RIGA TECHNICAL UNIVERSITY

Tatjana ŠTAUBE

ISSUES OF SPATIAL ECONOMIC ALLOCATION OF THE ENTREPRENEURIAL ACTIVITIES IN LATVIA

Summary of doctoral thesis

Riga   2013

RIGA TECHNICAL UNIVERSITY
Faculty of Engineering Economics and Management
Institute of the Civil Engineering and Real Estate Economics

Tatjana ŠTAUBE

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The PhD Thesis is developed in the Department of Civil Construction and Real Estate Economics and Management of the Institute of Building Entrepreneurship and Real Estate Economics of the Faculty of Engineering Economics and Management at Riga Technical university. The public defence of the PhD Thesis to obtain doctoral degree in economics will be held on November 26, 2013 in Promotion Council „P-09" of Riga Technical university in Riga, Kalnciema Street 6, Room No.119 in the Faculty of Engineering Economics and Management of Riga Technical university at 12:00 p.m.

OFICIAL REVIEWERS

Professor, Expert of the Latvian Council of Science, Dr.oec. Natalja Lāce
Riga Technical university, Latvia

Assoc. Professor, Expert of the Latvian Council of Science, Dr.oec. Dzintra Atstāja
BA School of Business and Finance, Latvia

Professor, Dr.oec. Ivan Potravny
G. Plekhanov Russian University of Economics, Moscow, Russian Federation

CONFIRMATION

I hereby confirm that I have developed the given PhD Thesis, which has been submitted for the review to Riga Technical university for obtaining doctoral degree in economics. The PhD Thesis has not been submitted to any other university to obtain scientific degree.

Tatjana Štaube ……………………………

Date: ……………………….

The PhD thesis is written in English. The work consists of Introduction, 3 main Chapters, Conclusions and Proposals, Bibliography, 42 figures, 22 tables, 12 formulas and 4 Appendices (that include 22 figures and 5 tables). The total volume of 191 printed pages, including appendices. Bibliography has 246 sources of information.

The PhD thesis and its summary are available in the Scientific Library of Riga Technical University at 10 Kipsala Street, Riga, Latvia. Reviews of the thesis can be sent to: RTU P – 09 Promotion Council, Ms. Inga Kokorēviča, Faculty of Engineering Economics and Management, Dean department, Riga Technical University, Kalnciema Street 6, Riga, LV-1048, Latvia. E-mail: inga.kokorevica@rtu.lv. Fax: +371 67089345.

GENERAL CHARACTERISTICS OF THE PhD THESIS

From the point of view of population size of the country, Latvia is a country of a small scale. It inhabits approximately 0.5% from entire European Union population (hereafter - EU), at the same time being 70 times larger than Liechtenstein. Our fatherland has economically advantageous geographical location linking large and powerful investors such as Russia and Scandinavian countries. Together with Lithuania and Estonia our country (hereafter-Baltics, Baltic States, Baltic countries) creates a corridor of the economic impact between the Scandinavian countries, Central Europe and countries and Russia. Historically the Baltics has been attracting the capital of the economically active and wealthy countries. That might be considered as a place for mutual collaboration and trade, using the densely presented labor and natural resources. Due to the globalization, geographically this is a strategic place of large enterprises allocating the subsidiary companies and economically supportive services development. Here, the Baltic States have cultural heritage and history of the political economic impact, which has built an identity of the countries and directions of the economic development. Generally, these maritime lands have favorable conditions for the development of agriculture, forestry and manufacturing.

The author poses a problem of inconsistence and lack of the practical solutions on the sustainable development vision on the role of the territories of the entrepreneurial activities in the country's economy in a context of the impact radius of the given region. Industrial and retail real estate markets are attributed to the driving economy segments. Those bring along the manufacturing and service sectors development, mutual collaboration of the businesspersons, provide employment opportunities and increase the state's budget. In a context of the actualization of the contemporary climate change issue the real estate objects developed for these purposes use, must correspond the future quality standards. That is typical for high-class modern buildings and/or the properties with professionally developed inner and surrounding infrastructure. Today there is a plenty of land space in comparison to total territory, but the problem of inefficient land use and overbalance in Latvia states opposite the other countries with shortage of land. Nowadays the manufacturing in Latvia is at a destructive stage. It has been poorly supported by the government as a supervention of regaining of independence in Latvia and world economic recession. The unified aim of the Latvian national economy to facilitate development of a high value-added economy, the work at the national industrial policy has started. That is accepted as a base of the proposed topic of the PhD Thesis (hereafter – PhD Thesis, Dissertation).

Spatial economy concept in the literature is used relatively recently – during the period of last twenty-five years of scientific research and the development of the European Union within the framework of official documents, the first widely recognized work on the collection of information for spatial planning and territorial cooperation was published in 2010 (Dühr et al. 2010). The scientific and practical relevance of the PhD Thesis is seen by the author to be connected closely to the fact that, at global and local scientific conferences, such as, AESOP (Association of European Schools of Planning), WSEAS (The World Scientific and Engineering Academy and Society), BMDA (Baltic Management Development Association), EURO (Association of European Operational Research Societies) and other institutions' organized

conferences, ICSSS (International Conference on Social Sciences and Society), the World Congress of the Latvian scientists, the World Sustainability Forum and professional conferences such as, Earth Summit, ERES (The European Real Estate Society) in their sessions on long-term global development sustainability, long-term sustainable development of cities, the prospects of real estate markets in developing countries, as well as within the framework of a number of international programmes, such as, ESPON (European Observation Network for Territorial Development and Cohesion) and INTERREG (European Interregional Cooperation Programme), are all actively discussing issues related to agglomeration, industrial location, shortage of territories in the European market, along with the development of an eco-effective economy. While commercial organizations in Baltic and international meetings emphasize issues related to the shortage of industrial space and the attractiveness of the Baltic market. Since the beginning of the 90s of the last century, within the framework of the new economic geography the scientists analyze the redistribution of production capacity, what actually occurs, by moving factory subsidiaries to other countries, by demerging the service and maintenance object locations in economically beneficial territories. Determining a demand for solutions and models which could be applied both in local and international markets, which could be utilized in sustainable economic and spatial planning of the territories, taking into consideration environmental and economic changes as well as the process of rapid globalization.

The research object is the development of the commercial real estate object as spatial economic object. Spatial economic allocation of the entrepreneurial activities in Latvia determined is **the subject of research.**

The goal of the PhD Thesis is to work out scientific solutions for the spatial economic allocation and provide formal proposals to facilitate the balanced long-term development of the entrepreneurial activity system in Latvia based on the research and assessment of theoretical and scientific aspects of the spatial economic allocation of the entrepreneurial activities.

To achieve the stated goal the following **objectives of the PhD Thesis** have been defined and completed:

1) to do a theoretical assessment of spatial economic allocation of the entrepreneurial activities;
2) to identify spatial economic location in a system of the entrepreneurial activities;
3) to identify and describe an essence and a content of the spatial economics;
4) to make analysis on the planning of allocation of the spatial economic models of the entrepreneurial activities and a scope of the current problems in the Baltic Sea region based on the recent scientific achievements;
5) to develop the informative logical sequence model of a historic view on legal aspects of the spatial economic allocation of the entrepreneurial activities and the layer model of the allocation of spatial economic objects in a system of the entrepreneurial activities;
6) to identify a significance of the climate change instrument in the context of the spatial economic allocation and develop the algorithm model of the forecasting a supply of the spatial economic objects taking into account the potential climate change and economic growth, to provide solutions for the development of the market of the spatial economic objects in Latvia;

7) to summarize the determinants of the spatial economic allocation of the entrepreneurial activities and the results of the assessment methods of the regional concentration of the entrepreneurial activities and their specialization within a framework of the performed empirical analysis of the location of the spatial economic objects, and determine the degree of this specialization in Latvia and the Baltics;

8) to carry the formal scientific research, to work out the questionnaire for the survey „The industrial location for multinational enterprises in Latvia", to summarize the results and provide the proposals for the improvement of the supporting activities for the industrial business development in Latvia;

9) to develop the informative logical model of spatial economic allocation of the entrepreneurial activities for the foreign investors and interactive integrated planning model, to assess a potential of the Latvian commercial real estate market and determine the factors of the spatial economically feasible location for the entrepreneurial activities

The following thesis statement has been put forward for the defense of the Dissertation*: in a process of spatial economic allocation in compliance with considerations of the climate change, a permanent development of the entrepreneurial activities of commercial real estate market in the Baltic Sea Region is facilitated thus preventing the short-term current imbalance in the local commercial real estate market.*

Theses put forward for the defense of the Dissertation

During the research the following posted theses were proved:

1. The content of the spatial economics concepts in the modern science is quite new, but relatively widely analyzed area related to the assessment of the factors of the spatial economics on the entrepreneurial activities allocation. .

2. Climate change phenomenon identifies the need of creation of the models on the forecasting of a stock of the modern industrial real estate property offer in the real estate market.

3. A method of assessment of the regional specialization and concentration rate of the main driving economy sectors and manufacturing applying Gini coefficient is a novelty for the market of Latvia and the Baltics. Latvia had a tendency of regional specialization decrease within the past decade among in the Baltics.

4. In order to develop the modern commercial real estate market under the pressure of globalization, the factors of the economically feasible spatial arrangement of business activities and expansion opportunities of the borders of a target market might be considered.

Theoretical and methodological basis of the research

The solutions and the models as results acquired during the research have been developed on the basis of decision-making, the analysis of current official documentation (use of primary and secondary sources), a study of economic criteria, such as level of employment, urbanization, flow of finances, applying a logical approach and comparisons, systems and dynamic factor analysis methods, expert analysis and mathematical statistical methods. The author used complex calculations' result data from the globally significant project ENSEMBLES, statistics from the European Commission, databases of the State central statistical offices of Latvia and other countries, papers published during the development of the PhD Thesis relating to climate change

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and economic recovery issues. The scientific practical results from the carried survey of the Dissertation are developed applying method of Computer-assisted web interviewing (CAWI) online survey and the Computer-assisted telephone interviewing (CATI), applying the Off the shelf tools to build a questionnaire.

The following sources are used for the theoretical foundation of the PhD Thesis:

• the author has analyzed the research and empirical work invested by the academics in the following filed: spatial economics, territorial development and cooperation (Albers H., Ando A., Arauzo-Carod J., Dühr S., Faludi A., Finka M., Fujita M., Hayter R., Kasper W., Krugman P., Manjon M., Shogren J., Venables A., Waterhout B. etc.), commercial real estate development, location analysis, land use (Auziņš A., Farinos D., Gromley R., Hanink D., Healey P., Lambert J., Vanags J., Yap J. etc.), sustainable development and climate change (Āboliņa K., Birzga J., Kļaviņš M., Piccin J., Staniškis J. etc.), strategic management, creation and cooperation of the multinational companies, analysis of the foreign capital flow, strategic planning and modeling ((Akgüngör S., Andersson L., Barrios S., Dicken P. . Dunning J., Falcioğlu P., Geipele I, Kaklauskas A., Kotler P., Kronborg D., Le Bas C., Mahama H., Mezias JM., Narula R., Paluzie E., Petersson L., Suedekum J., Sierra C., Thomsen S., Traistaru I., Zavadskas E., Yeaple S. etc.);

• study materials and scientific literature available in Latvia and abroad;

• internationally proved professional literature developed and available in local market and abroad;

• the following official papers: the European Union, "National Lisbon Programme of Latvia", the European Union "Sustainable Development Strategy", "Land Policy Guidelines from 2008 to 2014", "Spatial Planning Development Law", the Ministry of Economics "Action Plan to Improve Business Environment in Latvia", "Guidelines on National Industrial Policy of Latvia from 2013 to 2020", Ministry of Environmental Protection and Regional Development "Sustainable Development Strategy of Latvia until 2030", Riga City Council "Long-term Development Strategy of Riga until 2025" and other official documentation.

The author has used professional knowledge gained as a result of 10 years work experience in the field of real estate development, market research and financial analysis.

Limitations and implications defined within the Research:

1. Two types of commercial real estate market objects allocation principles are analyzed in the Dissertation. Primary attention is directed to the industrial property objects where the premises are deemed suitable for production.

2. According to limitations in scales of the current PhD Thesis and the responsible organizations' information processing, there is a certain time lag of the statistical data update. Hence, a part of the research containing information of a historic importance is built by the author according to the dynamic factor analysis to show the actual development tendencies. For the forecasting of the modern industrial real estate properties stock the year of 2009 is accepted as a period appropriate for all counties to build conservative forecasting, that 1) reflects the market conditions after the world economic crisis, 2) complies with the requirements for developing conservative scenario, 3) reflects the circumstances from the fast development of real estate market in the previous years and 4) corresponds to the principle of gradual recovery of the economy.

3. The process of data analysis has shown that several of the climate change monitoring and research institutes operating in the European Union, have no unified specialization or purpose for the utilization of the results. In order to objectively evaluate the climate change indicators of several counties, in the analytical part it was decided to rely on the ENSEMBLES project data. According to the official information, the data is a result of several sources of climate change monitoring materials. The climate change factors of 2035 are accepted for 2020 in accordance with other statistical data limitations.

4. According to limitations of current research, the part of analysis on the foreign direct investment flow is considered to be built on case of Sweden as strategic and longstanding partner of Latvia in economy development relationship.

Scientific novelty

1. The outcome of the innovative research based on the application of the ENSEMBLES project data *the algorithm model of the forecasting a supply of the spatial economic objects* is developed. The author has developed the model algorithm and its practical solutions.

2. For the first time for Latvia and the Baltic scale *the regional specialization and concentration rate of the main entrepreneurial activities is measured and assessed by applying Gini coefficient method.*

3. *Informative logical model of spatial economic allocation of the entrepreneurial activities for the foreign investors* and *interactive integrated planning model* are developed. On that the basis the stock of the large-scale shopping centres' development in Latvia is calculated. The factors to evaluate an appropriate location and the expansion opportunities of the borders of a target market are identified and worked out.

4. On the basis of evaluating of the theoretical and scientific practical aspects the author provides *solutions to assess the industrial location for the multinational enterprises with assets from the Baltic Sea Region in Latvia.*

5. *The layer model of the allocation of spatial economic objects in a system of the entrepreneurial activities* is developed. This model contains supplements to the Dickens' global relocation (Global Shift) model regarding climate change instrument coverage and definition of multinational corporations in the context of in the development of the Baltic Sea Region

6. *The informative logical sequence model of a historic view on legal aspects of the spatial economic allocation of the entrepreneurial activities* is developed.

7. *Latvian territory cooperation and impact radiuses* within which the study was conducted has been substantiated and determined.

Practical importance of the PhD Thesis – the identified issues, assessment of the developed models' creation and provided scientific solutions to determine the content of spatial economics in the context of development of the Baltic Sea Region, enhance the relevance of the concept of the use of spatial economic allocation in the Latvian commercial real estate market development.

Approbation and practical application of the results of the research

Results of the conducted PhD Thesis research have been presented for a wide scope of the stakeholders:

- in the scientific conferences and seminars in Latvia and abroad;

- participating several scientific research projects related to the issues of spatial planning sustainable development of national economy, for example, "Funding models of the housing renovation fund in Latvia". Scientific development activities within the RTU fundamental and applied research project No.FLPP-2011/27, project leader – prof. Ineta Geipele) and the project "Socio-economic and ecological aspects of urban and regional development interaction - FLPP2011/28, project leader – prof. Jānis Vanags;
- in study process, delivering lectures to the foreign students at RTU in the frame of study course "Strategic marketing management in civil construction";
- during scientific practical work from December 2012 to February 2013, organizing and managing the survey for the leading manufacturing companies in Latvia with shares from the Baltic Sea region.

Scientific publications since 2009

The author has 23 scientific publications, including 13 publications submitted and presented in the internationally accepted peer-reviewed scientific publishers, 7 publications in the books of abstracts of international scientific conferences and 3 publications in other scientific publishers.

Main scientific publications included in the internationally accepted peer-reviewed scientific publishers:

1. Staube T., Geipele I. Regional specialization performance to be improved in Latvia for the Multinational industrial companies // in Proceedings of the 14th Annual International Conference "Economic science for rural development", Jelgava, Latvia, Latvia University of Agriculture, 2013. – 31- pp.92 – 97. - ISSN 1691-3078, ISBN 978-9934-8304-7-1. Submitted to ISI Web of Knowledge, AGRIS, CAB Abstracts and EBSCOhost Academic Search Complete databases.

2. Staube T., Geipele, I. Decisions on industry location and market capacities in Latvia // in Yun Wu and Yijin Wu (Eds.), Environmental and Materials Engineering, International Conference on Environmental and Materials Engineering (EME 2012). Advanced Materials Research, TransTech Publication Inc., Durnten-Zurich, Switzerland, 2013. – 664 - pp.1141-1145 - ISBN-13:978-3-03785-601-7. Indexed in Elsevier SCOPUS database.

3. Staube T., Geipele I. Is there enough space for the shopping malls in Latvia?// Business Systems and Economics Journal. - 2012. - 6 (1) - pp. 78-91. Submitted to International Index Copernicus and EBSCOhost Academic Search Complete databases

4. Staube T., Geipele I., The Latvian Construction branch development's problems as a result of the strategic management insufficiency.// Scientific proceedings of the 7th International Scientific conference "Business and Management 2012". Lithuania, Vilnius: Vilnius Gedeminas University. 2012. - pp.1223-1230. - ISSN 2029-4441. Included in ISI Web of Knowledge.

5. Staube T., Geipele I., Latvijas industriālo telpu ilgtspējīgā piedāvājuma scenāriju analīze klimata pārmaiņu ietekmē (Analysis of scenarios on the industrial premises' sustainable supply in Latvia under the influence of the climate change).// Climate change and adoption to it: Latvia. M.Klavins and A.Briede Eds., Riga: University of Latvia Press, 2012.- pp. 170 – 186. - ISBN 978-9984-45-440-5. Supported by INTERREG project BaltCICA (Climate Change: Impacts, Costs and Adaption in the Baltic Sea Region) and Baltic Sea Region program project Baltadapt (Baltic Sea Region Adoption Strategy). Submitted to USA Library of Congress.

6. Staube T., Geipele I. The Latvian large-scale shopping centers development perspective. // Scientific proceedings of Annual International scientific conference „Whither our Economies". Lituania, Vilnius: Mykolas Romeris University. 2011. - pp.143-150. - ISSN 2029-8501. Submitted to EBSCOhost Academic Search Complete database.

7. Staube T., Geipele I. The macroregion approach and territorial cohesion of the Baltic region. // International Journal of systems applications, engineering and development. NAUN University Press, 2012. - 6(1) -pp. 70-78. - ISSN: 2074-1308. Submitted to ISI Web of Knowledge.

8. Staube T., Geipele I. The latest trends in the spatial planning modelling of the Baltic Sea Region determine a territory's potential. // Scientific proceedings of International Conference on Social Sciences and Society (ICSS 2011). USA, Newark: Information Engineering Research Institute, 2011. – 2 - pp.403.- 409. - ISBN 978-0-9831693-4-5. Included in ISI Web of Knowledge.

9. Staube T., Geipele I. Scientific investigation in spatial planning of the Baltic region. region // Recent Researches in Urban Sustainability and Green Development. Czech Republic Prague: WSEAS Press, 2011, - pp.136-141.- ISSN1792-4871. Included in Elsevier SCOPUS database.

10. Staube T., Geipele I., Valuation of the Swedish Direct Investment Territorial Allocation in the Context of Latvian Commercial Property Development // in Selected Papers of the 8th International Conference "Environmental Engineering". Lithuania, Vilnius: Vilnius Gedeminas University, 2011. -3- pp. 993.-1000. - ISSN 2029-7902, ISBN 978-9955-28-829-9. Included in ISI Web of Knowledge.

11. Staube T., Geipele I. Latvijas moderno industriālo telpu ilgtspējīgas attīstības modelis (Sustainable development model for the modern industrial properties in Latvia).// Scientific Journal of Riga Technical University "Economics & Business". Faculty of Engineering Economics and Management. Riga: RTU Publishing House 2010.- 20(3) - pp.124.-132.- ISSN 1407-7337. Included in AGRIS, EBSCOhost Academic Search Complete databases.

