

The macroregion approach and territorial cohesion of the Baltic region

Tatjana Staube, Ineta Geipele

Abstract— The Baltic Sea Region as macroregion moves towards the regional economic approach and to build a knowledge-based economy, the new member states are in decentralization process. Spatial planning is relatively new term for the Baltic Sea Region. The authors focus on the economical development of the Baltic Sea Region. The article provides an overview on the spatial planning meaning, trends of the newest research and modeling in spatial planning in the Baltic Sea Region. Several multidimensional models on the spatial planning systems are observed. The Paper also contains the sustainable development model worked out by the authors for the modern industrial real estate property.

Keywords—Baltic Sea Region, knowledge-based economy, modeling in spatial planning, regional economic planning, spatial planning, sustainable European development, territorial cohesion, territorial cooperation.

I. INTRODUCTION

THE European spatial planning policy is among the world's targeted actions conducted nowadays. In this article the authors analyze the Baltic Sea Region (BSR) in a frame of spatial planning adoption and evolution. Unless the coordination model is still in the work out process with extending terms (currently up to 2030) due to solving the erecting problems in the area, national planning and legislation of the BSR countries keep strong position in the means of low paces of implementation of common terms and directions. That might be a long-term integration also due to the different economy development stages and styles of spatial planning with different ways of governance of the countries. The current research is targeted to reflect the current issues of the spatial planning in the Baltic Sea Region. The main tasks of the investigation are as follows: 1) to give a brief view on a historical background of spatial planning issue in the Baltic Sea Region; 2) to analyze the scope of problems arisen for a science in the latest decade and further. The Paper also contains the sustainable development model worked out by the authors for the modern industrial real estate property.

Manuscript received October 30, 2011. This work has been supported by the European Social Fund within the project "Support for the implementation of doctoral studies at Riga Technical University". T.Staube is with Finance Department at state joint stock company Latvijas Pasts, 1/7 Meza Street; Room 210, Riga, LV 1048, Latvia (phone: +37126510750, e-mail: t.staube@inbox.lv).

I.Geipele is with Riga Technical University, Institute of the Building Entrepreneurship and Real Estate Economics, 1/7 Meza Street; Room 211, Riga, LV 1048, Latvia (phone: +37167089360; e-mail: ineta.geipele@rtu.lv).

A list of abbreviations used further in text: BSR - Baltic Sea Region, CEMAT - Council of Europe Conference of Ministers responsible for Spatial/Regional Planning, COMMIN - a transnational project within the Baltic Sea Region INTERREG III program, ESPON - European Observation Network for Territorial Development and Cohesion program, INTERREG - European Interregional Cooperation Programme, LTP - long term perspective, VASAB - Visions and Strategies for the Baltic Sea Region.

Research methodology: the authors focus on the economical development of the Baltic Sea Region as a part of a study on the latest economic framework of the spatial planning in the BSR. Analyzing the literary source the science publications databases of WSEAS on-line library, SpringerLink publisher, Vilnius Gedeminas Technical University and Riga Technical University and Global Internet resources were explored. The methods of the systems analysis and dynamic rows analysis applied for the model's further calculations. In the offered authors' economic model the complex data results from the ENSEMBLES project [33].

The chosen theme is of up to date scientific and practical applicability especially in the new member states of the analyzed area. The article gives an overview on the spatial planning meaning, trends of the newest research and modeling in spatial planning in the BSR. The given article may also be applied as introduction to the economics, architecture and politics science students studying the topical directions of the territorial development of the BSR.

II. SPATIAL PLANNING HERITAGE INVESTIGATION IN THE BALTIC SEA REGION

Spatial planning under a common understanding is relatively new term for the Baltic Sea Region. 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 [28].

We may say there is no common spatial planning system within Europe, but 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 [28]. It might take a long-term time frame for adoption and implementation of the policies for a number of political and economical aspects, as to a young sovereignty of the new

member countries and strong traditions of the experienced partner-countries, but following mutual interest to in economical cooperation.

