supporting Investment in Knowledge Capital, Growth and Innovation", available at doi:10.1787/9789264193307-en (accessed in April 2014).
36. Ozegov S. [Ожегов, С.] (2013), *Tolkovij slovarj russkogo jazyka. [The Dictionary of the Russian Language]*, Oniks 21 vek, Moscow [in Russian].
37. Piekkola, H. (2011), "Intangible capital: The key to growth in Europe", *Intereconomics,* Vol. 4, No. 4, pp. 222–228.
38. Porter, M. (1985), *Competitive Advantage: Creating and Sustaining Superior Performance*, Free Press, New York.
39. Porter, M. E. and Kramer, M. R. (2011), "Creating Shared Value How to reinvent capitalism – and unleash a wave of innovation and growth", *Harward Business Review,* Vol. 1, No. 1, pp. 62–77.
40. Pulic, A. (2000), "VAIC^{TM} – an Accounting Tool for IC Management", *International Journal Technology Management,* Vol. 20, No. 5/6/7/8, pp. 702–714.
41. Roos, G. and Roos, J. (1997), "Measuring Your Company's Intellectual Performance", *Long Range Planning, Special Issue on Intellectual Capital*, Vol. 30, No. 3, pp. 413–426.
42. Social Value UK (2012), " A Guide to Social Return on Investment", available at http://www. socialvalueuk.org/resources/sroi-guide/ (accessed in April 2015).
43. Schenkel, M., Krikke, H., Caniels, M. C. J. and van der Laan, E. (2015), "Creating integral value for stakeholders in closed loop supply chain", *Journal of Purchasing and Supply Management*, Vol. 21, No. 3, pp. 155–166.
44. Stewart, T. A. (1991), "Brainpower: Intellectual Capital is Becoming Corporate America's Most Valuable Asset and Can Be Its Sharpest Competitive Weapon; the Challenge is to Find What You Have – and Use It", *Fortune*, Vol. 123, No. 1, pp. 44–60.
45. Stewart, T. A. (1997), *Intellectual capital: the new wealth of organizations*, Doubleday, New York.
46. Škapa, R. and Klapalová, A. (2012), "Reverse logistics in Czech companies", *Management Research Review*, Vol. 35, No. 8, pp. 676–692.
47. Sveiby, K. E. (1997), "The Intangible Assets Monitor", *Journal of Human Resource Costing & Accounting*, Vol. 2, No. 1, pp.73–97.
48. Tseng, C. and Goo, Y. (2005), "Intellectual capital and corporate value in an emerging economy: empirical study of Taiwanese manufacturers", *R&D Management,* Vol. 5, No. 2, pp. 187–201.
49. Zéghal, D. and Maaloul, A. (2011), "The accounting treatment of intangibles – A critical review of the literature", *Accounting Forum*, Vol. 35, pp. 262–274.

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