12. Staube T., Geipele I. Territory Outlook for the Expansion of Large Scale Shopping Centres in Latvia. // Economic Science for Rural Development. Proceedings of the International Scientific Conference. Sustainability. Jelgava, Latvia, Latvia University of Agriculture, 2010. – 23 - pp. 169. - 175. - ISSN 1691-3078. Included in ISI Web of Knowledge, AGRIS, EBSCOhost Academic Search Complete databases.

13. Staube T., Geipele I. Lielformāta tirdzniecības objektu izvietošanas teritoriju telpiskās plānošanas vīzija (Vision Territory Space Planning of Large Format Objects Placement). // Scientific Journal of Riga Technical University "Economics & Business". Faculty of Engineering Economics and Management. Riga: RTU Publishing House, 2009. - 18 (3) - pp.93.-104. - ISSN 1407-7337. Included in EBSCOhost Academic Search Complete database.

Publication in the books of abstracts of international scientific conferences are as follows:

1. Staube T., Geipele I.The concept of the Latvian industrial property market development model in a context of the strategic planning // European Real Estate Society 20th Annual Conference (ERES 2013), Vienna, Austria, July 3-6, 2013. – pp.21-21. - ISBN 978-3-85437-322-3. Included in ERES Digital Library database.

2.   Staube T., Geipele I. Economically Advantageous Location Assessment for the Industrial Business in Latvia // Riga Technical University 53rd International Scientific Conference. Dedicated to the 150th Anniversary and The 1st Congress of World Engineers and Riga Polytechnical Institute / RTU Alumni. Digest, Latvia, Riga, 11-12 October, 2012. - pp 756-756. - ISBN 978-9934-10-360-5.

3.   Staube T., Geipele I. Does Latvia use its advantageous location? // 25th European Conference on Operational Research, Vilnius, Lithuania, July 8-11, 2012 – pp.17-17.

4.   Staube T., Geipele I. Teritoriālās ekonomiskās plānošanas aktuālāko problēmu būtība Baltijas jūras reģionā (The essence of the latest economic territory planning issues in the Baltic region). // Book of Abstracts of the 3rd united World Congress of the Latvian scientists and the 4th congress of Letonika: Economics and Business. Latvia, Riga: Biznesa kompetences centrs, 2011. – p.70.-71. - ISBN 978-9934-8143-1-0.

5.   Staube T., Geipele I. Aktuālie teritoriālās ekonomiskās plānošanas modeļi Baltijas reģionā (Latest economic framework in spatial planning of the Baltic region) // the 52 International Scientific Conference of RTU SCEE'2011. Book of Abstracts. Latvia, Riga: RTU Publishing House, 2011.- pp. 96-97. ISBN 978-9934-10-202-8.

6.   Staube T., Geipele I. Latvijas moderno industriālo telpu ilgtspējīgas attīstības modelis (Sustainable development model for the modern industrial properties in Latvia) // the 51st International Scientific Conference of RTU SCEE'2010. Book of Abstracts. Latvia, Riga: RTU Publishing House, 2010. – p. 56. ISBN 978-9934-10-061-1.

7.   Staube T., Geipele I. Nekustamā īpašuma objektu izvietojuma teritorijas telpiskā plānošana makroekonomiskajā un mikroekonomiskajā līmenī (The territories for the real estate objects' allocation at the macroeconomical and microeconomical level of spatial plannining) // the 50 International Scientific Conference of RTU SCEE'2009. Book of Abstracts. Latvia, Riga: RTU Publishing House, October 15-16, 2009. – pp.51-51.

Other publications:

1.   Staube T., Geipele I. The concept of the Latvian industrial property market development model in a context of the strategic planning // European Real Estate Society 20th Annual Conference (ERES 2013), Vienna, Austria, July 3-6, 2013. Available online in ERES Digital Library database.

2.   Staube T., Geipele I. Industry location assessment for multinational enterprises in Latvia.// In Proceedings of the 2nd World Sustain. Forum, 1-30 November 2012; Sciforum Electronic Conferences Series, 2012. ISBN 3-906980-28-6.

3.   Staube T., Geipele I. Territory vision for Latvian large scale shopping centres in microeconomic and macroeconomic standard. // Scientific proceedings of the Ist International Conference of Student Scientific Society in Poland „NEW DIRECTIONS IN ECONOMICS". Poland, Cracow: University of Economics in Cracow. 2009, p.57.-64. ISBN 978-83-931384-0-1.

Presentations at the international scientific conferences and seminars:

1.   Staube T. and Geipele I., The concept of the Latvian industrial property market development model in a context of the strategic planning. // European Real Estate Society 20th Annual Conference (ERES 2013), Vienna, Austria, July 3-6, 2013 - certificate.

2.   Staube T., Geipele I. Regional specialization assessment results for the industrial multinational companies development in Latvia. // The 11th Annual BMDA Conference "The

role of management empowering innovations and creativity", Kaunas, Lithuania, May 9-10, 2013 - certificate.

3.   Staube T., Geipele I. Regional specialization performance to be improved in Latvia for the Multinational industrial companies. // the 14th Annual International Conference "Economic science for rural development", Jelgava, Latvia, Latvia University of Agriculture, April 25-26, 2013 - certificate.

4.   Staube T., Geipele I. Industry location assessment for multinational enterprises in Latvia. // the 2nd World Sustain. Forum, 1-30 November 2012; Sciforum Electronic Conferences Series, 2012. (http://www.sciforum.net/conf/wsf2)

5.   Staube T., Geipele I. Economically Advantageous Location Assessment for the Industrial Business in Latvia // Riga Technical University 53rd International Scientific Conference. Dedicated to the 150th Anniversary and The 1st Congress of World Engineers and Riga Polytechnical Institute / RTU Alumni. Digest, Latvia, Riga, 10-12 October, 2012 – certificate.

6.   Staube T., Geipele I. Does Latvia use its advantageous location? // 25th European Conference on Operational Research, Vilnius, Lithuania, July 8-11, 2012 – certificate.

7.   Staube T., Geipele I. The Latvian Construction branch development's problems as a result of the strategic management insufficiency. // the 7th International Scientific conference "Business and Management 2012". Vilnius, Lithuania, Vilnius Gedeminas Technical University, May 10-11, 2012 - certificate.

8.   Staube T., Geipele I. The latvian large-scale shopping centers development perspective. // the 1st annual International scientific conference „Whither our Economies". Vilnius, Lithuania. Mykolas Romeris University, November 16 – 17, 2011 – certificate.

9.   Staube T., Geipele Teritoriālās ekonomiskās plānošanas aktuālāko problēmu būtība Baltijas jūras reģionā (The essence of the latest economic territory planning issues in the Baltic region). // the 3rd united World Congress of the Latvian scientists and the 4th congress of Letonika. Riga, Latvia, October 25, 2011 – certificate.

10.   Staube T., Geipele I. Aktuālie teritoriālās ekonomiskās plānošanas modeļi Baltijas reģionā (Latest economic framework in spatial planning of the Baltic region) /co-author I. Geipele // the 52 International Scientific Conference of RTU SCEE'2011. Riga, Latvia, October 7, 2011 – certificate.

11.   Staube T., Geipele I. Scientific investigation in spatial planning of the Baltic region // Urban sustainability, cultural sustainability, green development, green structures and clean cars (USCUDAR 2011), Czech Republic, Prague, September 26-28, 2011 – certificate.

12.   Staube T., Geipele I. Valuation of the Swedish Direct Investment Territorial Allocation in the Context of Latvian Commercial Property Development // The 8th International Conference "Environmental Engineering". Vilnius, Lithuania, Vilnius Gedeminas Technical University. Sustainable Development, May 19-20, 2011.

13.   Staube T., Geipele I. Latvijas moderno industriālo telpu ilgtspējīgas attīstības modelis // the 51 International Scientific Conference of RTU SCEE'2010. Riga, Latvia, October 15, 2011 – certificate.

14.   Staube T. Report „11. Starptautiskā zinātniskā konference „Ekonomikas zinātne – lauku attīstībai 2010" Jelgava, Latvia University of Agriculture.Dalībnieka novērtējums" („The

participant's assessment of the results from the 11th International scientific conference „Economic Science for Rural Development" in Jelgava) // Zinātniskais seminārs „Zinātne, Izglītība, Kompetence – ilgtspējīga attīstība" (Scientific workgroup Science, Education, Competence – sustainable development). Riga, Latvia, RTU Institute of Civil Construction and Real Estate Economics, June 2, 2010– certificate.

15.   Staube T., Geipele I. Teritorijas vīzija Latvijas lielformāta tirdzniecības centru attīstībā. (Territory Outlook for the Expansion of Large Scale Shopping Centres in Latvia) //11th International scientific conference „Economic Science for Rural Development - 2010". Jelgava, Latvia, Latvia University of Agriculture, April 22-23, 2010– certificate.

16.   Staube T. Report „Klimata izmaiņas faktori, ietekmējošie nekustamā īpašuma tirgus attīstību Latvijā" (Climate change factors influencing real estate market development in Latvia)// Zinātniskais seminārs „Zinātne, Izglītība, Kompetence – ilgtspējīga attīstība", (Scientific workgroup Science, Education, Competence – sustainable development). Latvia, Riga, RTU Institute of Civil Construction and Real Estate Economics, December 17, 2009– certificate.

17.   Staube T., Geipele I. Territory vision for Latvian large scale shopping centres in microeconomic and macroeconomic standard// The 1st International Conference of Student Scientific Society in Poland „NEW DIRECTIONS IN ECONOMICS". Cracow, Poland, Cracow University of Economics, December 9-10, 2009 - certificate.

18.   Staube T., Geipele I. Nekustamā īpašuma objektu izvietojuma teritorijas telpiskā plānošana makroekonomiskajā un mikroekonomiskajā līmenī. (The territories for the real estate objects' allocation at the macroeconomical and microeconomical level of spatial plannining)// the 50 International Scientific Conference of RTU SCEE'2009, Real estate economics and entrepreneurship, October 15-16, 2009– certificate.

Structure and volume of the PhD Thesis

The PhD Thesis is developed and written in English. The Dissertation consists of Introduction, three main Chapters, Conclusions and Proposals, Bibliography and three Appendices. The total amount of the PhD Thesis, not including appendices, is 158 printed pages. In the Dissertation, there are 42 figures, 22 tables, 12 formulas and 4 Appendices (that include 22 figures and 5 tables), which explain and illustrate the research content. For the development of the PhD Thesis 246 sources of information in Latvian, English and Russian languages, which are included in the bibliography, were used.

The *first Chapter* of the Dissertation contains information on analysis of the fundamental principles of the spatial economics, its essence and definition, assessment of the results using the data of the Latvian commercial real estate market development in the period from the end of twentieth century till present. In this Chapter the author has identified the role of the strategic management in the development of real estate market and spatial economic objects and its location in a scope of the entrepreneurial activities as well as the author has reflected the most significant legal aspects of the spatial economic allocation of the entrepreneurial activities.

The *second Chapter* includes results on the economic calculation until 2020 regarding the adaptations of the algorithm model of the forecasting a supply of the spatial economic objects for planning the development of the Latvian high-end industrial market space. The Chapter reflects the assessment of the regional specialization of the leading entrepreneurial activities, and

methodology and calculation of their specialization in Latvia and the Baltics have been developed. The author in this Chapter has summarized the results on the assessment of development of the entrepreneurial activities in spatial location of economic modeling process, the challenges and the nature of the Baltic Sea region, which were obtained during the research and which has served as the basis for the author to develop the layer model of the allocation of spatial economic objects in a system of the entrepreneurial activities.

In the *third Chapter* of the PhD Thesis the formal scientific aspects of the spatial economic allocation of the entrepreneurial activities and the results of the research "Evaluating an appropriate industrial location for multinational enterprises" are summarized.

Content of the PhD Thesis

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MAIN SCIENTIFIC RESEARCH RESULTS OF THE PhD THESIS

1. THEORETICAL ASSESSMENT OF SPATIAL ECONOMIC ALLOCATION OF THE ENTREPRENEURIAL ACTIVITIES

1.1. Essence of the concept of the spatial economics

The boundaries between producer and a customer evanesce under a pressure of globalization. In the economic literature, location as a placement of the real estate objects takes one of the central roles as economic meaning and a major concern for the entrepreneur to occupy the advantageous placement for realization of the goods and/or services. A new technological era with fast paces spreads the opportunities of virtual trade. Freedom of movement of labor and capital between the countries consequently reduces a space and distance. However, the existence of the goods' production, storage, transportation, disposal, use by the end customer and further utilization identifies the necessity of the physical allocation of those economic activities.

Since 1990 there has been a renaissance of theoretical and empirical work (see also Chapter 2.1 of the PhD Thesis) on the spatial aspects of the economy - that is, where economic activity occurs and why [22]. Krugman's hypothesis suggests that regions become more specialized and industries become more concentrated with economic integration. There are different essential meanings that build the content of spatial economics given below *in italics* and summarized in Table 1.1.

Table 1.1

Identification of the content of spatial economics [presentation of the author's analysis]

Group of determinants	Indicators (factors, terms)
Institutional	*Environmental impacts and regulations, spatial planning, sustainable European development, comprehensive planning*
International trade	*Competition effect, foreign direct investments, investment environment, multinational cooperation, industrial organization*
Location analysis	*Industrial location, local market particularities, territorial potential*
Neoclassical	*Agglomeration economies, economic growth, globalization, infrastructure* (in particular, transport infrastructure)*, regional specialization, relocation*

Considering the „*competition effect*" [30], „*local market particularities*" [28, 65, 72, 122] and „*investment environment*" [20; 33; 71; 106; 127], „*locational strategy*" [67; 80], „*multinational cooperation*" [133] and „*agglomeration economies*" [21, 26, 49, 63] for the countries with the unbalanced commercial real estate market development like it is stated for Latvia (in the thesis statement of the Dissertation) the author connects two general blocks: regional economic planning and real estate business as a support function to industrial market

development. The emphasis on the regional economic planning is often directed towards stimulating commercial environment of regions in a country.

Spatial economic aspects might not be accepted within a frame of architectural field. The architecture's purpose is to create unified multidimensional design. The spatial economy makes a platform for the comprehensive planning. In this regard, a spatial architectural design serves as a tool to visualize the results of the contemporary spatial economic processes and trends to the harmonized internal or external design.

Based on the research results presented in the Dissertation the author enunciates the following definition: spatial economics is a field of modern economic science where the models are developed and a set of criteria (determinants and conditions) systems of production capacity and related business activities, rational distribution and movement in place and time, following the principles of sustainable development and developing real estate market development trends, is analyzed.

1.2. Spatial economic allocation in the system of entrepreneurial activities

1.2.1. Assessment of the commercial real estate market of Latvia

After regaining of independence, Latvia has moved from the administrative command economy to the market economy. This process is still continuing. Since the mid 1990ies a time of the Latvian flourishing growth when our state politics had focus on preparation to joining the EU. Analyzing commercial real estate property sectors (retail, hotel, offices, industrial) it is obvious that the largest developments and investments are done within the past decade in Latvia. Fifteen years ago, there were no large-scale shopping centers in Latvia or square meter (hereafter – sq.m) per 1,000 inhabitants. Two years ago the Latvian modern industrial real property stock accounted 0,45 million sq.m (24 times less than in Sweden and 8 times less than in Czech), that is 2,900 euro of the industrial capacities per 1 sq.m of the modern industrial premises (that is 3 times higher than in Sweden and 7 times less than in Czech). Conditions of easy terms in the credit financing stimulated the developers and investors on the orientation on the short building construction terms. That caused ambitious growth of new projects' number and poor quality standards of the buildings. However, the real estate projects supported by the infrastructure development schemes by the government are rare cases in Latvia. The projects look uncompleted. High vacancy rate is a typical feature of the Latvian real estate market for already 5-7 years. The segment with the highest risk, but also the best-expected development in total return – is therefore prime logistic properties in Riga [99]. Total stock of high-class industrial premises in 2012 grew up to 477,000 sq.m under the premises division of 71% speculative (338,000 sq.m) and 29% built-to suit (139,000 sq.m) [43]. All this property is located within two major destinations: Riga's suburbs (20km from Riga), accounting 40% of the high-class industrial stock in Riga and 60% of the stock outside of the capital but within the closest surroundings.

The construction in Latvia has always been one of the leading economic sectors – that is written in the Report on development of the Latvian national economy [91]. The author does not agree to this. Construction is a relatively labor-consuming process and on the national scale, it draws in a considerable part of capital investments [58]. The author has analyzed the economy

structure for the period from 1994 to 2010 in Latvia applying method of analyzing the Gross Domestic Product (hereafter- GDP) added value breakdown by branches that allows to look at the annual income proportion in economy for each branch excluding subsidies. The results have shown that construction is the integral part of the national economy and it may be characterized as service branch. Planning the manufacturing first raises a demand for the premises where the manufacturing would start and processed [119]. Construction stock increases at the stage of the market development and appears before the volume of other branches raise. The results of the carried research summarize the real estate economy theory, which marks that changes in real estate market demand are the consequences but not the reasons of the general economy process [19]. The construction sector reacts very sensitively to changes in the economic situation in the state [62; 111].

Compared to 2008, a number of insolvencies announced in the construction sector last year has almost tripled, in turn already 350 construction companies have been announced as insolvent in the first half-year of 2010, which is 13% of the totality of companies.

Even in the capital city, the most of old factories' territories around are included into a category of lapse or degraded territories. The latest statistics of Riga city development department counts 460 degraded properties [15]. Such examples are found all over Latvia. Totally counting 3,563 objects in 2010 [122]. According to the latest official information, the experts agreed that the infrastructure services in Riga require holistic improvements. Almost half of the city's territories are valuated at level lower than good [108].

Analyzing what has happened in the Latvian economy, a question rises, if the analyzed statistical data indicate that the representatives of the aforementioned sectors, in particular, the construction sector, are unable to change strategy timely and keep running business. The author asserts that, according to empirical studies that have been approbated by scientists already in a period of several decades earlier and proved in contemporary business activity, a timely and correctly selected strategy of a company, which is secured with professional strategic management, prevents cases of insolvency, but rather timely change of the strategy and continuation of the company's operation. If a company keeps track of changes in the selected parameters, such as indicators of market changes, then these external changes only help this company's operation and do not allow the considerable critical errors that would cause the company's default. Regarding the current local real estate market's stagnation stage and recent increase of a number of the insolvency cases, the Latvian real estate market's participants mainly stay at the development phase 1(Creation), rarely at the phase 2 (Formalization). A big number of the local units collapse at the management crisis and bureaucracy crisis. The foreign capital creates alternatives to expansion. However, formalization and control could become a bottleneck to a successful and efficient operating of the business in Latvia. The author has put to the carried survey the criterion of the headquarters' control on the decisions of allocating the business activities. The results are presented in the Chapter 3.1.2 of the PhD Thesis. The author suggests two strategies for the local construction companies: complex distribution channels strategy, when two or more distribution channels are involved and interdependent comprehension strategy, the strategy targeted to solve the conflicts of the constant informal interaction with the purpose to

share the goals and ideas, applying the unified Customer Relationship Management (CRM) database system management [1].

Change of corporate system is determined by the company's resources and ambitions of the manager, operating time of the company in the market, number of employees, size of the business, and also competition. In a market with low competition density, success of a company is defined by the size of material assets, however with the competition intensifying; amount of assets of market leaders is almost equal. In such a situation, the winner is the company that has managers with more experience in strategic management and higher abilities to create competitive products by usage of material assets. Crisis situation does not have to be awaited in order to facilitate development of a company and its transfer to the next development level.

A modern production environment reasonably requires a management control system that is tailored to fit the specific circumstances of this kind of organization [128].

1.1.2. Definition of the spatial economic objects and target region

The location of manufacturing companies or plants is a major concern for managers, entrepreneurs and policy makers [27]. During the research process, the author focuses attention on the interaction of three groups of business areas highlighted in the study: 1) manufacturing and agriculture, 2) commerce and services, and 3) construction as a support industry, which in total, significantly influences the development of real estate in Latvia. As a result of the research, the author concludes, that the aforementioned areas are the ones which shape the functionality of the territory of Latvia.

The main limitation forming the subject of the PhD Thesis mentioned in the Introduction is analysis of the entrepreneurial activities within the locations of the industrial use, primarily creating commercial real estate market of modern industrial premises and secondary - the large-scale retail property according to the presented in the PhD Thesis classification. Retail property has been analyzed as a place of industrial products' realization.