In 1992 the first Ministerial Conference in Karlskrona decided to work out a document Visions and Strategies for the Baltic Sea Region 2010. In 2001 the fifth Ministerial conference in Wismar report approved Visions and Strategies for the Baltic Sea Region (VASAB) 2010 PLUS - Spatial development Action Programme. In 2005 the sixth Ministerial Conference in Gdansk decided to prepare new long term perspective for the Region. In this conference's sessions it was agreed to stimulate and support projects that create model solutions, and organize exchange of knowledge on spatial planning and development approaches. In 2009 the seventh Ministerial Conference in Vilnius adopted long term perspective (LTP) for the Region. The LPT for the BSR 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 with a spatial impact for a better BSR integration and a comprehensive [31].

Spatial development glossary introduced by Council of Europe Conference of Ministers responsible for Spatial/Regional Planning (CEMAT) is publicized in the Baltic Sea Region under the project promoting spatial development by creating common mindscapes (COMMIN) and the terms have been announced to a local adoption.

According to COMMIN results, there was no common spatial planning term identity and spatial planning had been used without any general agreement on usage of the term in legislation and regulations of the local market.

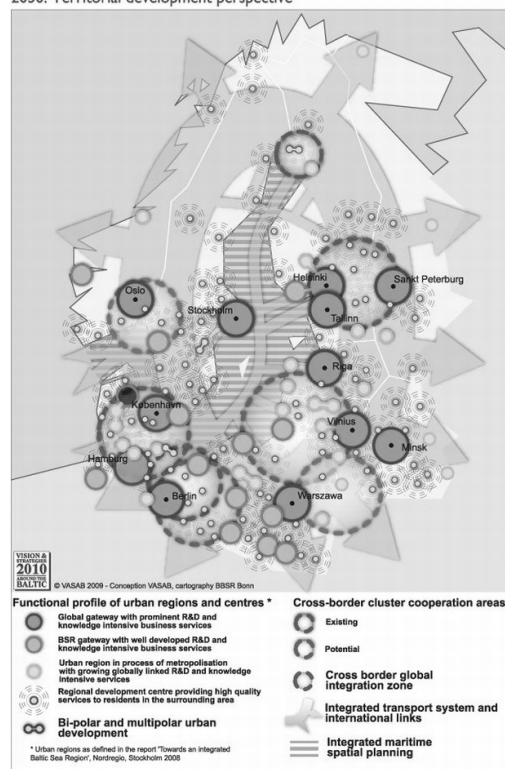
Spatial or territory planning refers to the methods used by the public sector to influence the distribution of people and activities in spaces at various scales as well as the location of the various infrastructures, recreation and nature areas [30].

Territorial planning evaluates policy of regional development so that balanced relation of territorial conditions is created for favorable environment, economic development and consistency of society of territorial citizens [22]. The planning process is about setting frameworks and principles in order to guide the location of development and infrastructure. It involves rules and regulations giving certain groups or individuals the right to use land and provides authorities with the means to exert their influence on land use. The planning process includes local and national policies, rules and regulations and planning traditions [11].

Territorial development or spatial planning is a significant element of land management where thematic graphical and cartographic material is broadly used. Spatial planning is linked to the sustainable development [3]. The *sustainable European development* is being planned within four interrelated dimensions, namely economic development and environmental sustainability, infrastructure and transport, and urbanization. In VASAB strategy a model of integrated land and sea-space planning and management is given in Figure 1 [31].

For the European Union the cooperation with the Eastern partners – Russia and Byelorussia is obviously important as to the fact of European Union's Eastern boundary has traditional tight politically-economical relations. Here, the *Baltic Sea Region* namely includes the following areas: EU member states Denmark, Estonia, Finland, Latvia, Lithuania, Poland, Sweden and northern parts of Germany, as well as the neighbouring countries of Norway, north-west regions of Russia and Belarus.

2030: Territorial development perspective



Source: VASAB CSD/BSR

Fig. 1 introducing the BSR cooperation scheme until 2030

In July 2010 CEMAT Spatial development Glossary presented in Moscow is to provide a definition of such expressions, as well as some explanations about their use and recent evolution and invite the actors concerned to use the Glossary in international and national activities concerning spatial planning.

Spatial planning activities are carried out at different administrative or governmental levels (local, regional, national), while activities of cooperation in this field are also implemented in cross-border, transnational and European contexts [30]. The spatial planning issue might be inherited from the regional planning. *Regional economic planning* is often directed towards stimulating commercial and industrial environment of a region. Assessing the regional spatial structure and planning, the main goal of it is to coordinate and ensure with the guidelines in land use, infrastructure development, transport, services and economy development and other sectors' and interests' maintenance [3].