According to official terms and definitions of Commercial Real Estate Development Association, *industrial properties* are determined as facilities in which the space is used primarily for production, research, development, service, storage or distribution of goods and which may also include some office space. Classification of the industrial type buildings comprises manufacturing (premises used for the conversion, fabrication and/or assembly of raw or party wrought materials into products), warehouses (a facility used for storage and /or distribution of materials, goods, merchandise) and flex buildings (the property designed to allow its occupants flexibility of alternative uses of the space, usually presented in an industrial park setting) [45].

In Urban Land Institute editions, the author found more groups of classification of the industrial property: multitenant, freight forwarding and data switch centres [132]. The industrial property type is narrowed to *high-class (A and B)* or *modern industrial properties*, according to professional categorization used in the local Latvian market [43; 99]. The shopping and entertainment centres considered to be large format real estate objects. The author has prepared the classifications considering the larger sizes of the observed commercial real estate properties in accordance to its potential acquiring the demand of the foreign investor companies. The author has made the suggestions analyzing the official professional information [75; 78; 86]. Hence, the

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large scale retail property in the developed classification meets the minimum gross leasable area (hereafter –GLA) parameter's requirement of 10,000 sq.m size in stead of 5,000 sq.m.

The author's reading of a spatial economic location of the business (entrepreneurial) activities is presented in a scheme in the Figure 1.1 and comprises three interactions units: two business units, where the collaboration partner is another businessmen, developer, realtor, supplier, construction contractor, either public authority or any other business unit except local inhabitants, which are defined as a society in a context; and the local society, which is involved as a labor force.
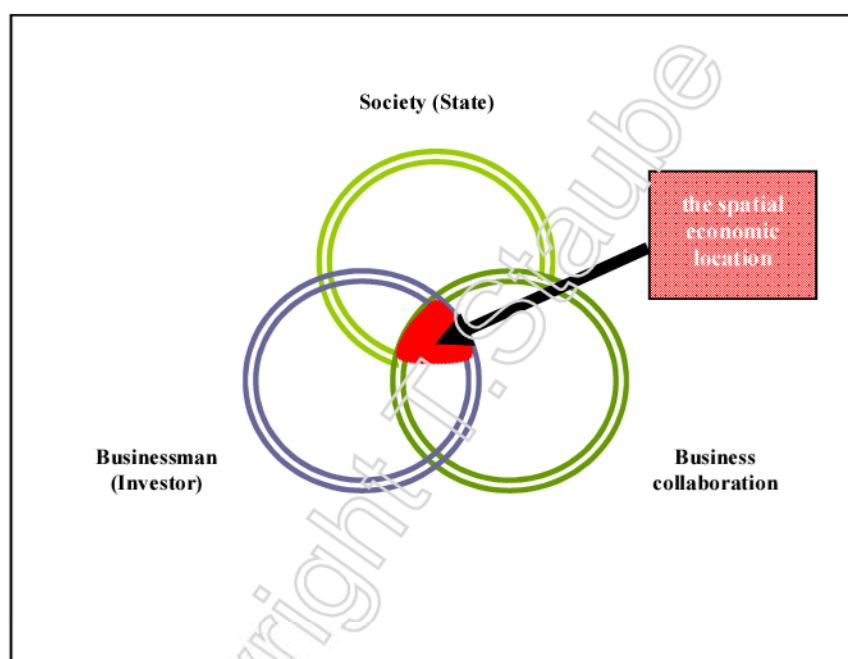

Fig. 1.1. Scheme of the spatial economic location's identification in the system of the entrepreneurial activities, [author's development]

In a context of development of the industrial property market, the scheme suggests that *the spatial economic location* is a *territory of placement of the business or entrepreneurial activities analyzed as a system*. This location may be presented as a place of producing, promoting or selling and buying the goods. The location is developed as the commercial real estate property with a growing value added. It is not a building but a spatial item that has a surface and surroundings. In that location a commercial real estate object as a spatial economic object is developed. The local authorities might provide the advanced transport infrastructure and communications in support of the current location development for the interest of the country's territorial development.

The analysis of the neighboring countries economic activities is indispensable input into the economic recovery process. The author analyzes the Baltic Sea Region (hereafter- BSR) namely includes the following areas: EU member states Denmark, Estonia, Finland, Latvia, Lithuania, Poland, Sweden and northern parts of Germany, as well as the neighboring countries

of Norway, north-west regions of Russia and Belarus) in a frame of territorial development and spatial planning adaptation and evolution for Latvia. Two radiuses of the entrepreneurial activities destinations or *territory's cooperation and impact radiuses* are marked (see Fig. 1.2).
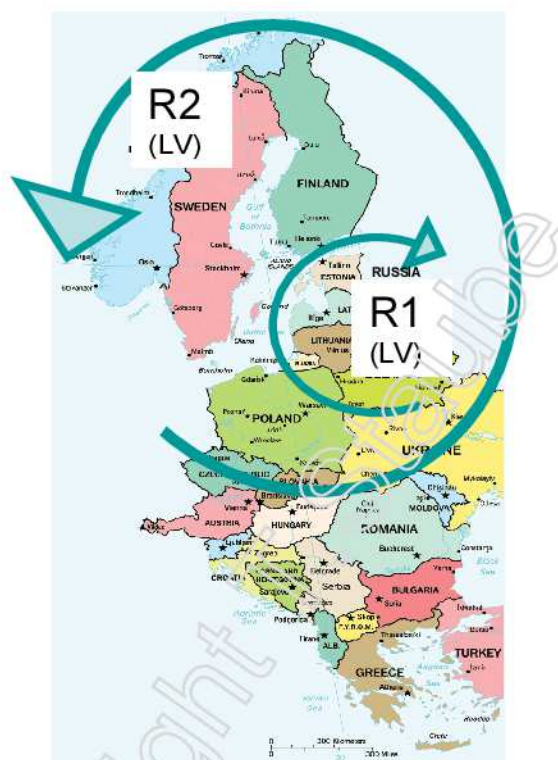

Fig. 1.2. Map of territory's cooperation and impact radiuses of Latvia [author's development]

First radius (R1 (LV)) indicated for Latvia includes the border states: Lithuania, Estonia, Russia and Belarus. The second radius (R2 (LV)) accumulates the investments assets from the closest countries of the Baltic Sea region: Finland, Sweden, and Norway and next to the neighboring overland partners Ukraine and Poland.

1.2. Legal aspects of the spatial economic allocation of the entrepreneurial activities

The European spatial planning policy is among the world's targeted actions conducted nowadays. There are certain boundaries as subsequent from difference in countries legislation. An addressee hearing the translated term compares automatically with what is known of the own system attributing the translated term another connotation. This requires an interdisciplinary approach for further research ideas aiming for harmonization [46]. According to official information analyzed and presented within this Chapter, the author highlighted the main legal issue development paces of the Visions and Strategies for the Baltic Sea Region (hereafter - VASAB) in Figure 1.3. First, from 1992 up to 2005, when it was agreed to stimulate and support

projects that create model solutions, and organize exchange of knowledge on spatial planning and development approaches. The second period starts with decision on the long term perspective or LTP, that includes the issues like identification of the specific development assets, potentials, integrative trends and main global processes influencing the BSR spatial development in a long run, provision of a comprehensive overview of the main BSR actors and plans with a spatial impact and also the instruments to guide and coordinate policies for a better BSR integration.
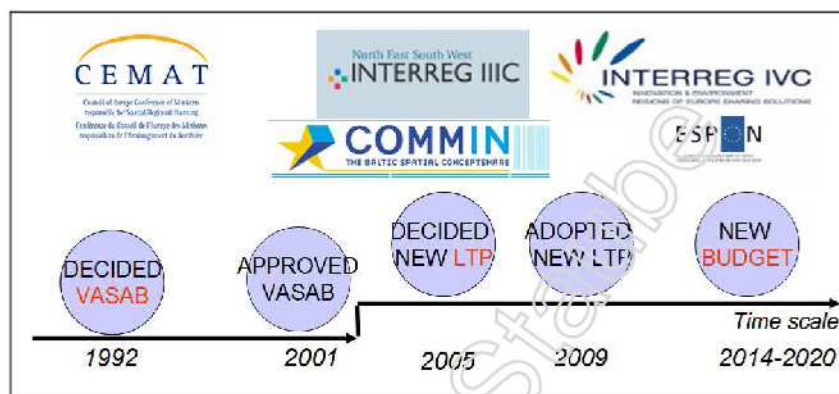

Fig. 1.3. The informative logical sequence model of a historic view on the legal aspects of the spatial economic allocation of the entrepreneurial activities [author's development]

From a total amount the highest interest is for climate change (the evidence of the thesis No. 2 of the Dissertation) and territorial effects on regions and local economies in Europe (here and further in a paragraph the author defines the maximum and minimum shares of beneficiaries in a project from total BSR research budget within ESPON 2013 programme: Germany adopted 9%, Norway – 3%); services of general interest (Sweden had over 6% from total BSR budget, Germany – 2%); transport accessibility at regional and local scale and patterns in Europe (Germany got 9%, Poland – 1%); European territorial cooperation as a factor of growth, jobs and quality of life (Poland allocated 7%, Finland – 3%).

Spatial planning is relatively new term for the Baltic Sea Region. Nowadays under the pressure of globalization, the European state authorities work on shaping the policies at intergovernmental cooperation level with a target of territorial policy-making and entire integration across Europe. Since December 2011 the Spatial Planning Development Law [10] has already the third statutory wording. That states, that spatial planning development has cyclical and continuous pattern.

The new Latvian National Development Plan 2014-2020 (recently proposed for adoption to Saeima by the Cross-Sectoral Coordination centre) states that manufacturing productive efficiency is 4 times lower than EU average level that narrows the local economy's capability to reach the maximum potential capacity [48]. Decrease in regional specialization in Latvia within the past decade considers low rate of national competitiveness [115]. Definition of specialization and an effective usage of grants could change situation and promote economy development in Latvia [16].

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When analyzing the agriculture and industrial development prospects and business issues in Latvia inefficient use of land and a surplus is considered to be a problem while in other countries there are discussed of land shortage stated in "Land Policy Guidelines from 2008 to 2014" [12; 23] prepared by the Ministry of Environmental Protection and Regional Development of Latvia. Despite the historical success, at present the weighted average land quality assessment in Latvia is 38 points, which, having regard to the climatic conditions of Latvia, is considered to be the minimum level of fertility in respect of the land used in agriculture in order to ensure commercially viable agriculture [91]. According to worked out by the Ministry of Economics Action Plan 2012 to Improve Business Environment in Latvia accepted in the same stated year (April 2012) [11] the project of the same type plan for 2013 had to be sent to the Cabinet Council by middle of February 2013. By May 2013 the document has not been accepted yet. There is a lack of consistency of the strategic decisions of the state authorities and its interpretations and tactic implementation by the related organizations. As a sample, the informative Report on the strategy of attraction the foreign direct investments until 2015 prepared in April 2011 [7] was not completed by the detailed and comprehensive analysis on the situation and available resources. That was admitted by the members in the meeting of the board of coordination of the large and strategic investment projects leaded by the Prime Minister on May 19, 2011 [8]. Another example, the Ministry of Economics of the Republic of Latvia in the above mentioned Report points to the following tradable branches: manufacturing; transport, logistics and communication; mining and quarrying; agriculture, foresting and fishing; fishing and aquaculture and related services [7]. However, within the framework of the POLARIS tool, which is provided by the Investment and Development Agency of Latvia (hereafter - LIAA) and announced to be used by foreign direct investors to establish the long-lasting relationships with the Latvian partners and institutions, the following industries are named as the most targeted sectors of economy for attracting foreign direct investment (hereafter – FDI): woodworking, metalworking, machinery and electronics, transport, life sciences, healthcare, greentech and IT.

2. SCIENTIFIC ASPECTS OF THE SPATIAL ECONOMIC ALLOCATION OF THE ENTREPRENEURIAL ACTIVITIES

2.1. Methods of the spatial economic allocation of the entrepreneurial activities

2.1.1. Models of the planning of the spatial economic allocation of the entrepreneurial activities and development trends

Spatial development in the Latvian sustainable development strategy until 2030 is defined as evolution of the territories in all dimensions: economic, social, environmental and physical [126]. The knowledge-based economy meaning introduced as the triple helix model analyzed by Leydesdorff in "Understanding the dynamics of a knowledge economy" [82]. The diversity of forms of regional governance is in part due to contrasting historical trajectories and socio-economic structures of the metropolitan regions, and to the organization of the German federal system, built on the principles of subsidiary and strong regional and municipal autonomy. This

finds expression in, for example, a multilevel planning system in which the federal state merely provides framework legislation and guidelines for regional planning [69]. Andreas Faludi proposed a „motion for resolution" acknowledging the importance of territorial cohesion and appropriate policies. The future of territorial cohesion policy is intimately related to the future of cohesion policy post–2013 to be 'place-based'. If adopted, this would move territory and territorial cohesion to centre stage [60]. Knieling and Othengrafen elaborated on conceptual aspects of new regions and provide a full set of different spatial entities, from metropolitan region, to supra-regional partnership, to meta-region, to – finally – macro-region [74]. The results of a research indicate that the majority of Europe is moving towards the comprehensive integrated approach and the regional economic approach [120].

Theories of modern industrial policy developed by Mr D. Rodrik, Mr M. Porter, Mr R. Hausman and other theoreticians of economics, as well as the framework of national competitiveness and regional innovation model are adapted within the framework of modern industrial policy in Latvia [55]. The author concludes that the horizontal and vertical collaborations of the Latvian sustainable development strategy till 2030 need to be supplemented by one more scope – the geographical integration (across borders) that is an important stage of the countries' mutual cooperation reflected in ESPON programme and a book of Dühr et al.

Multiple criteria decision analysis (MCDA) is an operational evaluation and decision support approach that is suitable for addressing complex problems featuring high uncertainty, conflicting objectives, different forms of data and information, multi interests and perspectives, and the accounting for complex and evolving biophysical and socio-economic systems [134].

There are a number of scales where spatial planning modeling is used – general territory planning comprising the general look and overall planning like "hypercube" model [61] or VASAB strategic model.

The detailed view or separate issues are held by the scientists and targeted projects. The author marks the originality of separate approaches like a new landscape-evaluation methodology that consists in a technical learning process to be undertaken as an essential component of spatial decision-making [35]. G. Brunetta and A. Voghera write that each territory can define the role of the assessment action in the landscape planning process within the same assessment procedure.

2.1.2. Empirical analysis of the allocation of the spatial economic objects

The globalization proceeds the capital relocations. The most essential contemporary works on investigation of the empirical studies in industrial locations and impact of economic integration on regional specialization and geographic concentration of industries are done by the scientists Mr.Arauzo-Carod from Spain [27] and Mrs.Siedschlag from Germany [126]. The basic econometric tools in empirical studies on industrial locations are Discrete Choice Models (hereafter – DCM) and Count Data Models (hereafter –CDM). DCM solves the problems of location decisions on the concrete site estimation. It counts data from the chosen territory unit (population, infrastructure, competition, supplement products etc.), characteristics of the site (size, utilities' capacities, allowed construction parameters etc.). To carry the likelihood analysis with a help of DCM model the factory's and/or a company's parameters are acquired. CDM works at macro- and meso- level, considering spatial factors of geographical (municipality,

region, city etc.), political (legislation, taxes etc.), social-economic (population income, demography dynamics etc.), environmental (pollutions, climatologic and climate change issues etc.) and technological (level of industrialization, innovations etc.) factors' analysis that might have an effect on the development of the chosen location area. Discrete Choice Models are the dynamic models (LIMDEP, MapInfo, ArcGis etc.), but computational burden is not an issue in Count Data Models generate the observations from zero-entry locations not only contribute to the likelihood function but provide interesting insights into the data generation process. Those specifications of CDM may be solved by available statistical packages (LIMDEP, Stata etc.) [27; 94]. The author summarizes the determinants given and studied in the above-presented models as resume considered for the scientific aspects analysis and practical solutions, one of the samples is given in Table 2.1).

Table 2.1

Resume on the leading empirical location studies for manufacturing sector and plants since 2000. Count Data Models, [author's presentation]

Type of the model	Author, country, year of the research study	Main determinants	
		determinant of positive statistical significance	determinant of negative statistical significance
Count Data Models	**Alanon et al.**, ES, 2007 [21]; **Arauzo**, ES, 2005 [24], 2008 [25]; **Arauzo and Viladecans**, ES, 2009 [26]; **Barbosa et al.**, PT, 2004 [29]; **Basile**, IT, 2004 [31]; **Becker and Henderson**, US, 2000 [32]; **Cieslik**, PO, 2005 [40; 41]; **Gabe and Bell**, US, 2004 [64]; **Guimaraes et al.**, US, 2004 [66]; **Holl**, PT, 2004 [68]; **List**, US, 2001 [84]; **List and McHone**, US, 2000 [85]; **Manjon and Arauzo**, ES, 2007 [87].	Human capital, agglomeration economies, local value added, urbanization economies, industrial agglomeration and employment share, service agglomeration and employment share, population density, previous entries in the own sector, distance from central city, foreign penetration, productivity, sector dimension, product differentiation, infrastructures (specific to country needs and foreign trade), port infrastructure road infrastructure, unemployment, manufacturing employment, attainment of air quality standards, GDP, shared border with EU-members (European case), education, local public investments (American case), localization and urbanization economies, market size, sectoral diversity, supplier accessibility, county surface, county capital, entrepreneurship.	Distance to main cities, urbanization diseconomies, industrial diversity, commuting intensity, distance to county capitals and main cities, human capital, distance from central city, wages, agglomeration economies, labor costs, rail infrastructure (specific to country needs and foreign trade), shared border with non EU-members (European case), land costs, taxes, sectoral specialization, environmental regulation.

According to Arauzo-Carod above-mentioned studies, the environmental regulations as one of the institutional factors assessment appeared first in the American researches, having "0" significance in the late 1980s and positive effect ten years later. The empirical evidence shows that one determinant may have different effect on location – positive in one case and negative in other. Hence, close destination to main city (distance from central city) is positive factor when the location is suburban and when infrastructure network (commuting intensity) is well organized, otherwise even close distances have negative effect on such locations' assessment. In particular, the distance to host countries like moving the assets to CEE countries (case of France, [49]) is found as location of the longer distances and so negatively effecting the assessment. This suggestion supports the author's estimation on the radiuses, where France is located outside the determined territory's cooperation radiuses (see Fig. 1.2). In general, proximity to home market and target markets, which is advantageous geographical location of the country is measured positively. Plants agglomeration and rising competition create advantageous business environment in the area. However, in the cases of an unbalanced real estate market when counties and regional development level is reasonably lower than urban, the agglomeration turns to negative locational factor. The above-presented analysis supports thesis No.1 of the Dissertation.

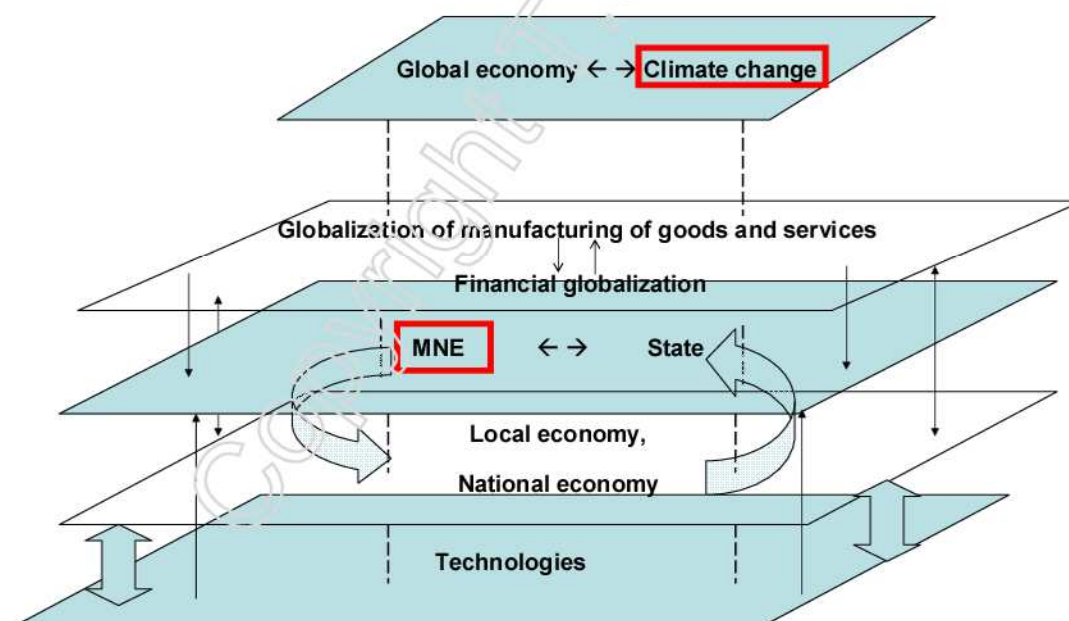Fig. 2.1. The layered model of generating of the spatial economic allocation in a system of the entrepreneurial activities [author's development]

Within the framework of the Dissertation the author replaces TNCs [54] for the *multinational enterprises* (MNE). The author did not find an evidence to the thesis No.2 within a research works of the European scale presented above. However, a climate change factors appear as the

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determinants in the research of the American scientists and in the legal documentation of the ESPON 2013 programme (see Chapter 1.3). In the presented Figure 2.1 the author puts an accent on the *climate change instrument* as addition to Dicken's "Global Shift" model [53] as a new trend and suggestion by introducing the algorithm model of the forecasting a supply of the spatial economic objects and its adaptation for the Latvian modern industrial property market development in the next subchapters.

2.2. Forecasting model for a supply of the spatial economic objects

2.2.1. Algorithm model of the forecasting a supply of the spatial economic objects

The logic of the introduced model is to find solutions for the Latvian modern industrial property market development is demonstrated in Figure 2.2, presented by the author in a number of the scientific conferences and publications [17; 112; 113; 117; 118; 120].

The detailed information on data, methods and assumptions is given below according to each part's division prepared on a sample of practical solutions found for Latvia and presented further:

A. Modeling of the climate change projections

A1. The research is relied on the ENSEMBLES project, a scientific prediction system for climate change as one of the options with multidimensional calculations' results in global and regional Earth System models, where the base of the meteorological research data obtained from the member countries has been adjusted by the unified method with high resolution [118]. The atmospheric temperature data projected for 2035 accepted for Latvia were compared to the rest of the Europe's historical average data fixed in 1961-1990.

A2. The seasonal atmospheric temperature projections for the capital cities were assimilated to the countries' data. The comparison on the retrieved statistics was made with the deviation limitation assumption of +/- 0.5°C.

A3. The discussion for the academic environment consider the analytics to be adjusted with the wind speed, relative humidity, surface pressure, precipitation, soil moisture, sea ice temperature and other measures to complete the data set. A precise climate data processing and analysis from the ENSEMBLES is available under formal framework of a project agreement involving the climate change professionals that is suggested for the future investigation on the issue.

B. Making a forecast on the high-class (modern) industrial property stock and manufacturing capacity

B1. The structural analysis of the national economies development for the comparative countries was made with the following assumptions: 2009 is accepted as a determinant year with effect from financial crisis to build conservative projections in order to keep to the scenarios under the influence of stagnation and calculations' result might correspond to the principle of gradual economic recovery. The analysis of the Latvian economy development data was compared to 1998, when the economy was not stable in general after regaining of independence, but the policy

was focused on the development and joining the European Community (from 1996 till the middle of 1998 the average annual GDP growth was 6% [92]).
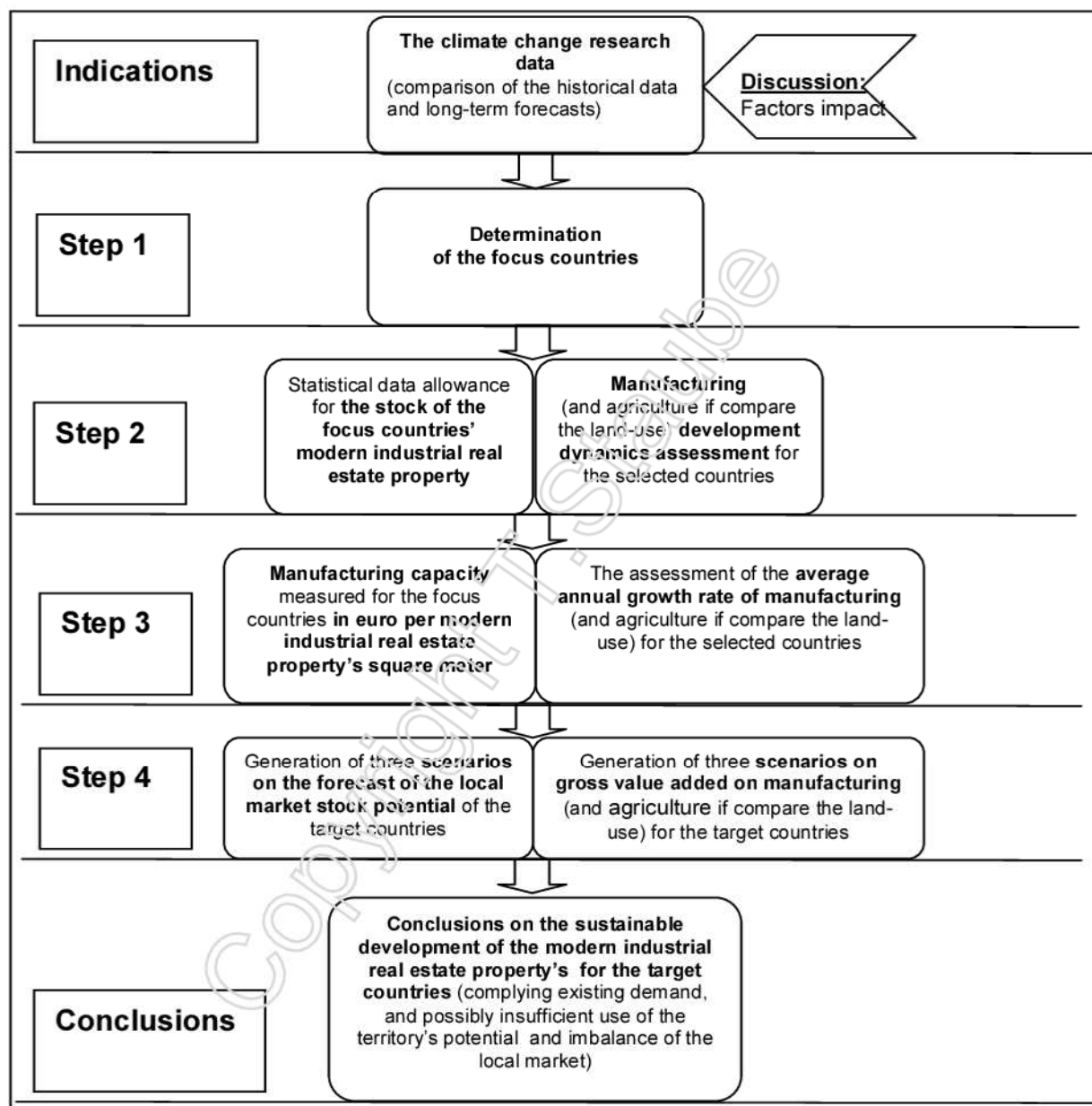
Fig. 2.2. The algorithm model of the forecasting a supply of the spatial economic objects [author's development]

Results of 1998 were partially affected by the beginning of the Russian economic crisis that made the natural adjustment of the economy of Latvia [18; 92]. Two periods for Sweden were observed: before and after its joining the European Economic Community in 1995: the years of 1984, 1998, 2009, the Czech Republic's statistics was calculated from after recognition of its

independence, the years of 1995, 1998 and 2009. For making interim projections, statistical indicators of 1998 were studied for all countries. The data source is national and EUROSTAT statistics.

B2. The data was collected and recalculated according to gross domestic product (GDP) deflator's formula.

B3. The chain-linked reference year of the statistics is 2005.

The author has come to conclusion that the character of the dynamic series of the added value produced in the national economy during longer time period in comparable prices significantly differs from the character of the added value of the series in actual prices. But the values of the parameters included in the trend functions of the longest and shortest period are higher than those of the trend functions of shortest time period, which indicate gradual increase of the value added growth intensity at the same time shortening the length of the dynamic series [20].

B4. Comparison and forecasting of the potential growth in value added of manufacturing in GDP were made from the compound average annual growth rate formula [14].

B5. Forecasts of 2020 is a milestone in making projections for 2035. The GDP volume in 2020 in Latvia was adopted from the World Economic Prospects 2010 [57] and Austrian Academy's of Sciences on the population prognosis [18; 109].

B6. Comparison on manufacturing gross value added per 1 sq.m of modern industrial property in Sweden is done on Stockholm's data recalculations [124], information on overall Sweden is not available, 56% is taken as large cities' value in the total manufacturing in Latvia [39].

B7. The comparison on value added of manufacturing is made with the planned for 2020 in the Latvian National Development Plan [48].

2.2.2. Scientific economic foundation and significance of the climate change instrument in the spatial economic allocation

Environmental changes come to the front of spatial planning making the societies to exchange with the technologies and knowledge on the regions geo, flora and fauna particularities. Environmental impact assessment is referring to the *climate change* issue. Earth's wealth, land rents and the geopolitical situation of the country determines types of land use and directions of economic developments. With change of the weather conditions, economic development priorities of the country can change as well. When developing a specific model of sustainable development, which aims to identify potential industrial space real estate market size, the issue of climate changes can not be ignored. Among the main markable meteorological and climatologic factors for the industrial real estate location development planning the Met Office scientists suggested temperature, precipitation, snow and ice accumulation, wind speed, gusts, ground level and at height. The Latvian scientists theorize and pose the following climate change factors of influence on the Latvian territory:

1. increase of a number of dryness periods in summer;
2. high temperatures in winter;
3. increase of heavy rains, vehement winds and wind waves incidents;
4. increase of a flooding risk – the territories of a flooding risk potential and periodicity of flooding incidents increase in Latvia and scope of damage during the river floods or wind

waves at the sea coasts, including the washing away the coastal territories at storming weather grows [3].

The first two factors are accepted to be determinant in the different countries climate comparison in the current research of the PhD Thesis.

Table 2.2

Selection of the comparison on Riga's summer and winter atmospheric temperature data from the ENSEMBLES project [author's calculations and presentation]

Country selection/ season, rate	Riga's forecasted versus comparative climate intervals, °C	
	summer	winter
Latvia (Riga), in 2035	**-1**	**-2.1**
Belgium (Brussels)	-0.3	6.5
Czech Republic (Prague)	**-0.2**	**0.5**
Estonia (Tallinn)	-1.6	-2.4
Lithuania (Vilnius)	-0.6	-2.7
Poland (Warsaw)	0.3	0.6
Sweden (Stockholm)	**-0.5**	**-0.5**
United Kingdom (London)	-0.5	6.5

Note: see A1-A3 in the data, method and assumptions section above

In accordance with the results of the analysis of the mean temperature in Europe, it is forecasted that over the next 25 years the temperature increase will be 1.52 ° C in summer and 1.64 ° C winter per year. Analyzing Riga average summer (+17.2 ° C) and winter temperature forecasts (-1.8 ° C) of 2035, a standard deviation range of + / - 0.5 ° C was determined. The data show that summer and winter temperatures of the climate change in Riga in 2035 is comparable to the Prague and Stockholm fixed atmosphere temperature indicators.

According to the data indicated in Table 2.2 it can be concluded that summer temperature indicators are mostly within the limits of acknowledged deviations. Table 2.2 resumes the results from Latvia assimilation to Czech Republic and Sweden in the experimental investigation ("Indicators", "Step1" of the algorithm model of the forecasting a supply of the spatial economic objects). Complete climate match in nature cannot be found and reached. Countries are located in different geographic areas of the natural environment: Latvia – on the Baltic Sea coast has a relatively mild and humid climate, the Czech Republic is in the a middle of the continent, in the mountain area of Central Europe, far from the coastal area, which is characterized by a moderate continental, but mild climate, but Sweden is under the influence of the Atlantic air masses. Sweden has a transition climate - from the maritime to the continental as its east coast is completely laved by the waters of the Baltic Sea but to the West there is the territory protected by a mountain area [79; 123; 125]. However, south of Sweden is characterized as mild climate area. Since in Latvia, Czech Republic and Sweden there are common climate features: mild climate and comparable temperature indicators, the author has chosen to perform analysis of economically statistical data of the aforementioned countries.

2.2.3. Solutions for the development of the market of the spatial economic objects in Latvia

Latvian GDP forecasts for 2020 in accordance with the global market research company's Euromonitor International report data per 1 person makes up 17.029 U.S. dollars [57], or 13.402 euros. While, according to the forecasting data of the Austrian Academy of Sciences, in 2020 the expected number of population is 1.803 million people [109]. According to the analytics summarized from the official statistics [38; 39; 44; 70; 73; 98; 110], the volume of the Czech of modern industrial real estate market of 2009 makes 31% of the market volume in Stockholm, but it more than 7 times exceeds the total supply of this market niche of Latvia. If the added values of the industry sector are compared in comparable prices, the indicator of Stockholm as the capital city is only 5 times less than the added value of the entire industry sector of the Czech Republic.

For the industry sector, during the period from 1998 to 2009 the Czech Republic and Sweden have almost similar average growth rates: 1.03 and 1.00, respectively. As to the final forecasting results for 2020 for Latvia, according to the Swedish data scenario, the share of the industry sector was proportionally aligned to the impact of the capital city and its surroundings (Riga with its suburban area) on the proportion of the total GDP of Latvia. The Czech market is characterized by low supply level (compared to the market demand), but large turnover in the sector, while in Latvia there is too large premise space volumes and high level of vacancy rate, because it exceeds the market demand and corresponds to low production capacities. However, there are important differences to be taken into account - industrial real estate market of Latvia is underdeveloped, the potential of the favorable geopolitical situation is not spread used as well as there are significant barriers for the entry of new production plants (inadequate tax policy, lack of infrastructure development and other reasons). The assimilated territories' industrial and agricultural branch growth dynamics is analyzed making the economically justified proportions in the branch development tendencies ("Step 2", "Step 3" in the algorithm model of the forecasting a supply of the spatial economic objects). In comparative analysis, the manufacturing branch's value in national economics increased 1.4 times in the Czech Republic since 1995 and is higher than in Sweden, where the share of manufacturing value added is 15% from GDP in prices of 2005. On the resulted data of the presented the algorithm model of the forecasting a supply of the spatial economic objects in Tables 2.3 and 2.4 ("Step 4"), the author has come to three scenarios: fast growth, conservative and a mean scenario.

In accordance with the obtained results, if the first scenario is implemented, then almost 2 times higher manufacturing productivity can be reached having modern industrial property market, which is half less than the existing one. While, the Swedish scenario reflects the situation that in comparable prices Swedish industry productivity is quite low. This is explained by the lowest inflation rate in Sweden (average annual change in the price index recorded in six leading sectors of the economy in 2000 constant prices from 1998 till 2009 year in the Czech Republic was 0.8% and in Sweden - 1%). Thus, the projected added value of manufacturing industry from total economy in the Latvian National Development Plan looks even 167% ambitious from the projected within the Czech. According to the calculations results, Czech scenario is acceptable for Latvia only if the current market situation considerably changes, that is the Czech example would expect the remarkable capital inflows and efficient production. The numbers tell that the

projected manufacturing capacity of 1.03 compound average annual growth rate would require 53% less of the current high-class industrial property stock in Latvia. The Swedish practice is called conservative as it does not suggest fast economy growth paces, but high-class industrial property stock would have need almost 3 times larger space, and, evidently, manufacturing would not be concentrated in the capital city (that productivity per 1 sq.m of high-class industrial property shows).

Table 2.3

The results from the author's calculations on the algorithm model of the forecasting a supply of the spatial economic objects for 2020 [author's calculations and presentation]

Ratio\ Country's scenario		Czech scenario	Swedish scenario	Weighted average
Scenario in a context of manufacturing branch capacity		Fast growth (impetuous development) (1)	Conservative (2)	Mean (3)
Real Gross Domestic Product, million EUR (B5)		24,165		
Manufacturing branch (C code by NACE rev.2)	Gross value added, million EUR (B3)	2,910	1,900	2,405
	Gross Value Added, %, 2020	12.04	7.87	9.95
	Compound average annual growth rate	1.03	0.98	1.01
	Gross Value Added, % (B7) [48]	-	-	20
	Gross Value Added, attitude to the official prognosis above, index (B7)	0.6	0.4	0.5
	Productivity per 1 inhabitant, EUR	1,614	1,054	1,334
Manufacturing gross value added per 1 sq.m of high-class industrial property		12,300	810 (B6)	6,555
High-class industrial property stock, fact, 2009, sq.m				450,000
High-class industrial property stock, sq.m		236,600	1,398,000	772,300

Note: see B3, B5, B6, B7 assumptions in data, method and assumption section in Chapter 2.2.1. Rounded data

Table 2.4

Coefficients summary on the Latvian forecasted research data comparison to 2009 official data [author's calculations and presentation]

Ratio/ Country's Scenario	1	2	3
Agriculture gross value added	0.43	0.78	0.60
Manufacturing gross value added	1.3	0.86	1.09
Manufacturing Gross value added percent from GDP in 2020	0.73	0.70	0.71
Productivity per 1 inhabitant	1.64	1.07	1.36
High class industrial property stock	0.53	2.91	1.72

According to scenarios information the following development perspective is suggested as a mean scenario: 1) a stock of the modern industrial properties could grow up to 772,300 sq,m; 2) the manufacturing value added of 2020 would increase by 1.09 times from the level of 2009 at comparative prices of 2005, reaching about 2.4 billion Euro turnover at the compound average annual growth rate of 1.01. To summarize foundation of increase opportunities of the manufacturing capacities the author has made the measurements on the regional specialization of the entrepreneurial activities presented in the further subchapters.

2.3. Assessment method for the regional concentration and specialization of the entrepreneurial activities

2.3.1. Scientific aspects of assessment of the regional concentration and specialization of the entrepreneurial activities

Among different measures of specialization and concentration applied in the literature such as the Herfindahl Index, Dissimilarity Index, the Krugman Index, the author chose Gini coefficient of Regional Specialization and the Gini coefficient of Geographical Concentration, which provide a measure of relative specialization and concentration [59; 126], a dissimilarity index derived from the index proposed by Krugman in 1991. The determinants used are employment data (for Gini coefficient and other research variables calculations), Gross Domestic Product (GDP) and number of the companies operating in industry calculating $TECDIF_i$ and $SCALE_i$ variables as following the resume of only those variables are significant in explaining industry concentration [59]. The calculation is based on the following formulae:

- **Gini coefficient for regional specialization** [50; 59; 126]:

$$Gini_j^s = \left(\frac{2}{n^2 \bar{R}_j} \right) \left[\sum_{i=1}^{n} \lambda_i \left| R_i - \bar{R}_j \right| \right] \qquad (2.1),$$

33

where $R_i = \dfrac{s_{ij}^s}{s_i}$ (2.2), $\bar{R}_j = \dfrac{1}{m}\sum_i R_{ij}$ (2.3),

$$s_{ij}^s = \dfrac{E_{ij}}{\sum_i E_{ij}} \quad (2.4), \quad s_i = \dfrac{\sum_j E_{ij}}{\sum_j \sum_i E_{ij}} \quad (2.5),$$

and E_{ij} indicates employment in each industry i in a certain region j, value λ_i denotes the position of the industry i in the ranking of R_i in descending order, n indicates number of regions, m − number of industries. The author presents the modified formula (2.3) for $\bar{R}_j$ and (2.8) for $\bar{C}_i$. The original paper names it $\bar{R}$ and $\bar{C}$ [59]. In the first of the mentioned formulae the calculated meaning shows an average within the industries in a region, but is different for each region j and formula (2.8) measures an average value within all regions per industry. Gini index takes values between zero and one, values close to zero indicate low specialization, and close to one, high specialization.