The current European *territorial cooperation* covers three types of programs: cross-border cooperation (52 programs),

which is along internal EU borders, in case of Latvia it is Latvian-Lithuanian, Latvian-Estonian and Central Baltic cooperations; transnational cooperation (13 programs) within larger areas of cooperation shaping by traditional economic cooperation regions like Baltic Sea, Alpine, Central Europe; and interregional cooperation (4 programs) including European Interregional Cooperation Programme (INTERREG) IVC, European Observation Network for Territorial Development and Cohesion program (ESPON) [29].

The professionals are impliedly collaborating with „a European problem” reflected in the presentation of a historic report on Spatial /Regional planning in May 1968 but in much broader scale and detailed focus of a policy of Europe [30].

III. TOPICAL ISSUES OF ECONOMIC FRAMEWORK IN SPATIAL PLANNING

According to the decisions from the European Ministerial Conferences on a new long term perspective of the BSR, the academic involvement is inquired by further announcement of a topical scope for research learning the current systems and models, creating knowledge base, investigating in creation a common understanding and solving other essential questions.

The European Commission presented a new budget for the development of Europe for the period of 2014-2020 on June 29, 2011 in Brussels. The budget comprised a continuing importance of territorial cooperation and competitiveness issues. Together these subjects take over 17% from the budget for cohesion policy or about 65 billion euros at 2011 prices [29].

The European Observation Network for Territorial Development and Cohesion - ESPON 2013 program is adopted by European Commission in 2007 and it covers the research areas in support to the policy development related to territorial development and cohesion. The focus is on territorial structures, trends, perspectives and impacts of sector policies [32]. According to the analyzed public funding data the Nordic-Baltic dialogues on transnational perspectives in spatial planning is within the five priorities of the ESPON 2013 program. The results on a research budget allocated in the BSR are presented within a TOP12 in Figure 2.

Latvia and Estonia are included in the Nordic-Baltic dialogues on transnational perspectives in spatial planning together allocating a little less than 13% or over 40,000 euro from total Nordic-Baltic dialogues' and 1% from the entire BSR projects' funding. Lithuania was budgeted with 30,000 euro on the transnational networking activities under establishment of a transnational ESPON training program to stimulate interest to ESPON 2013 knowledge, but it was not included in the TOP 12 list.

From the total amount the highest interest is for climate change and territorial effects on regions and local economies in Europe (here and further in a sentence the authors stress the maximum and minimum shares of beneficiaries in a project from total BSR research budget within ESPON 2013 program: 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%).

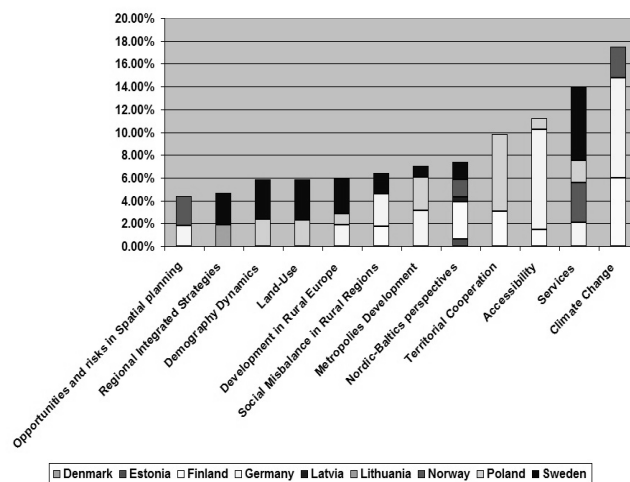


Fig. 2 illustrates TOP 12 of the funding breakdown on the projects in the BSR under ESPON 2013 program, authors' calculation

The scientific conferences follow the milestones and creative trends in topical research themes providing with innovative and up-to-date analytics. The authors in this article marked the foremost listed scientific works within the scientific databases and Global Internet, but also essential to their opinion analytical results.