- **Gini coefficient for geographical concentration** [59; 126]:

$$Gini_i^c = \left(\dfrac{2}{m^2 \bar{C}}\right)\left[\sum_{j=1}^{m} \lambda_j \left| C_j - \bar{C}_i \right|\right] \quad (2.6),$$

where $C_j = \dfrac{s_{ij}^c}{s_i}$ (2.7), $\bar{C}_i = \dfrac{1}{n}\sum_i C_{ij}$ (2.8),

$$s_{ij}^c = \dfrac{E_{ij}}{\sum_j E_{ij}} \quad (2.9), \quad s_j = \dfrac{\sum_i E_{ij}}{\sum_j \sum_i E_{ij}} \quad (2.10),$$

and value λ_i denotes the position of the industry i in the ranking of C_j in descending order.

- **Ricardo model** for the relative productivity differences $TECDIF_i$ [59; 102]:

$$TECDIF_i = \sqrt{\dfrac{1}{m}\sum_j \left[\dfrac{\dfrac{VA_{ij}}{E_{ij}}}{\dfrac{1}{n}\sum_j \dfrac{VA_{ij}}{E_{ij}}} - \dfrac{\sum_i \dfrac{VA_{ij}}{E_{ij}}}{\dfrac{1}{n}\sum_j \sum_i \dfrac{VA_{ij}}{E_{ij}}}\right]^2} \quad (2.11)$$

The original formula is modified by using the same denoting the number of regions (c in original, n in this chapter of the PhD Thesis) and number of industries (n in original m in this

chapter of the PhD Thesis) to keep identity with the above formulae's meanings. The equation VA_{ij} measures value added, and E_{ij} measures employment of industry i at region j.

- **SCALE ratio** [59; 102]:

$$SCALE_i = \frac{\sum_j E_{ij}}{\sum_j NF_{ij}} \qquad (2.12),$$

where NF_{ij} number of enterprises of industry i at region j.

New trade theory predicts that scale economies cause firms to concentrate in certain regions and measured by the $SCALE_i$ variable. In this scientific work the calculations on $TECDIF_i$ and $SCALE_i$ variables are made only for the research's focus economy branches: agriculture and manufacturing.

2.3.2. Spatial economic calculations of specialization of the entrepreneurial activities in region

The author in the scientific publication in the proceedings of the International Scientific Conference "Economic Science for Rural Development" [115] presents the results from the analysis on the foreign control enterprises made from the official statistics [58]. The research comprises that the number of foreign control enterprises decreased in the entire economy of the Baltics in 2008 and 2009 entirely counting 34% drop in comparison with 2007 data. Lithuania experienced the largest loss of 45% and Latvia the smallest – only 5% from number in 2007. The phenomena is that generally comparing the foreign control enterprises statistics from the BSR region of 2003 and 2009 in manufacturing branch, all the countries gained the positive change: Estonia had 8% increase (15% down in crisis period), Latvia gained 32% (5% down in 2008-2009), Lithuania got 36% more of the enterprises number with the BSR capital original (24% drop in crisis years). In 2008 and 2009 Latvia's manufacturing branch enterprises dominantly controlled by BSR shared 20% for Sweden, 19% -Denmark, 18%-Germany. Russia and Lithuania, the closest neighboring investors counted 7% of each interest that is 5 per cent point less than Estonian share. According to reading of the Gini coefficient (see previous subchapter), the Figure 2.3 demonstrates a big difference in regional specialization rates of the commercial sectors among three Baltic countries.
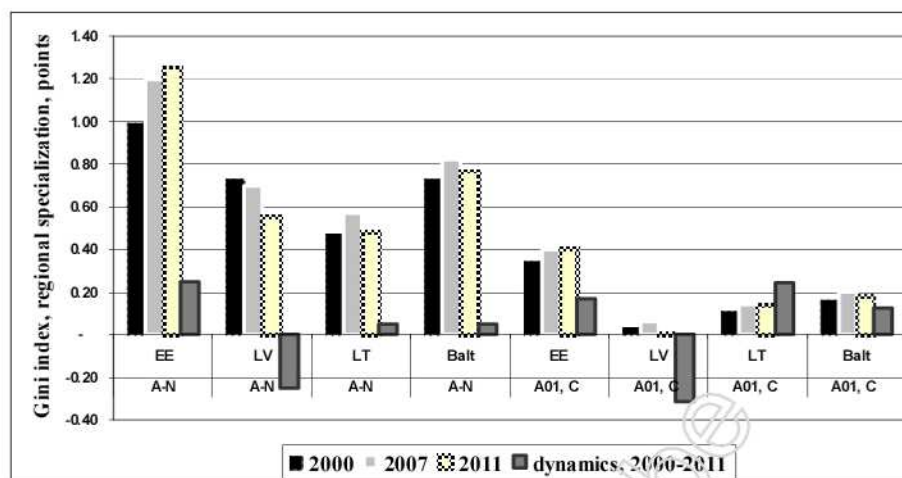
Fig. 2.3. Regional specialization chart of the commercial analyzed economy sectors in the Baltics according to NACE rev.2 coding in 2000, 2007 and 2011 [author's calculation and development]

The author concludes that Estonia gets the highest rate of Gini index reaching 1.20 point that accountably does not mean that the region is concentrated in one sector, but it is a consequence of the problem of statistical secrecy, when a region has less than two companies in a sector data are not available [59]. Entirely Latvia holds the second result among the Baltics regional specialization – 0.55 points in 2011. However, the economic crisis caused dramatic changes for Latvia by 2011.

Analyzing agriculture and manufacturing (A01 and C categories) in one context, Latvia has the lowest - close to zero rates of 0.01 points not even reaching the 2000 level. All 12 years Latvia had the highest relative industrial specialization R_i in trade and accommodation (1.40 in 2000, 1.34 in 2011), the lowest rate was fixed in services and transport (0.46 in 2000, 0.61 in 2011), manufacturing kept the fourth (1.00 in 2000, 0.83 in 2011) and agriculture the third result (0.99 in 2000, 0.90 in 2011). Lithuania survived the largest increase (25% up) in both sectors specialization rate in the Baltics. Estonia keeps leading position announcing moderate regional specialization in manufacturing and agriculture. The Estonian regional specialization in agriculture and manufacturing sectors survived the positive dynamics even in the period from 2007-2011, and Lithuania had minor difference of less than 10% down. Together with regional specialization in industrial and agricultural sectors Latvia looses the rating in the Global Competitiveness index.

Following Fig.2.4, currently due to the market stagnation construction has the smallest concentration result (0.18 in 2011). Average rate calculated for the Baltics is 0.78 in all the period is based on national statistical data [39; 96; 97] that is close to one that means high specialization rate (3 times higher than EU average fixed in 1994/1997 0.261 [90]). The calculations made judge that R_i and C_j meanings are identical because of the proportion levels off the basic data.
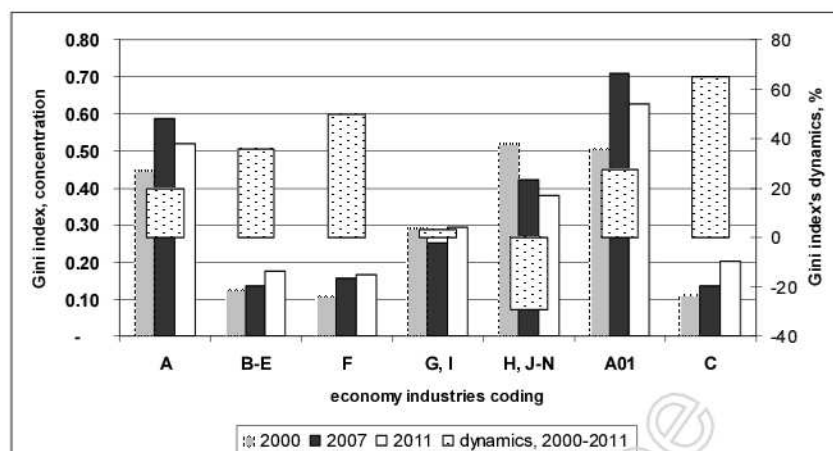
Fig.2.4. Geographical concentration of the commercial analyzed economy sectors in the Baltics according to NACE rev.2 coding from 2000 to 2011, [author's calculation and development]

The results fully confirm the thesis No.3 of the Dissertation: Latvia had a tendency of regional specialization decrease within the past decade among in the Baltics that might result in weaken the investments attractiveness and decrease of the competitiveness of Latvia among other Baltic countries. Krugman's hypothesis (see Chapter 1.1) is true for A01 and C NACE categories. For all the commercial branches together Latvia looses its regional specialization positions in a period of Latvia's integration into EU. $TECDIF_i$ ratio calculations resulted close to zero value. Thus Ricardian theory's predictions the higher the degree of regional specialization and the greater the level of geographical concentration of industry and vice versa completes the Latvian practice. The $SCALE_i$ ratio showed 56% slope down in agriculture to 7 persons per unit and manufacturing double decrease from 2000 to 2011 to the enterprise size of 18 persons. Such considerable changes scaling agriculture and manufacturing economies might be the consideration to efficiency revaluation as a consequence of industrial specialization decrease within the Baltic market low scales.

3. EMPIRICAL STUDY OF THE SPATIAL ALLOCATION OF THE ENTREPRENEURIAL ACTIVITIES

3.1. Empirical analysis on the choice of a feasible location for the entrepreneurial activities

3.1.1. Scientific foundation of allocation of the spatial economic objects

According to the empirical evidence, there are a number of reasons for the companies to assess the local market attractiveness to allocate the business. Determining an appropriate location's criteria might be influenced by a choice of headquarter, collaboration perspectives with the local authorities, the development plans of the administrative territory or location correspondence to the manufacture's requirements. The author has analyzed several problems in

assessing the consequences of the companies headquarters' decisions to enter the foreign markets: initial liability of foreignness; local collaboration issues; local tax policy and the advantages of the local natural resources' use; comparative advantage; relationship between the process of market integration and the degree of concentration of industrial activity in the territory; existence of a market for its product there and the prospects of substantial growth of that market; the specialization of the territorial unit considered in line with comparative advantages of location's geography, factor endowments and technology; the increasing autonomy of multinational enterprises subsidiaries; the endowment with skilled labor and inter-industry-linkages and other reasons [34; 37; 76; 80; 88; 89; 93; 95; 104; 105; 131].

3.1.2. The results of the research on a choice of a feasible location for the entrepreneurial activities in Latvia

The author worked out the structured non-disguised questionnaire presented in the Dissertation's Appendix 3. The main goal of the survey set is to detect the BSR manufacturing companies' approach of allocating their industrial or spatial economic objects. The author highlighted the following issues: the role of the market development stage and conditions; the main obstacles of choosing of the location and territory's planning and management, the companies' further strategic plans to the industrial location development.

According to the studied scientific works on the case of making survey and analyzing its results, the author concludes, typical to survey type carried by the author, the general dataset counts approximately 400 respondents. The internationally proved practice shows that the online surveys normally provide low response rate at over 15%, and the higher rates may be reached by reducing number of questions and sending reminders [5; 47; 77]. The method of conducting survey is the Computer-assisted web interviewing (CAWI) type or the online survey applying the Off the shelf tools to build a questionnaire. According to the respondent's request, in few cases the Computer-assisted telephone interviewing (CATI) method applied. Online survey method is chosen as the most efficient way of controlling the answers of a large quantity of the database set in a short time period. Greater anonymity rate as one of the advantages of the questionnaire [77] is taken under consideration even in the period when cases of information leakage had appeared in Latvia. Receiving the addressed written form of the questionnaire people consider it to be safe and take the opportunity of completing the survey when have time that cannot be allocated during the phone calls or direct interview. The qualitative and quantitative data request was made from the Lursoft database of enterprises according to the multistage sampling by the typological data set method [6; 13]. The author used the online professional business networks and personal contacts' database. Hence, the selective data set is 200 units. The survey was created and conducted in a period from December 2012 until February 2013. Restrictions in direct contact information, possible low business interest to the survey and fast changing market causing the bankruptcy of the current businesses in the short time period were the main implications of the survey's feedback. The author has finalized the research results from conducting a survey on a the following set of requirements: multinational entrepreneurs with the assets from the Baltic Sea Region of the large and middle scale working in the industries (mainly in the manufacturing

business) in the territory of Latvia. According to the selective data set and Table 3.1, the targeted majority of the respondents are the manufacturing sector's representatives allocated outside Riga.

Table 3.1

The survey respondents' structure [author's calculation and presentation]

Characteristics	Specific parameters	Respondents structure,	
		number	%
Companies' offices locations:	in Riga	15	37
Companies' offices locations:	outside Riga	26	63
companies' offices location in Riga, of which: Manufacturing branch	in Riga, C*	9	60
Respondents number: Manufacturing branch	C*	35	85
Respondents number: Electricity, gas, steam and air conditioning supply	D*	1	2
Respondents number: Water supply,sewerage, waste management and remediation activities	E*	1	2
Respondents number: Construction	F*	2	5
Respondents number: Wholesale and retail	G*	2	5
Average turnover per respondent (manufacturing branch) in 2010, million LVL	C*	6.8	-
Average year of starting business	-	1997	-
Average year of foreign capital inflow	-	2000	-
Total number of respondents	-	41	100

Note: * NACE Rev.2 code

The dominance of the Swedish, Danish, German and Norwegian share within the spectrum of the respondent companies' financial capital is fixed. The presence of the local capital in the companies' assets is justified by the joint company ventures and for the survey there is an evidence of the local investors' opinion to compare with the foreign assessment. The summary of the answers to the most remarkable issues concerning attractiveness of the Latvian market, locational factors and target market territories of the questionnaire are given below.

According to the results presented in Table 3.2 the importance of such factor as advantage of geographical location of Latvia is among dominant in general, but looses its importance in comparison with other reasons by the period of developing the business of the company in Latvia and open boundaries by joining the European Union, because the enterprises create the partnership and stabilize position on the market. Despite decrease in assessment (5 percent points down in comparison to value since 2000), the labor costs in Latvia today are low comparably to the west European countries, the investors from Germany, Sweden, Denmark, Norway and Russia pointed that. Recent development of transport infrastructure in a country had influence on its higher value among important factor to do the manufacturing business in Latvia. Environmental climate is among the essential issues for the manufacturers, and the conditions are assumed with inconsiderable change down for the further planning period. That might be explained by the new directions to industrial organizations to stimulate modernization of used technology and equipment, e.g. the Law "On Pollution" [9], but the old manufacturing premises

and equipment acquired by the aforementioned investors need continuous financial resources for innovation.

Table 3.2

Structure of the answers on the important macroeconomical factors, weighted average, in percents [author's calculation and presentation]

Factors/Value	When starting business, %	Further tactical planning for period of 2013-2018, %	Dynamics, percent points
Proximity to markets/ advantage of geo-location of Latvia	80	70	-10
Labor costs (low wages level)	72	67	-5
Traffic access	62	71	+9
Availability of labor (skills, supply)	60	62	+2
Industrial climate/ low competition level	59	52	-7
Environmental climate	56	55	-1
Tax policy	52	54	+2
Proximity to raw materials	52	55	+3
Local raw materials costs	47	49	+2
Sources of bank financing	47	54	+7
Availability of local R&D resource	38	43	+5
Other factors	69	-	-

Due to market globalization and local natural resources limitations many companies do not use the local raw material at all. Hence, the score to the proximity and costs level of the local raw materials are not measured at highest importance. Among the attractive business environment the regulated politics, low crime and considerably low costs of local market in comparison to homeland market were named. 24% of the respondent companies rent the industry premises in the industrial parks in Latvia, and 22% of the survey's participants has changed the industrial locations. The manufacturing companies have two industrial locations and occupy the land of 3.7 ha size and 8,300 sq.m industrial premises on average. In particular, about 35% of the respondents currently have the land plots of over 3ha. According to the acquired results, the existing of the brownfield was the most positively measured by the foreign investors when choosing the industrial location.

The other reasons did not indicate big dominance, but proximity to the partners and customers in support to the advantageous geographical location of Latvia are evaluated almost similar at the highest score. Zoning regulations and community factors are assessed with the lowest score (see Table 3.3). The majority of the respondents are satisfied with the chosen industrial premises. Explanation is that the decision on assessing the locational factors is mainly considered by the headquarters. Compared to the professional market information [99], the manufacturers share choosing industrial premises of larger than 5,000 sq.m are represented by Danish, Estonian and German investors.

Table 3.3

The factors determining a permanent solution to choose the existing industrial location, weighted average, in percents [author's calculation and presentation]

Factors definition	Factors value from the responses, %
The best fit to the requirements of the premises	54
Proximity to business partners	34
Proximity to customers	34
The only decision of the headquarters	32
Proximity to raw materials	29
Zoning, other regulations	24
Community factors	12

With regard to that perspective, the Swedish, Finnish and Estonian manufacturers plan expansion of the current premises. Taking into account the influence of stagnation in the commercial real estate market, the companies do not plan big changes for the nearest five years and even there was no confidence and positiveness from the local representatives of the companies on the strategic planning within a middle-term and even for a longer term period.

88% of the respondents declare that they have plans for business expansion, however, this does not refer to the land size, in general a small decrease can be expected (1,000 sq.m less) due to 2% decisions of the production cutting and 5% of closing business and moving assets to another country.
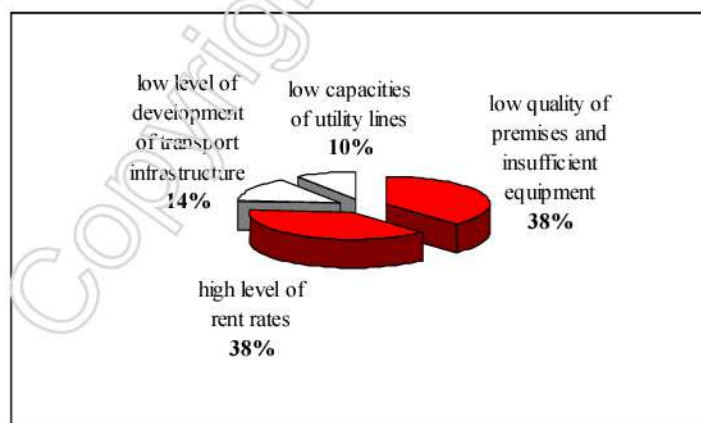

Fig. 3.1. The reasons for the Company to change any of its existing location within the next five years [author's calculation and presentation]

Characteristics of the premises, due to certain limitations, of located in industrial parks or the old factory buildings are mentioned as the main negative factors that influence Company's decision to change the current location. Transport infrastructure, due to still low quality of the road connections in Latvia and low capabilities of utility lines, are the second reasons named (see

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Fig.3.1). For the carried survey, the author marks that according to Le Bas and Sierra study's results the companies from Denmark, Germany, Norway and Sweden where R&D activities are aimed at monitoring or acquiring competitive advantages which are complementary to those already possessed by the firm (strategy No.3) [56; 80]. In support to the thesis statement of the Dissertation, Table 3.4 confirms the statement of business collaboration activity with close neighbors (27% from the Latvian subsidiary and 28% from the entire concern) is lower than with longer distances (Radius 2 gets 33% and 40% respectively, 18% are the outside the borders of the marked radiuses).

Table 3.4

The Latvian branch's business activities' markets, in percents [author's calculation and presentation]

Analyzed radius area	Radius 1 (BY, EE, LT, RU)	Radius 2 (FI, NO, PL, SE, UA)	Rest target markets/ countries	Domestic market (Latvia)
Target products' realization market structure, Latvian branch	27	33	18	22
Target products' realization market structure, entire concern	28	40	18	14

The results of the conducted survey confirm the stated thesis statement of the Dissertation. The companies hardly agreed to give their assessment of the business development perspectives for the five years period, in the majority of cases a vision is developed to a maximum for the nearest two-three years that corresponds to the short term planning. The real estate and manufacturing market has a short-term character. So far Latvian specialists are not ready or do not have the permission to independent management of the subsidiaries. Headquarters have dominant role in industrial location evaluation (reflects thesis No.4 of the Dissertation). Latvian consumer market has low attractiveness (tax policy, skills of local specialists and raw materials are the weaknesses of the local market). However, foreign investors suggest high potential of the local market due to low level of labor cost, transport infrastructure development, financial liabilities aspects. The industrial entrepreneurial activities allocation meets secondary market limitations, have interest to the potential collaboration and expansion of the target market borders with the close territorial partner states of Latvia.

3.2. Solutions of spatial economic allocation of the entrepreneurial activities for the foreign investors

In the last 20 years the Latvian economy had wide fluctuations: from minus 32 in 1992 to plus 12 in 2006 and minus 18 per cents in 2009 of GDP growth. Recently Latvia could be assumed as a hazard place to investors, because it was rather hard to predict its future. The rapid and unbalanced development strengthens the threats of sustainable development of national economy and increases the recession possibility [129]. Now when Latvia's external public debt is

increased by the credit liabilities to the international lenders, the local economy is expected to be more predictable and consistent. However, sustainable development and land use efficiency are the same important issues as to the developed economies. The direct investment factor allows valuing the country's attractiveness and its activity ratio. There are two major investment flows measuring the entrepreneurial activities – foreign direct investment into a country and outward investment volume. With a continuous flow of FDI, the competition effect on local market first dominates but is gradually outweighed by positive externalities effects [30].
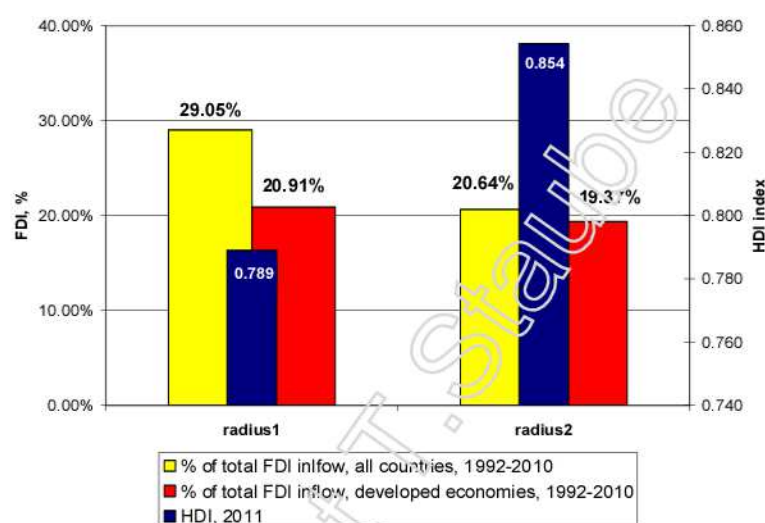

Fig. 3.2. Cumulative Latvian FDI in 2010 and HDI index in 2011 focus geography [author's calculation and presentation]

In the past decade Sweden's economy was one of the leading in the world, and among the European TOP 10 countries by the GDP per capita ratio. For Latvia Sweden is a major investor. Analyzing the country investor's share the author chooses the average ratings of entire annual cumulative foreign direct investments for the period from 1992 up to date. The official statistics [39; 121] shows that the closest neighbor-countries have lower Human Development Index (HDI) rating than the partner countries from the aforementioned second cooperation and impact radius (see Fig.3.2). The developed economies' investment assets in Radius 1 are gotten from the only share of Estonia - 21%. In Radius 2 the biggest share of FDI flow originates from Scandinavia: Norway, Sweden and Finland accounting above 19% from entire cumulative FDI into Latvia in 2010 since 1992. Sweden takes 46% of this value.

Correlation between economy growth dynamics and FDI flow

The Swedish FDI positive changes call out the further GDP growth dynamics [39; 58]. Sweden invested into the developing Baltic economies most actively in the second and third year of the target countries' GDP growth. The financial crisis coursed the prompt capital outflow of the investigated Swedish assets and its reallocation. The Lithuanian scientists facilitate forecasts of possible trends of fixed investment and corresponding economic growth [127]. Sweden has increased the assets the stable economies countries (those average GDP growth was in 1 per cent

positive span from the EU-27 average in the period from 1990-2009). However, in developed countries the GDP growth is a reason of freezing at the achieved level, it may be followed by the significant resource price increase and yields decrease. In general, the average Swedish investment activity and FDI assets into Sweden change within two territories have similar dynamics. The wider fluctuations in the Radius 2 of Swedish territory cooperation and impact radiuses (Radius 1 includes FI, NO and DK; and Radius 2 covers UK, NL, BE, DE, PL, EE, LV, LT and RU) are consequent of the external factors influence as expansion of the EU and financial crisis. Apparently, the area of the Radius 2 is more than twice larger. The most part of it is continental providing wooded territories.

Territories land use particularities and FDI flow

From the construction statistics, the Netherlands (13%) and Belgium (10%) have the largest shares of land covered with built-up and other artificial areas also among the entire Europe. From the built-up territories scale UK as well as Poland are equivalent with Sweden. Norway has twice as less built-up areas and bare land than Sweden, but almost similar population density to the eastern neighbor-country. The highest rates on the land take of economic sites from total country area in the period from 2000-2009 is in Netherlands 1%. In this period the country's construction and urban land management increased. The annual land-cover changes in 10 years are similar in Finland as well as the Baltic countries and Sweden. Estonia had the biggest change of urban residential land take from total area in the past decade, from three Baltics economies Sweden has invested most in this country. The member states with the highest shares of areas used for residential, commercial and industrial purposes in 2009 are the Netherlands (37%), Belgium (25%), Denmark and the United Kingdom (both 16%) and Sweden (15%).

The top of Swedish direct investment interest countries ratings in the continent of Europe in 2009 can be characterized as highest annual land-cover change (Finland) and land take of economic sites (Netherlands) from total radius area. The Netherlands have highest built-up area, as well as commerce and residential, as well as industry energy, transport and mining areas percentage, the highest population density in radius. The Netherlands has high resources productivity rate and is among those European countries which industrial production index showed surplus in 2005 prices. Finish industry showed best results in 2009 in radius, its industrial production index was even higher than in Sweden. Despite increase of Swedish investment stock in 2009, Norwegian industrial production index showed negative change in the further 11 months.

Sweden looks for the strategic locations with growth potential. Direct investments assets focus is for the service industry. The countries with low resource productivity and increasing population density might attract the interest of Swedish investment assets. The paces of the urban and economic sites development may be slowed down by the natural limitations of the territories. Sweden would choose the locations with site expansion opportunities. The built-up territories might offer ready to use opportunities meeting the modern requirements like infrastructure and mixed-use, logistics and industrial areas development built-to-suit or designed for letting. Together with the large spatial economic objects the small services inland with high quality are required to accompany the multinational level companies in Scandinavia with subsidiaries in East Europe and Russia. Sweden has long traditions of professionally developing high technology inland and abroad. In case of offering the allocation for the subsidiaries of the Swedish

companies the target country might have enough energy and construction capacities as well as flexibly and open-minded human resources. The potential to grow of the developing country and its readiness and interest to international collaboration are higher driving forces than current GDP growth for Swedish investments.

Concluding the above mentioned assumptions with the purpose to generate the Latvia's potential to attract the larger investment assets from Sweden the informative logical model of spatial economic allocation of the entrepreneurial activities for the foreign investors is worked out by the author and illustrated in Fig.3.3.
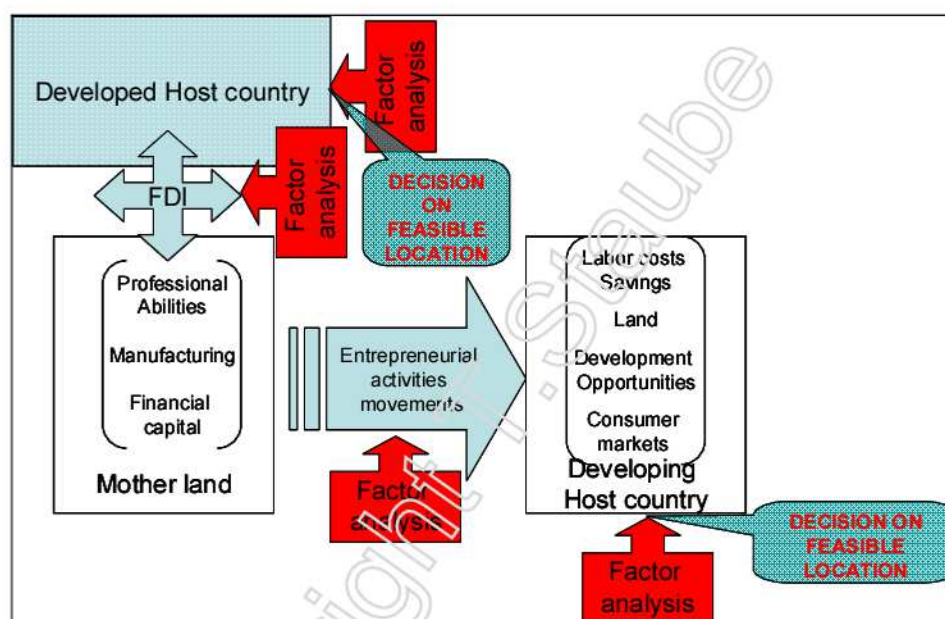

Fig. 3.3. Informative logical model of spatial economic allocation of the entrepreneurial activities for the foreign investors [author's development]

According to the information provided above and the presented model in Fig. 3.3, Swedish investors act purposefully by making sound analysis of the factors and comprehensive planning of possible changes in the market before moving entrepreneurial activities to the particular. The next subchapter describes the range of these factors to assess the spatial economically feasible location for the entrepreneurial activities.

3.3. Practical approval of the model of spatial economic allocation of the entrepreneurial activities in Latvia

The given part of the research is presented as a practical approval of the developed informative logical model of spatial economic allocation of the entrepreneurial activities for the foreign investors. The author adapts the developed model for the Latvian commercial real estate market on a sample of the large-scale shopping centres as secondary analyzed properties in a

context of the subject of the PhD Thesis. The author presented Figure 3.4 in the 20th Annual Conference of the European Real Estate Society.

Fig. 3.4. Interactive integrated planning model [author's development]

It illustrates the coherence and interaction between the levels of planning presented by its overlaps to point to the need of consistent development of the real estate objects according to the local territorial development plans, followed by its conformity to the regional economic development goals, which are coordinated with needs of the society and corresponding the traditional local economic sector's development of the state, and in turn a presence of the general planning's dependence on the entrepreneurial activities and investors participation in real estate business development that bring the entire economy development as it was given in the previous subchapter. In other words, for the industrial business unit the author assumes that the investor and developer might make a detailed comprehensive study on the current development and future potential of the local market within the global aspect to bring the demanded or challenging business activities into the certain location in a certain country that corresponds to the needs of local society and brings profit at the middle and longer term time frame.

The best selection of the most feasible potential sites of the large-scale shopping centres can be achieved in accordance with the analysis method, which mainly focuses on detailed selection of economic indicators and facilitation of research defined as *factors of the economically feasible spatial arrangement of business activities* and described within the further set of analysis:

1. **Analysis of the socio-economic aspects of the selected area and its surroundings**

    1.1. Population statistics, dynamics and forecasts

1.2. Existing and potential households' purchasing power and its breakdown by social groups

1.3. Employment level and forecasts

1.4. Current and planned economic infrastructure (transport, connected business object placement)

Much attention has to be paid to pedestrian and car traffic flow in major and adjacent streets (especially for the retail property).

2. **Market Analysis**

   2.1. Detailed research of current competitors

   2.2. Analysis of potential competition (SWOT)

   The following aspects should be analyzed at the macroeconomic level:

   2.3. Statistical data sampling of macroeconomic indicators

   2.4. Legislation

   2.5. Activities of existing wholesalers and investors in the market

   2.6. Environmental, including climate change data

   SWOT (Strength, Weaknesses, Opportunities and Threats) analysis of each competitive object has an important role in this section. That is a practice applied by professional research and consultancy organizations. The author suggest to complete the analysis by PESTEL (Political, Economic, Social, Technological and Environmental factors, including climate change factors) or STEER analysis (Socio-cultural, Technological, Economic, Ecological, and Regulatory factors) when adaptation of new formats of the real estate objects is done as the cultural identity is of particular significance for Latvia.

3. **Analysis of potential land resources**

   3.1. Description of the location/site

   3.2. Physical parameters of the land plot

   3.3. Requirements to the real estate development and construction parameters

   3.4. Review of the permitted construction parameters, including the density of construction, communication infrastructure capacities and groundwater levels

4. **Profile and physical characteristics of the envisaged real estate property**

   4.1. The total area of commercial space and rental value of it

   4.2. Quality characteristics of the commercial property (according to the headquarters requirements)

   4.3. Parking capacity

   4.4. Planned potential turnover

   4.5. Characteristics of the target customers

Doubtfully, the above-mentioned factors may be included in the large databases to build the Discrete Choice Models (see Chapter 2.1.2) to carry the feasibility studies of the spatial economic objects. Analyzing the development perspectives, the investor would be willing to examine such data as the existing economic situation, which, in case of the state of Latvia, would mean the primary necessity to analyze the commercial real estate market of the capital city.

In line with the development of the real estate economy and real estate market of Riga, the investors' interest to build the large-scale shopping has been attracted to the locations with following characteristics:

- Close to the historical cultural and business centre of Riga (over 120,000 constant inhabitants plus over 80% daily potential consumers) with intensive pedestrians and transport flow;
- Residential areas of:
  a. high employment rate (over Riga's average),
  b. high population density (highly populated residential areas)
  c. population explosion (one of the reasons new dwelling projects realization);
- next to transportation connection points (bus station, central railroad station);
- attached to centrally located or roadways (Brivibas, Krasta and Barona Streets);
- in the large-scale non-built territories on the edge of residential areas;
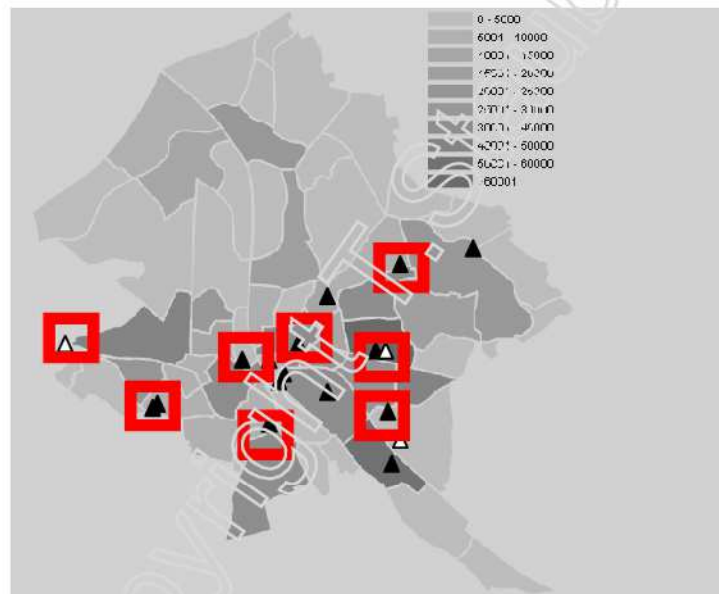- in the old factories territories.

Fig.3.5. Assessment map for the current large-scale retail properties locations in Riga
[author's development]

Note: White dots are new projects and black dots – existing locations; red line squares – current accessibility limitations.

The city itself is also divided into the core business and peripheral or supportive function's districts. The Daugava River from the consumers' perception in Riga is a physical obstacle, which one needs to overcome to reach the over-the-river location of the shopping centre. During the developmental expansion of Riga, two shopping regions are evident: Pardaugava (Daugava River's left coast) and the right bank of the Daugava River, thus facilitating satisfaction of the demand and change of the purchasing traditions for the most part of the potential consumers. However, the majority of the presented retail real estate property faces certain accessibility limitations (Riga Plaza, Olympia, Domina Shopping and others) even new projects need detailed

remodeling of existing infrastructure. The analytical map in Fig. 3.5 is developed on the analysis of information gathered from the official statistics [2; 4; 51; 52; 83; 100; 101; 103; 107] according to the above-given characteristics. It is illustrated by the author in the scientific publication in the Business Systems and Economics Journal [114].

Table 3.5

The large-scale shopping centers' market saturation in Latvia, [author's calculations and presentation]

Region	The total GLA of the shopping malls, sq.m per 1,000 inhabitants		
	Year 2008	Year 2010	Year 2015
Latvia	158	177	308

Note: Eurostat forecast of entire Latvian population in 2015 is adapted

The large-scale shopping centres real estate market has reached the saturation phase (see Table 3.5). The author's complex calculations from the official statistics [2; 4; 42; 51; 52; 58; 83; 100; 101; 103] and presented in the scientific publication in the Proceedings of the International Scientific Conference "Economic Science for Rural Development" [116]. Riga's agglomeration expansion causes more qualitative than quantitative market changes. The issue of retail trade internationalization's level and its assessment that according to Vengrauskas and Rudienė is relatively poorly examined by the scientists [130] possibly is a cause of the Latvian retail real property market's misbalance.

The statistics showed the planned increase of the analyzed market stock compared to 2008 is about double that is rather ambitious (680,000 sq.m planned stock in 2015). The current stagnation in commercial real estate market might cause the longer delays in the projects realization terms. The author assesses there is a trend in the Latvian retail real estate market that the planned stock of the large scale shopping centres expected to be built following the large retail parks formats is been compensated by increasing rivalry within a network of the local hypermarkets locations in residential areas. Hence, about 50,000 sq.m of ready constructions was delivered to the market in 2011-2012 [15]. Half of this is calculated by the author as the large-scale shopping centres stock according to size of GLA. According to the research data based on the deep analysis on the current stock of the large-scale shopping centres real estate market, the saturation phase in Riga has already been reached before 2007. Apparently, it is hard to stop the integration process of the international retail chains into the new markets. The European international scale retail chains carefully build the work on practical and rational basis. The rivalry forces the local operators to join into the associations. The Polish scientist determines the retailers focus on local and spatial aspects [81]. The target customers for Riga's large-scale shopping centres according to the close location and high disposable income level are the Riga's suburb inhabitants. The author assesses the opportunities for the large-scale shopping centres by increase of its market share towards regional directions. Making comparison on the same ratio to Riga in 2011 the author concludes that currently the Western direction is the most appropriate for the potential locations of the large format shopping centres. A scale of the Latvian state is rather

small in comparison with the rest of Europe. The local real estate market expansion is a pace towards consolidation of the Baltics. So, the retail parks require increase of Riga's agglomeration especially in the current situation, when weakness of the regional development is obvious. The central location of Riga with suburban area in Latvia might attract customers from different destinations as large shopping location at the Baltic scale.
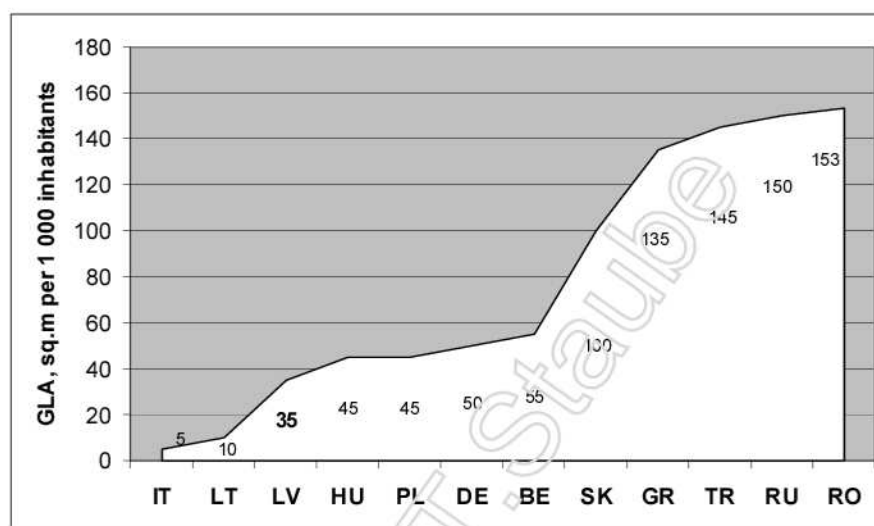

Fig. 3.6. Potential large-scale shopping centers real estate market density in Europe [author's calculations and development]

According to the results of the market analysis provided by the worldwide real estate consultancy Company Jones Lang LaSalle (see Fig.3.6), the density of the European commercial retail market is approximately 170 sq.m per 1,000 inhabitants [116]. This is the leading indicator among the professional developers of the shopping centres and investors when looking for territories for the new projects. The barometer of this activity shows that there are almost more than 455 million people (under the provision that the population number stays constant) at the territory of the potential development. Under the provision of average density of the European commercial retail market, while planning large format commercial objects, their number may reach 4,400 projects. For its part, Latvia would have, in addition, approximately, 80,000 sq.m of total commercial square area [116].