A. Christaller's central place theory is no longer appropriate

Since German reunification in 1990, and accelerated by national and European debates about ways to ensure competitiveness in a globalising economy a 'gradual paradigm shift' has become visible in strategic spatial planning. A new level of strong regional governance in metropolitan areas is to enhance international territorial competitiveness. Central to the new framework is the assumption that major metropolitan regions rather than individual cities or the national economy as a whole act as 'engines for societal, economic, social and cultural development'. 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 [9].

B. Cohesion policy to be 'place-based', macro-region BSR

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 [12].

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. The macro-region approach is intended to allow both European Union and its Member States to identify common needs and to allocate available resources to strengthen economic and social development and to enable sustainable development as major risks and Integration of economic and quality of life-approach (integrated development strategy) at metropolitan region's stage [15].

As the term 'territorial cohesion' was initially introduced in the political sphere, it has evoked, independently from the process of new treaty ratification, many discussions about the substance of this concept. The task of elaborating the concept and translating it into European policies intensively has occupied politicians, practitioners and academicians since the term "territorial cohesion" first appeared in the proposal for a new treaty [2].

C. The movement towards the regional economic approach

The concept of families of nations [5] in spatial planning has become rather loose and hybridism is a wide spread phenomenon, often more than in legal and administrative families.

The reason for this is that, since both, administrative and legal characteristics influence planning, every change or every new phenomenon of hybridity in these domains, is directly reflected to the planning domain. The differences between members of the same family are remarkable, also Ireland in British family, Switzerland in the Germanic family etc. In these terms, the most homogenous planning family is the Scandinavian.

The results of a research presented in Figure 3 [17] give a view on the majority of Europe is moving towards the comprehensive integrated approach and the regional economic approach. The movement towards the regional economic approach, where Sweden and Germany can be observed, is coming from the comprehensive integrated approach. The Nordic countries, it seems that a very different background is exhibited, in which the local level was in most cases the planning level of real importance. The New Member States however that share a common socialist past are developing in a very different way. In the first place the developments here take place at a very high pace. Secondly due to the fact that in the past these countries were highly centralized, there is in all of them now a strong movement towards decentralization and they are all struggling to create different planning levels, in accordance to this movement. In doing so they borrow ingredients from the comprehensive integrated the regional economic, and the land use planning style.

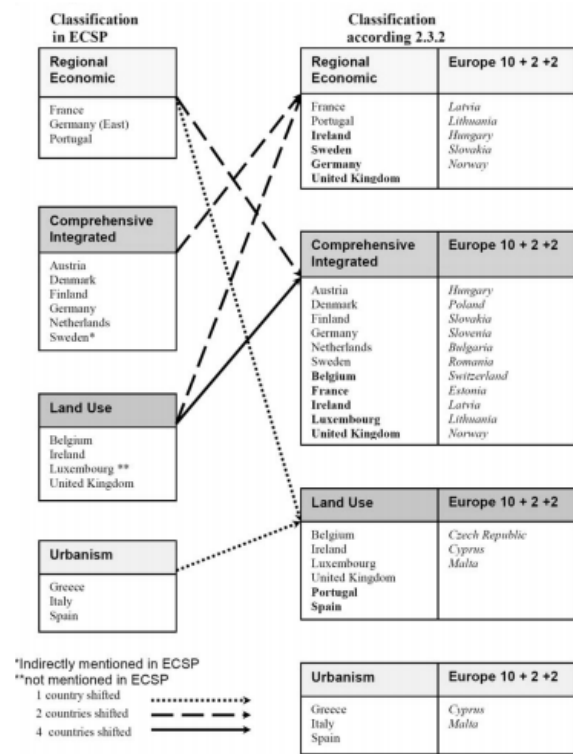


Fig. 3 anticipating a movement within the EU 15 between the styles of spatial planning and the characterization of New Member States +2 +2

D. Knowledge-based economy

The pioneering comprehensive textbook on the subject of European Union spatial policy and planning was written by Richard H. Williams in 1996 [6]. The newest edition by Dick Williams is about spatial planning for Europe, which is something different than spatial planning in Europe (i.e. in member states and regions). It is about the attempts and achievements to coordinate spatial development at a transnational and EU wide scale (and even beyond) and to cooperate on territorial issues across national borders [7].

The knowledge-based economy meaning introduced in Figure 5 as the triple helix model analyzed by Leydesdorff in "Understanding the dynamics of a knowledge economy" [1]. The researchers suggest that an evolving knowledge base can be developed under the condition that the various interactions be left free to seek their own resonances, that is, in a self-organizing mode. This self-organization among the functions exhibits a dynamics potentially different from the organization of relations among the institutions.