The collaboration with the foreign investors caused the improvement of professional knowledge of the local market specialists. The research on the large-scale shopping centres's market density increase in Latvia results the surplus of the commercial leasable area in the medium-term, but international market become optional for the Latvian specialists to develop new real estate objects professionally and attract interest for the international partners for opening business in the territory of Latvian state. The above-mentioned Lithuanian scientists state that the country's policy could be adjusted with regard to international manufacturers' involvement in the domestic retail business [130]. The author agrees to this statement when the local market professionals and politicians exchange the experience and actively create the business area, not

selling local business but supporting it for the further development and considering the lately marked by Camagni from a multidimensional concept, the territorial identity involving local know-how and specificities; competitive advantage of each territory [36]. Latvia is on the way of getting knowledge and experience on the customers' satisfaction and retail outlets' strategic allocation in the contemporary market conditions under the pressure of intensification of competition. Finalizing the research results in the current Chapter, Latvia has wider opportunities – it may adopt larger spectrum of high-class real estate property, has space for it, may increase the catchment area, support business and provide appropriate infrastructure, but currently it is limiting itself by weak spatial economic aspects and strategic planning.

CONCLUSIONS AND PROPOSALS

On the basis of the conducted research the thesis statement posed that *"in a process of spatial economic allocation in compliance with considerations of the climate change, a permanent development of the entrepreneurial activities of commercial real estate market in the Baltic Sea Region is facilitated thus preventing the short-term current imbalance in the local commercial real estate market"* is supported by the following conclusions and worked out scientific solutions for the spatial economic allocation:

1.   Nowadays to facilitate the development of the economy after the world economic crisis, the multilateral work at documentation of the strategic and tactic activities planning takes place in Europe and Latvia to continue of the Lisbon Strategy's and National Lisbon Programmes' development and supplementation. Among the main reason of there is no common spatial planning system within Europe is a difference and a weight of the countries' national planning systems and legislation.

2.   Development of the concept "spatial economics" is closely related to the globalization the development and reallocation of resources during the process of movement between countries. The content of spatial economics during the last twenty-five years has been widely studied. Within the framework of analytical literature, this concept is not strictly defined, but quite a large number of scientists has been working to reveal its contents. Therefore, the author has summarized the factors that make up the essence of the concept of spatial economics, identified its content and has developed a definition of the spatial economics.

3.   Very serious attention is paid to the climate change processes in the world. Climate change may be the result of natural processes as well as human activity. Changes in climatic conditions may change the country's economic development priorities. Objects of industrial significance are among theose commercial real estate market facilities, the operation of which even a short period of time can affect changes in the composition of the air, water and land. Average temperature increase, of the atmosphere is among the most important devastating natural processes which may lead to an increased risk of forest fires, soil fauna changes affect soil structure and fertility, spread of plant diseases and pest species. Therefore, this factor has been taken as a determinant in the development of *the algorithm model of the forecasting a supply of the spatial economic objects* created by the author.

4.   The author suggests an interaction of three groups of business areas highlighted in the study create the functionality of the territory of Latvia: 1) manufacturing and agriculture, 2)

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commerce and services, and 3) construction as a support industry, which in total significantly influences the development of real estate in Latvia.

5.   The author has developed *the algorithm model of the forecasting a supply of the spatial economic objects* and has made estimates for the high-class industrial real estate premise supply in Latvia. The author has not found any similar approach in the scientific and practical literature.

6.   The algorithm model of the forecasting a supply of the spatial economic objects can be primarily used in developing countries, as the particular model suggests changing the traditional approach to the development of the economic models and making a comparison between countries with regard to potential changes in climate. Manufacturing and agricultural sector projections of the economy of Latvia are based on the evaluation of the development of the Czech Republic and Sweden.

7.   According to the Czech scenario considered as impetuous development the current manufacturing capacities correspond to 53% of the current Latvian stock of the industrial real estate market properties demanded in Europe.

8.   Making calculations in comparable prices, according to the Latvian National Development Plan the compound average annual growth rate of the manufacturing by 2020 might increase at least twice in comparison to the research result. Comparably small territory of Latvia and favorable geographical position could be considered as advanced factors for the facilitation of rapid change in the economy and a significant increase in industrial turnover, but the current amount of commercial real estate market supply and the quality do not correspond to the existing demand, as evidenced by the increasing number of construction objects suitable for the company needs (built-to-suit) in the last decade in Latvia. Therefore, the author concludes that in the medium term it is economically feasible to stick to the small changes in business activities having medium growth pace (1.01 times more than during the analysis period), but to ensure conditions for 1.72 times high-class industrial real estate market supply increase, improving the quality of the local market industrial space, infrastructure and other factors in accordance with the definition of *factors of the economically feasible spatial arrangement of business activities* developed within the framework of the PhD Thesis.

9.   Estonia has the highest regional industrial specialization rate in comparison with other Baltic States, therefore, this country seems to be more attractive for cooperation and business activities. The opposite, Latvia and Lithuania compete within a potential to attract the investments attractiveness into authentic economy branches development. The research provides the data for the thesis No.3 of the Dissertation considering that Latvia has had a tendency of regional specialization decrease within the past decade among in the Baltics.

10.   In accordance with the research data, in the period of 2000 to 2011 the economic crisis caused the considerable changes of regional specialization of the manufacturing in Latvia among the Baltics. Weak current regional specialization in Latvia, low economy concentration and productivity level make the author concludes the middle term is early to judge about the stable and balanced economic development opportunities.

11.   There is a lack of consistency in a list of the Latvian official documentation in the field of the real estate development. Introduction of the new projects and inability of the real estate market to absorption and supply the demand of the foreign entrepreneurs for the modern

commercial real estate property with developed internal and external infrastructure. At the same time a number of the degraded territories rise. The author concludes there is a random resources allocation and a trend to the new documentation creation without deep factors analysis in Latvia.

12. Finding solutions for the economically feasible spatial arrangement of business activities facilitating increase in investors' interest is topical and unresolved area. According to the Spatial Planning Development Law in Latvia, cyclical pattern of the process of the spatial planning development creates conditions to its relevance by appearance of the new technology that might contribute for availability of new information, creation of new cooperation and collaboration network.

13. According to the research results, Swedish investors assign the assets for the development of the real estate properties with expansion opportunities with ensured utilities capacities and infrastructure. The countries with low resource productivity, increasing population density and a higher than in Latvia share of the built-up areas used for the commercial purposes might attract the interest of Swedish investors. The focus industry of their direct investments assets allocation is the service industry, and the capital inflows into the manufacturing in Sweden is comparable to the Swedish assets volume into this industry development abroad.

14. With regard to the results of the PhD Thesis, the author points to the local real estate market development trends and characteristics, including the potential for the increase of the requested medium size premises, range of the foreign investors' projects (the emphasis is put on the development of service industry, but significant number of the projects applied for investments has not been implemented yet), existing secondary market space quality incompliance and insufficient utilities capacity.

15. Contemporary geographical information systems allow modeling the complex spatial development planning scenarios under the dominance of a certain component or a group of factors. Territorial development and cohesion is a multidimensional concept with at least three main components: territorial quality, territorial efficiency, and territorial identity.

16. According to the results of the *carried survey on the industrial location assessment in the context of the multinational enterprises in Latvia*, the companies hardly agreed to give their score to the business development perspectives for the five years period, in the most cases a vision is maximum for the nearest two-three years that corresponds to the short term planning. The author of the research concludes that so far Latvian specialists are not authorized to autonomous management of the subsidiaries. Headquarters have dominant role in evaluation of the location of the spatial economic object. Latvian consumer market has low attractiveness due to the following reasons named: insufficient level of skills of the local specialists, tax policy poorly supporting development of the business activities, and low use of the raw materials in production process. However, the foreign investors suggest high potential of the local market due to low level of labor cost in comparison with the countries of the company headquarters, transport infrastructure development, and financial liabilities aspects. Zoning regulations and community factors are assessed with the lowest score among the factors determining a permanent solution to choose the existing industrial location.

17. According to the resume on the opinions of the businessmen from the carried survey and presented in the Dissertation, the entrepreneurs express their readiness to involve local

professional and academic staff into the finding solutions on the research and development issues, but the current activity is low.

The Dissertation presents the research results intended for a wider audience and aimed at establishment of a dialogue with the representatives of the academic environment, professionals in regional and real estate development, developers and investors who are looking for solutions for similar issues.

Based on the aforementioned significant findings of the PhD Thesis and provided solutions, the author has developed the following formal proposals to facilitate the balanced long-term development of the entrepreneurial activity system in Latvia:

1.   As creation and integration of the European spatial planning coordination model is a long-term process (up to 2030) due to the different economy development stages and styles of spatial planning with different ways of governance of the countries, that time might be used to holding back the supplementation of legislation, and focusing the efforts on matter of supporting the entrepreneurial activities in the middle term by tax policy, developing transport and utilities infrastructure. Educating the society, efficient resource relocation and use of the monetary sources might enhance the activity of the business activities in the territory of Latvia.

2.   The author proposes academicians to use the following developed novelties to supplement the theoretical basis in the field of spatial economics: *informative logical sequence model of a historic view on legal aspects of the spatial economic allocation of the entrepreneurial activities, summary of the determining factors of the spatial economic allocation of the entrepreneurial activities, informative logical model of spatial economic allocation of the entrepreneurial activities for the foreign investors, interactive integrated planning model and factors for spatial economically feasible location for the entrepreneurial activities* determined.

3.   Placement and location of the commercial real estate objects of the industrial purpose is closely related to the national priorities and economic development, therefore, according to the developed *the algorithm model of the forecasting a supply of the spatial economic objects* created according to the potential climate change and economic development, the author sets forward to the Ministry of Economics and the Ministry of Environmental Protection and Regional Development to use the climate change instrument to make the forecasting for the economics and regional development.

4.   The author suggests to the responsible authorities to bring the forecasting of the development of the Latvian commercial real estate market on the comparison to the countries of more progressive economy development (in the Dissertation – Czech Republic and Sweden) than it is used (in the post-soviet countries and the Baltics), and assess the local resources and domestic land potential under development perspectives of industry and agriculture sectors and the context of support and stimulation of the spatial economic allocation of the entrepreneurial activities in Latvia, applying new models creation in Latvia of the recovery of the economy on the basis of a foreign practice of the collaboration models between the countries and business units.

5.   The author proposes to the local and foreign scientists to evaluate the adaptation of *the algorithm model of the forecasting a supply of the spatial economic objects* also outside the borders of the Latvian real estate market for forecasting economic projections as well as to assess

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promotion of the climate change factors complex calculations within the framework of the algorithm model of the forecasting a supply of the spatial economic objects.

6.   According to the result data, rapid increase in the manufacturing capacities in the middle term is not forecasted, but high-class industrial space volumes will significantly increase that is reasoned primarily by the demand on the service industry development in Latvia (warehouses, logistics and flex type objects development).

7.   Among the recommendations for the facilitation of the science and complementing the scientific and practical solutions and performing comparison with other empirical research, the author recommends to local and foreign scientists to apply *the Gini coefficient application method as one of the solutions for determining and assessing the degree of specialization and regional concentration of leading entrepreneurial activities*. Author proposes to use this data as one of the analytical instruments for the facilitation of the industrial policy of Latvia.

8.   Due to globalization, but taking into consideration the small scale and advantageous geographical location of the Latvian territory in the process of globalization within i*nformative logical model of spatial economic allocation of the entrepreneurial activities for the foreign investors*, the author resumes that there is a need to expansion of the scales of the target market of the industrial products' realization and decrease of the influence of Riga's agglomeration, support regional development and strengthen the entrepreneurial relationship within the *territory's cooperation and impact radiuses* determined in the Dissertation. According to the research results, the amount of largest investment Latvia is attracted from the countries outside the analyzed radius, which is a typical feature for the countries having the dominant policy for deployment of foreign investment abroad, for instance policy of the Kingdom of Sweden since 1998. According to the survey results, the major business activities with regard to the distribution of the goods are carried out within the second radius or outside the borders of the neighboring countries. To the responsible authorities it would be necessary to stimulate the creation of the multinational manufacturing companies with the assets from the Baltic Sea Region in Latvia. This would contribute to rational and balanced development of Latvian commercial real estate market is in a long-term.

9.   The author has worked out the questionnaire "Evaluating an appropriate industrial location for multinational enterprises" and organized the online interviewing system, which can be used in the training process and/or carrying out similar professional surveys.

10.   The author suggests to the Latvian government and local authorities, for the foreign partners the land defined for the commercial use in Latvia shall primarily be available for rent not for the ownership, targeting the tax policy to support the business activities, offering the allowance for the existing and new companies in the manufacturing and industrial field in the middle term.

11.   To the local companies of the commercial real estate market (developers, real estate management services and others), manufacturing and construction companies the author recommends to apply the strategic management systems.

12.   To create the business environment in Latvia in support to the long-term entrepreneurial activities, a set of up-to-date tangible and reliable information must be developed and managed to easy analysis and data availability to the real estate market professionals and their partners. The

author recommends to develop the unified data base on the existing GIS of the State Land Service and Investment and Development Agency of Latvia, to improve and increase its capacity (according to unofficial information the existing capacity of the SLS data base system is not sufficient for the quick processing) involve the private real estate databases and add the determinants to existing data set to visualization of information according to the proposed scope of *the factors of the economically feasible spatial arrangement of business activities.*

13. The management of the Latvian state universities must increase involvement of the specialists' role from the professional and academic field into the strategic economic planning process of the territory of Latvia and neighboring countries.

14. The author suggests to the responsible institutions to ensure decrease of the society involvement into the process of construction and commercial real estate development that often create the obstacles and delays in the facilitation of the entrepreneurial activities. The concernment of the inhabitants into the development of the industrial real estate properties must be increased by educating and informing people about the targets and provision of the work results, creating jobs for the local inhabitants in those objects. The professional educational opportunities must be provided and the social support programmes developed under collaboration of those new enterprises. Those measurements might create social and economic support for the spatial economic allocation of entrepreneurial activities in the territory of Latvia.

BIBLIOGRAPHY FOR THE SUMMARY OF THE PhD THESIS

1. Geipele I., Fedotova K. Stratēģiskie pārvaldības lēmumi: preces izplatīšana tirgū, mārketinga loģistika, merčendaizings. – Riga: RTU Izdevniecība, 2007.

2. Golubevs R. Mārcis Budlevskis. Mazumtirdzniecības biznesa nianses. // Varianti.lv. 2008. / Internet. - Retrieved from http://varianti.lv/sakums/articles/show/375. Access: September 5, 2009.

3. Klimata mainība un globālā sasilšana, Kļaviņa M. un Andrušaiša A. redakcijā. Rīga: LU Akadēmiskais apgāds, 2008. - 171 lpp.

4. Kossovičs M. Tirdzniecības centri gatavojas taupības režīmam.// Latvijas Tirgotājs, 2008. / Internets. - Retrieved from http://www.tirgotajs.lv/sablons.php. Access: September 5, 2009.

5. Kristapsone S. Zinātniskā pētniecība studiju procesā. Rīga:SIA "Biznesa augstskola Turība", 2008.- 352 lpp.

6. Lasmanis A. Datu ieguves, apstrādes un analīzes metodes pedagoģijas un psiholoģijas pētījumos. 1.grāmata, Rīga : Izglītības soļi. 2002. -236 lpp.

7. LR Ekonomikas ministrija. Informatīvais ziņojums. Par ārvalstu tiešo investīciju piesaistes stratēģiju 2011.-2015.gadam. 2011. / Internet. - Retrieved from http://www.bra.lv/. Access: February 24, 2013

8. LR Ekonomikas Ministrija. Nacionālās industriālās politikas pamatnostādnes 2013. - 2020.gadam./ Internet. - Retrieved from http://www.em.gov.lv/em/2nd/?cat=30765. Access: March 17, 2013.

9. LR likums. Par piesārņojumu./ Internet. - Retrieved from http://www.likumi.lv/doc.php?id=6075 Access: March 10, 2013.

10. LR likums. Teritorijas attīstības plānošanas likums./ Internet. - Retrieved from http://www.likumi.lv/doc.php?id=238807. Access: 12 February 2013.

11. LR Ministru kabineta rīkojums Nr.178. Uzņēmējdarbības vides uzlabošanas pasākumu plāns 2012.gadam. 2012.gada 18.aprīlis./ Internet. - Retrieved from http://www.likumi.lv/doc.php?id=246716. Access: December 12, 2012.

12. Vides aizsardzības un reģionālās attīstības ministrija. Zemes politikas pamatnostādnes 2008.-2014.gadam. - 2008. - 39 lpp.

13. Mārtinsone K. Ievads pētniecībā: stratēģijas, dizaini, metodes. Rīga: Raka, 2011. - 284 lpp.

14. Orlovska A. Statistika. Rīga: RTU Izdevniecība, 2007. - 111 lpp.

15. Rīgas Dome. Rīgas attīstības programma 2006. - 2012.gadam. Pašreizējās situācijas raksturojums. Aktualizēta 2010.gadā. 2.daļa. / Internet. - Retrieved from http://www.rdpad.lv/uploads/rpap/programma_2.dala_esosa%20situacija.pdf. Access: February 22, 2013.

16. Skribans V. Latvijas iestāšanās Eiropas Savienībā ekonomisko efektu modelēšana. // Economics & Business. - 2011. -pp. 2176-2184.

17. Štaube T., Geipele I. Latvijas industriālo telpu ilgtspējīgā piedāvājuma scenāriju analīze klimata pārmaiņu ietekmē. [Analysis of scenarios on the industrial premises sustainable supply in Latvia under the influence of the climate change].// in Climate change and adaption to it: Latvia. M.Klavins and A.Briede (Eds.), Riga: University of Latvia Press, 2012. – 170. – 186.lpp.

18. Štaube T., Geipele I. Latvijas moderno industriālo telpu ilgtspējīgas attīstības modelis. [Sustainable development model for the modern industrial properties in Latvia]// Scientific Journal of of Riga Technical University. - 2010. - 20 (3) -124.-132. lpp.

19. Vanags J. Nekustamā īpašuma ekonomika. Rīga: RTU Izdevniecība. 2010. - 297 lpp.

20. Vanags J., Geipele I. Latvijas tautsaimniecība un būvniecības nozares attīstības ietekme uz nekustamā īpašuma tirgu. Rīga: RTU Izdevniecība, 2008. -196 lpp.

21. Alanon A., Arauzo J., Myro R. Accessibility, Agglomeration and Location. in J. M. Arauzo and M. Manj´on (Eds.). Entrepreneurship, Industrial Location and Economic Growth. - Chentelham: Edward Elgar, 2007. - pp. 247–267.

22. Albers H., Ando A., Shogren J. Introduction to spatial natural resource and environmental economics.// Resource and Energy Economics. - April 2010.- 32 (2)- pp.93-97.

23. Anjoman A. Planning for Metropolitan Regions: The Land-Use and Transportation Connection // in Proc. 2nd WSEAS International Conference on Urban planning and transportation, Rhodes, 2009. - pp.153-158.

24. Arauzo J. Determinants of Industrial Location. An Application for Catalan Municipalities // Papers in Regional Science. - 2005.- 84 - pp.105–120.

25. Arauzo J. Industrial Location at a Local Level: Comments on the Territorial Level of the Analysis.// Tijdschrift voor Economische en Sociale Geografie [Journal of Economic & Social Geography]. - 2008. - 99 - pp. 193–208.

26. Arauzo J.,.Viladecans E. Industrial Location at the Intra-metropolitan Level: The Role of Agglomeration Economies. // Regional Studies -2009 -43 -pp. 545–558.

27. Arauzo-Carod J. M., Liviano-Solis D., Manjon-Antolin M. Empirical studies in industrial location: An assessment of their methods and results// Journal of Regional Science, 2010. -50(3)- pp. 685–711.

28. Auziņš A. Institutional Aspects of Real Estate Property Formation: the Case of Latvia// Proceedings of the International Scientific Conference "Economic Science for Rural Development", Jelgava, Latvia University of Agriculture, 2004.- pp. 41-46.

29. Barbosa N., Guimaraes P., Woodward D. Foreign Firm Entry in an Open Economy: The Case of Portugal. // Applied Economics - 2004. - 36- pp. 465–472.

30. Barrios S., Görg H., Strobl E. Foreign direct investment, competition and industrial development in the host country// European Economic Review. - 2005. - 49(7) - pp. 1761-1784.