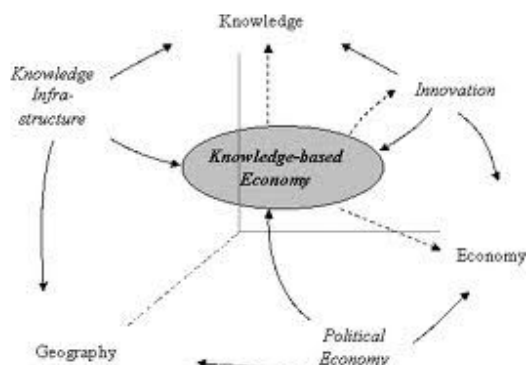


Fig. 4 generating the first-order interactions to a knowledge-based economy as a next-order system

Initially the emergence of a knowledge-based economy is then invoked as a factor to explain historical developments and changes.

E. Modelling in spatial planning

Theoretical and technological advancement of the last few decades has instigated a new wave of attention, research and further developments of the models and techniques from a variety of disciplines has emerged [19].

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 [21].

A wide agreement prevails on the fact that territorial cohesion is a multidimensional concept with at least three main components [3], [4]:

- 1) territorial quality (including comparable living standards across territories; similar access to services of general interest and to knowledge);
- 2) territorial efficiency (including resource-efficiency with respect to energy, land and natural resources; competitiveness of the economic fabric and attractiveness of the territory; territorial integration and cooperation between regions and other factors);
- 3) territorial identity (involving local know-how and specificities; competitive advantage of each territory etc.) [18].

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 [16] or VASAB strategic model.

The detailed view or separate issues are held by the scientists and targeted projects. Nowadays ecological problem has been raised as one of the main under the spatial planning investigation [6,7,24,25]. The authors mark 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 [23]. 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.

Despite numerous criticisms the system dynamics methodology can be used to build models of sustainable development. The systems dynamic approach to modeling sustainable development is based on the same methodology of difference equations represented as a set of interacting feedback loops [10].

The four dimensional “hypercube” of territorial approach was presented by Farinos [16] illustrated in Figure 4. Under ESPON 3.1 program a different way of relating the planning styles, between states but also between political administrative levels, was first introduced in the “Crete” Guidance Paper in 2006. This cube makes it possible to assess results on three different geographical levels (macro, meso, micro). By using this cube, it becomes possible to combine the different styles of spatial planning with different ways of governance and every possible mix between its three scales is possible, offering a huge array of planning styles [17].

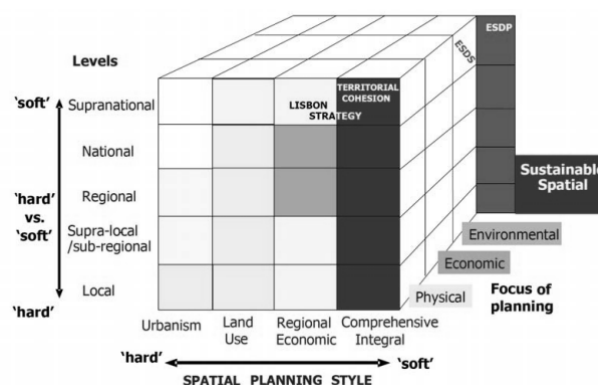


Fig. 5 offering options for spatial development planning

Modeling has a long tradition in transport planning, as is known. Here, by Curtis, Scheurer and Burke start from the supply side of mobility and in particular chooses a metropolitan wide approach and a long-term vision which level and form of mobility we would like to see. With the technique of back-casting recommendation for public transport planning are achieved [13].

Modeling of the rural-urban partnership in BSR has been an important issue for a number of researchers in Estonia, Latvia and Lithuania [8], [14].

We agree with the assumption in “Spatial uncertainty” work that spatial connectivity includes neighborhood structure between regions, where investigation of that structure includes modeling of the spatial homogeneity. The last could be illustrated by using spatial modeling techniques (like spatial autocorrelation, partition functions, and multilevel models). Spatial investigation involves stochastic modeling especially in cases where the incomplete data involves hide information’s [20]. The data accuracy and availability as well as the comparability influence the research’s final results.

The base for process management is process modeling [22]. Introducing the sustainable development model for the modern industrial real estate property, authors 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 [27]. The main idea and research components are presented in Figure 6 [26].

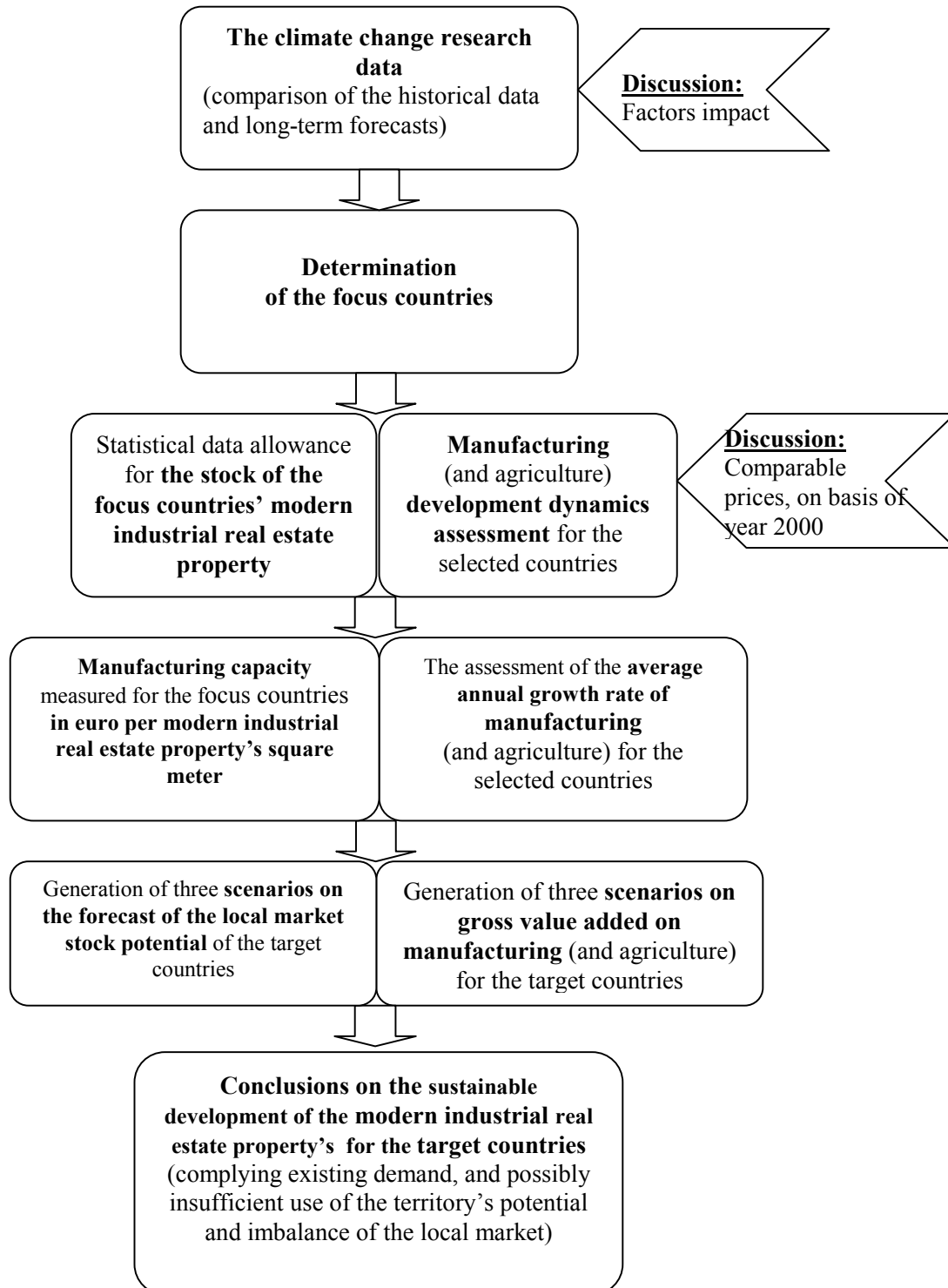


Fig. 6 introducing the topical issues of the authors' proposed sustainable development model for the modern industrial real estate property

This model is especially essential for the new member states of the EU with low land quality assessment (in case of Latvia the land quality assessment is at rate of 38 from 100 possible) in respect of replacement of the land use purposes in the local spatial planning, creating the territorial cooperation policies, getting a feedback to the partner countries with high manufacturing capacities looking for expansion or relocation of the capital [27].