31. Basile R. Acquisition versus Greenfield Investment: The Location of Foreign Manufacturers in Italy. // Regional Science and Urban Economics - 2004. - 34 - pp. 3–25.

32. Becker R., Henderson V. Effects of Air Quality Regulations on Polluting Industries.// Journal of Political Economy - 2000. - 108 - pp. 379–421.

33. Brazinskas S. The Northern region of the European Union: an economic cooperation outlook for Lithuania// International Journal of Public Administration. - 2008. - 4(20) - pp. 19-26.

34. Breslow N.E. Statistics in epidemiology: the casecontrol study.// Journal of the American Statistical Association. - 1996. - 91(433) - pp.14–28.

35. Brunetta G., Voghera A. Landscape Evaluation in Spatial Decision- Making: A Methodological Proposal// in Recent Researches in Urban Sustainability and Green Development, V.Niola, T.Kala, C.Popescu Eds. Prague: WSEAS Press. - 2011 - pp.101-110.

36. Camagni R. The rationale for territorial cohesion and the place of territorial development policies in the European model of society presented at the Vienna Seminar on Territorial cohesion and the European model of society, July 2005. / Internet. - Retrieved from http://89.187.68.157/inc/cgi/dd/dd20061102.pdf. Access: October 12, 2011

37. Cantwell J., Dunning J. H., Lundan S. M. An evolutionary approach to understanding international business activity: The co-evolution of MNEs and the institutional environment.// Journal of International Business Studies. - 2010. - 41 (4), pp. 567-586.

38. Central Statistical Bureau of Czech Republic database and site information / Internet. - Retrieved from http://www.czso.cz/csu/2009edicniplan.nsf/engkapitola/0001-09-2009-0700. Access: August 14, 2010.

39. Central Statistical Bureau of Latvia database and site information / Internet. - Retrieved from http://www.csb.gov.lv/. Access: January 19, 2011.

40. Cieslik A. Location of Foreign Firms and National Border Effects: The Case of Poland.// Tijdschrift voor Economische en Sociale Geografie [Journal of Economic & Social Geography] - 2005a.- 96 - pp. 287–297.

41. Cieslik A. Regional Characteristics and the Location of Foreign Firms within Poland// Applied Economics. - 2005b.- 37- pp.863–874.

42. Colliers International. Baltic States and Belarus real estate market review. Accelerating success. 2011. / Internet. - Retrieved from http://www.colliers.com. Access: September 6, 2011

43. Colliers International. Latvia. Real estate market review. Annual report. March 2012. / Internet. - Retrieved from http://www.colliers.lv/Reports. Access March 6, 2013.

44. Colliers International. Real Estate Market Review.Baltic States and Belarus 2010 / Internet. - Retrieved from www.colliers.lv. Access: August 20, 2010.

45. Commercial Real Estate Development Association (NAOIP). Terms and Definitions:North American Office and Industrial Market. 2012. / Internet. - Retrieved from http://www.naiop.org/. Access: March 14, 2013.

46. COMMIN transnational project website within the Baltic Sea Region INTERREG III program. / Internet. - Retrieved from http://commin.org/en/commin/general/commin-process/future.html. Access: March 13, 2013.

47. Cook C., Health F., Thompson RL. A meta analysis of response rates in web or internet based surveys// Educational and Psychological Measurement. – 2000.- 60(6) – pp.821-836

48. Cross-Sectoral Coordination centre. National Development Plan for 2014-2020. Retrieved from: http://www.nap.lv. Access: December 20, 2012.

49. Crozet M., Mayer T., Mucchielli JL. How do Firms Agglomerate? A Study of FDI in France// Regional Science and Urban Economics. - 2004.- 34- pp. 27–54.

50. Damgaard C., Weiner J. Describing inequality in plant size or fecundity// Ecology, 2000. - 81 - pp. 1139-1142.

51. Description of shopping center project data Cube City. 2010. / Internet. -Retrieved from http://www.colliers.lv. Access: August 24, 2010

52. Description of shopping center project data Riga Akropole. 2011. / Internet. -Retrieved from http://www.akropolis.eu/en/akropolis-projects/riga-akropole-projektas.html. Access: August 24, 2010

53. Dicken P. Global Shift. Transforming the World Economy, 3d ed. - London: Paul Chapman, 1998. - pp.512.

54. Dicken P. Globalization and Transnational Corporations// International Encyclopedia of Human Geography. - 2009. - pp. 563-569.

55. Dühr S., Colomb C., Nadin V. European Spatial Planning and Territorial Cooperation. London: Routledge, 1 edition, April 4, 2010. - pp.488

56. Dunning J., Narula R. The R&D activities of foreign firms in the United States.// International Studies of Management and Organization. -1995. - 5 (1/2)- pp.39–74.

57. Euromonitor International. World Economic Prospects 2010 (8th edition) / Internet. - Retrieved from http://www.euromonitor.com/World_Economic_Prospects. - Access: August 10, 2010.

58. European Commission Projects Information and Statistics. / Internet. - Retrieved from http://ec.europa.eu/eurostat. Access: January 2, 2013.

59. Falcioğlu P., Akgüngör S. Regional Specialization and Industrial Concentration Patterns in the Turkish Manufacturing Industry: An Assessment for the 1980-2000 Period // European Planning Studies. - 2008. - 16(2) - pp. 303-323.

60. Faludi A. European Territorial Cooperation and Policies// in Proc. 24th AESOP Annu. Conf. Space is luxury, Espoo, 2010. -pp. 172-187.

61. Farinos D. Methods of territorial analysis' workshop// presented at Department of Geography, urbanism and spatial planning. University of Cantabria, Santander, February 2006. / Internet. -Retrieved from http://www.espon.eu. Access: August 28, 2011.

62. Fjodorova S., Mihejeva V. Construction Revival - Development Activation of Latvian Economy // Proceedings of International Scientific Practical Conference, Riga, April 23-24, 2010. - pp. 43-47.

63. Fujita M., Krugman P., Venables A. The spatial economy: cities, regions, and international trade. Massachusets: MIT press, 2001. - pp.359.

64. Gabe T., Bell K. Tradeoffs between Local Taxes and Government Spending as Determinants of Business Location. // Journal of Regional Science -2004. - 44 (1) - pp. 21–41.

65. Grizāns J., Vanags J. Perspectives of the Modeling of the Latvian Rural – Urban Partnership at the Context of Sustainable Development. // Proceedings of the 23d International Scientific Conference "Economic Science for Rural Development", Jelgava, Latvia University of Agriculture, 2010. - pp 63-69.

66. Guimaraes P., Figueiredo O., Woodward D. Industrial Location Modeling: Extending the Random Utility Framework. // Journal of Regional Science -2004. - 44 - pp. 1–20.

67. Hanink D., Gromley R. Minimizing the geographical risk of foreign direct investment.// Geoforum. - 1987. - 18(3) - pp.247-256.

68. Holl A. Start-Ups and Relocations: Manufacturing Plant Location in Portugal. // Papers in Regional Science -2004. - 83 - pp. 649–668.

69. Hoyler M., Freytag T., Mager C. Advantageous fragmentation? Reimagining Metropolitan governance and spatial planning in Rhine-Main. //Built Environment Journal. - (13) Jun. 2006. -32(2) - pp. 124-136.

70. International Monetary Fund. Statistics on Macroeconomy. / internet. - Retrieved from http://www.imf.org/external/pubs/ft/weo/2010/01/weodata/. Access: August 20, 2010.

71. Jurgena I., Švēdere D. Documentary Evolution and Transformation of Business Partnerships in Latvia. // Proceedings of the International Scientific Conference "Economic Science for Rural Development", Jelgava, Latvia University of Agriculture, 2009. - 19- pp. 36-42.

72. Kaklauskas A., Kelpsiene L., Zavadskas E. et al. Crisis management in construction and real estate: Conceptual modeling at the micro-, meso- and macro-levels. // Land Use Policy. -January 2011. - 28(1) - pp.280-293.

73. European Industrial Real Estate Market 2010, King Sturge. / Internet. - Retrieved from http://www.kingsturge.com/. Access: August 20, 2010.

74. Knieling J. , Othengrafen F. Macro-regions as concept for European spatial integration? – Discussing Co-operation strategies in the Baltic Sea Regions. // in Proc. 24th AESOP Annu. Conf. Space is luxury, Espoo, 2010. - pp.204-223.

75. Kotler P. Marketing management. Analysis, planning, implementation and control. 9th edition (international edition). USA: Prentice Hall, 1997 -pp. 789.

76. Kronborg D., Thomsen S. Foreign ownership and long-term survival. // Strategic Management Journal. -2009. - 30(2) - pp. 207-219.

77. Kumar, R. Research methodology. 2nd edition. A step-by-step guide for beginners. London: SAGE Publicaton Ltd., 2005. - pp.332

78. Lambert J. One Step Closer to a Pan-European Shopping Center Standard. Illustrating the New Framework With Examples.// The Research Review. - 2006. -13(2) - pp.35-40.

79. Latvian Tourism Development Agency. The climate and weather characteristics in Latvia / Internet. - Retrieved from http://www.latvia.travel/lv/klimats-un-laika-apstakli. Access: August 2, 2010.

80. Le Bas C., Sierra C. Location versus home country advantages' in R&D activities: some further results on multinationals' locational strategies. // Research Policy. - 2002. - 31(4) - pp.589-609.

81. Lemanowicz M. Changes in retail market in Poland and their influence on cosumers' behaviour.// Socialiniai tyrimai [Social Research]. - 2008. - 3(13) - pp.101–107.

82. Leydesdorff L. The Knowledge-Based Economy and the Triple Helix Model. // Understanding the dynamics of a knowledge economy, W. Dolfsma, L. Soete, Eds. Cheltenham: Edward Elgar, 2006. - pp. 42-76.

83. Linstow Portfolio. 2011. / Internet. - Retrieved from http://www.linstow.lv/en/portfolio/projekti/. Access: September 9, 2010

84. List J. US County-Level Determinants of Inbound FDI: Evidence from a Two-Step Modified Count Data Model.// International Journal of Industrial Organization - 2001.- 19 -pp. 953–973.

85. List J., McHone W. Measuring the Effects of Air Quality Regulations on "Dirty" Firm Births: Evidence from the Neo and Mature-Regulatory Periods. // Papers in Regional Scienc - 2000. -79 -pp. 177–190.

86. Lusch R., Dunne P., Gebhardt R. Retail marketing. 2nd edition. USA: Cengage South-Western, 1993. - pp.864.

87. Manjon M., Arauzo J. Locations and Relocations: Modelling, Determinants, and Interrelations.// Working Paper No.6–2007 Department of Economics URV. -2007.

88. Martinez-Galarraga, J. The determinants of industrial location in Spain, 1856-1929. // Explorations In Economic History. - 2012. - 49 (2) - pp.255-275.

89. Mezias JM. Identifying liabilities of foreignness and strategies to minimize their effects: the case of labor lawsuit judgments in the United States. //Strategic Management Journal. - 2002. - 23(3) - pp.229–244.

90. Midelfart-Knarvik K., Overman F., Redding, S. et al.The Location of European Industry. // Economic Papers. Report prepared for the Directorate General for Economic and Financial Affairs, European Commission. -2000. - 142- pp.77.

91. Ministry of Economics of Republic of Latvia. Report on the Economic Development of Latvia, December, 2009. / Internet. - Retrieved from http://www.em.gov.lv. Access: 18 August, 2010.

92. Ministry of Economics of Republic of Latvia. Report on the Economic Development of Latvia, June 2001. / Internet. - Retrieved from http://www.em.gov.lv. Access: January 3, 2013.

93. Mueller E., Morgan. J. Location decisions of manufacturers.// American Economic Review. - May 1962. - 52(2) -pp. 204 - 217.

94. Mullahy J. Heterogeneity, Excess Zeros, and the Structure of Count Data Models. // Journal of Applied Econometrics. - 1997. - 12 - pp.337-350.

95. Mullis M. Understanding and responding to prospect confidentiality. //Economic Development Review. - Summer 1994. -12(3) -pp. 91-92.

96. National Central Statistical Bureau of Estonia. / Internet. - Retrieved from http://pub.stat.ee. Access: January 2, 2013.

97. National Central Statistical Bureau of Lithuania. / Internet. - Retrieved from http://www.stat.gov.lt. Access: January 2, 2013.

98. National Central Statistical Bureau of Sweden. / Internet. - Retrieved from http://www.scb.se. Access: January 2, 2013.

99. Newsec. Newsec property outlook. Spring 2012. / Internet. - Retrieved from http://www.newsecbaltics.com. Access: January 7, 2013.

100. Official statistics of department store Stockmann in Riga. 2011. / Internet. - Retrieved from http://www.stockmann.lv/portal/1391/. Acess: August 24, 2010.

101. Official statistics of shopping center Riga Plaza. 2011. / Internet. - Retrieved from http://www.emcm.eu/?verzia=en-lv&1=lv&2=projekty&3=riga-plaza. Access: August 24, 2010.

102. Paluzie E., Pons J., Tirado D. Regional Integration and Specialization Patterns in Spain.// Regional Studies. -2001. - 35(4) - pp. 285-296.

103. Re&Solution. Baltic property market report, 2008. Lithuania, Latvia, Estonia. 2008. / Internet. - Retrieved from http://www.pwc.com/lt_LT/lt/assets/publications/baltic-property-market-report-2008.pdf. Access: September 5, 2011

104. Resmini L. Cities in Globalization: Practices, Policies and Theories, in Taylor P., Derudder B., Saey P., Witlox F. (Eds.).// Journal of Regional Science. - 2009. - 49(1) -pp.228-230.

105. Resmini L. Regional Patterns of Industry Location in Transition Countries: Does Economic Integration with the European Union Matter? // Regional Studies. - August 2007. -41(6) - pp. 747-764.

106. Revina I., Brekis E. Foreign Direct Investment and Economic Growth in Latvia. // Proceedings of the International Scientific Conference "Economic Science for Rural Development", Jelgava, Latvia University of Agriculture, 2009. - 18 - pp. 142-149.

107. Riga city Council. Social-economical analytics in Riga districts. / Internet. - Retrieved from http://www2.mapsengine.com/apkaimes/stat/nodarbinatie/. Access: November 12, 2009.

108. Riga city Council. Strategy monitoring system. / Internet. - Retrieved from http://www.sus.lv, Access: 12 March, 2013

109. Scherbov S., Mamolo M., Lutz W. Probabilistic Population Projections for the 27 EU Member States Based on Eurostat Assumptions.// Working paper, Vienna Institute of Demography, the Austrian Academy of Sciences. 2008. - pp. 75.

110. Shepherd D., Bouckova I. Czech Agriculture in the Post Communist Period: the story so far.// Journal of the Royal Agricultural Society of England. - 2004. -165 - pp.23–32.

111. Skribans V., Birkavs V. Construction Industry Dynamics in Latvia and in Europe // Latvijas būvniecība. - 2009. - 4(15) - pp 62-65.

112. Staube T., Geipele I. Decisions on industry location and market capacities in Latvia. // in Proceedings International Conference on Environmental and Materials Engineering (EME 2012), Seoul, December 9-12, 2012. Environmental and Materials Engineering (Advanced Materials Research Series) in Yun Wu and Yijin Wu (Eds.),TransTech Publication Inc. 2013. - pp.1141-1145.

113. Staube T., Geipele I. Industry location assessment for multinational enterprises in Latvia. // in Proceedings of the 2nd World Sustain. Forum, 1-30 November 2012; Sciforum Electronic Conferences Series, 2012.

114. Staube T., Geipele I. Is there enough space for the shopping malls in Latvia?// Business Systems and Economics Journal. - 2012. - 6 (1) - pp. 78-91.

115. Staube T., Geipele I. Regional specialization performance to be improved in Latvia for the multinational industrial companies.// Proceedings of the 14th Annual International Scientific Conference "Economic Science for Rural Development", Jelgava, Latvia, Latvia University of Agriculture, April 25-26, 2013. – 31 – pp.92-97.

116. Staube T., Geipele I. Territory Outlook for the Expansion of Large Scale Shopping Centres in Latvia. // Proceedings of the International Scientific Conference "Economic Science for Rural Development", Jelgava, Latvia University of Agriculture, 2010. - 23 -pp. 169 - 175.

117. Staube T., Geipele I. The concept of the Latvian industrial property market development model in a context of the strategic planning // European Real Estate Society 20th Annual Conference (ERES 2013), Vienna, Austria, July 3-6, 2013, ERES Digital Library. Internet. - Retrieved from http://library.eres.org/eres2013/paperupload/156.pdf. Access: June 25, 2013.

118. Staube T., Geipele I. The latest trends in the spatial planning modelling of the Baltic Sea Region determine a territory's potential. // in proceedings of International Conference on Social Sciences and Society (ICSS 2011) in Shanghai: Information Engineering Research Institute, 2011. - 2 – pp.403- 409.

119. Staube T., Geipele I. The Latvian Construction branch development's problems as a result of the strategic management insufficiency. // in Proceedings of the 7th International Scientific conference "Business and Management 2012", Vilnius: Vilnius Gedeminas University, 2012. - pp. 1223-1230.

120. Staube T., Geipele I. The macroregion approach and territorial cohesion of the Baltic region. // International Journal of systems applications, engineering and development. - 2012. - 6 (1) -pp. 70-78.

121. Staube T., Geipele I. Valuation of the Swedish Direct Investment Territorial Allocation in the Context of Latvian Commercial Property Development. // in Sustainable Development of the 8th International Conference "Environmental Engineering": Selected Papers. Sustainable Development, Vilnius: Vilnius Gedeminas University. - 2011. - 3 – pp. 993-1000.

122. Teirumnieks E. Ievads un analīze par degradēto teritoriju situāciju Latvijā. 2010./ Internet.- http://fast10.vsb.cz/bribast/document/MODULE1b_ievads_Latvija.ppt. Access March 7, 2013.

123. The Climate and weather characteristics in Czech Republic / Internet. - Retrieved from http://www.prahaclub.cz/clamate-czech-republic.htm. Access: August 2, 2010.

124. The Times. Business City Guide, Retrieved from http://bcg.thetimes.co.uk. Access: January 12, 2013.

125. Tourism and information portal Worldtravels. The climate and weather characteristics in Sweden / Internet. -Retrieved from http://www.wordtravels.com/Travelguide/Countries/Sweden/Climate/. Access August 2, 2010.

126. Traistaru I., Nijkamp P., Longhi S. Regional specialization and concentration of industrial activity in accession countries// Working paper, ZEI, Center for European Integration Studies, Rheinische Friedrich-Wilhelms-Universität, Bonn, B16. - 2002.

127. Tvaronavičius V., Tvaronavičiene M. Role of Fixed Investments in Economic Growth of Country: Lithuania in European Context.// Journal of Business Economics and Management. - 2008. -9(1) - pp. 57-64.

128. Van Veen-Dirks P. Management control and the production environment: A review. // International Journal of Production Economics. - January 8, 2005. -93-94 - pp. 263-272.

129. Vanags J., Geipele I. Development Tendencies of the National Economy of Latvia in the Economic Environment of the Baltic States. //Scientific Journal of Riga Technical University. - 2008. -11(3) - pp. 110-120.

130. Vengrauskas V., Rudiene E. Retail internationalization level indicators establishment and assessment// Business Systems and Economics. -2011. - 1(1)- pp.129 – 137.

131. Wolf N. Endowments vs. market potential: What explains the relocation of industry after the Polish reunification in 1918? //Explorations in Economic History. - January 2007. - 44(1) -pp. 22-42.

132. Yap J., Circ R. Guide to Classifying Industrial Property. Washington, D.C. : Urban Land Institute, 2nd edition, 2003. - pp.80.

133. Yeaple S. The complex integration strategies of multinationals and cross country dependencies in the structure of foreign direct investment.// Journal of International Economics. - 2003. -60(2)- pp.293-314.

134. Zimeras S., Matsinos Y. Spatial Uncertainty Recent Researches// in Geography, Geology, Energy, Environment and Biomedicine, Mastorakis N., Mladenov V., Bojkovic Z. et al. (Eds.) - 2011. - pp. 203-208.

Tatjana ŠTAUBE

**ISSUES OF SPATIAL ECONOMIC ALLOCATION
OF THE ENTREPRENEURIAL ACTIVITIES IN LATVIA**

Summary of the doctoral thesis

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