IV. CONCLUSION

There is no common spatial planning system within Europe, unless the coordination model is still in the work out process with extending terms (currently up to 2030) due to national planning and legislation of the BSR countries keep strong position and cause the low paces of implementation of common terms and directions. That might be a long-term integration also due to the different economy development stages and styles of spatial planning with different ways of governance of the countries.

Spatial planning is relatively new term for Baltic Sea Region. Lately, in the budget for cohesion policy presented this summer on the development of Europe, a territorial cooperation and competitiveness issues take over 17% or 65 billion euros. Entirely we would stress here two time frame stages. First, 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, and the second, starting just 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.

The numerous models are proposed by the researchers especially possible and acceptable under the flagship issue of the knowledge-based economy. Those are multidimensional models like triple helix model, providing opportunity to create spatial planning scenarios at different scale and scope of problems.

The authors understand the complexity of spatial planning policy at transnational level, and invite the Stakeholders to keep to the local territorial potential use and ownership issues in the territorial development providing instruments to lending the territories for stimulating a development of the business environment.

The authors introduce the sustainable development model for the modern industrial real estate property on the basis of the climate change analysis detecting the comparable focus countries territories for the further industrial property stock assessment by the fact of the local market's misbalance assumption.

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Prof.Geipele is a member of FIABCI-Baltic Multinational Chapter and International (International Real Estate Federation) FIABCI – Latvia representative, the Latvian Union of Civil Engineers, the Cunftē of the Facility Management of Latvian Housing, Competence Council Member of the Latvian Chamber of Commerce and Industry, the Advisory Board of Latvian Technical Inventory Expert’s Association /LTISA/, at International Editorial Board at the Baltic Journal on Sustainability: Technological and economic development of economy. Chairwoman of the scientific board of the Institute of the Building Entrepreneurship and Real Estate Economics, FEEM, RTU, Editorial Board at the Scientific Articles. The 3rd edition. Entrepreneurship economics: Entrepreneurship and management at the RTU, a member of conference editorial board, committee member of Conference programme, at the RTU International scientific conference: Development problems of national economy and entrepreneurship.



Tatjana Staube, Mg.oec., Riga Technical University, Latvia, 2001. Field of study: spatial planning, real estate research, financial analysis.

She has a work experience as Financial Analyst, Finance Latvian Post Office, Latvia; Consultant, Consultancy Department at Colliers International Ltd. and Head of Market Analysis, Investment Department at food retail company Rimi Latvia Ltd. The latest publications are:

T.Staube, I.Geipele, „Scientific investigation in spatial planning of the Baltic region,” in *Recent Researches in Urban Sustainability and Green Development*,” in V.Niola, T.Kala, C.Popescu Eds. Prague: WSEAS Press, 2011, pp.136-141 T.Staube, I.Geipele, „The latest trends in the spatial planning modelling of the Baltic Sea Region determine a territory’s potential,” in *Proc. Int. Conf. on Social Sciences and Society*, Shanghai, 2011, pp.403-409. T.Staube, I.Geipele, „Valuation of the Swedish Direct Investment Territorial Allocation in the Context of Latvian Commercial Property Development,” in *Selected papers of the 8th Int.Conf. Environmental Engineering*, Vol.3, Vilnius: Vilnius Gediminas Technical University, 2011, pp. 993-1000.



Ineta Geipele, Prof. Dr.oec., Riga Technical University, Faculty of Engineering Economics, Latvia, graduated in 1998. Field of study: real estate economics and management.

She has a work experience: Professor of the Riga Technical University, Faculty of Engineering Economics and Management, Director of the Institute of the Building Entrepreneurship and Real Estate Economics, Head of the Chair of the Civil Construction and Real Estate Economics and Management. The latest publications are: J.Vanags, I.Geipele, G.Mote, „Sustainable Development: The New Approach Inquiry,” in *Selected papers of the 6th International Scientific Conference “Business and Management 2010”*. Vol.