

## SMART SPECIALIZATION STRATEGY IN LATVIA, ESTONIA AND LITHUANIA

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**Abstract.** The smart specialization strategy is a tool for European Union (EU) economic growth and recovery from economic crisis. The aim of the paper is to describe and compare the smart specialisation strategy (RIS3) in Latvia, Estonia and Lithuania by describing the theoretical aspects of smart specialization concept in state and regional level; analysing smart specialization strategy development in the EU in accordance to Europa 2020 targets; comparing and evaluating the smart specialisation strategies in Latvia, Lithuania and Estonia. The three Baltic States have made the most progress to the EU 2020 targets in 2015. All three Baltic States have set common priorities for RIS3: ICT, biomedicine and health technologies, materials, technologies and engineering systems. Smart energy is a priority in Latvia and Lithuania, but functional food and logistics - in Lithuania and Estonia. Lithuania is the only country of Baltic States which has set a priority regarding to the inclusive and creative society area.

**Key words:** smart specialization strategy, innovation.

**JEL code:** R11; O31; P48

### Introduction

The existence of a national strategy for smart specialization is an ex ante conditionality for the use of the European Union (EU) Structural Funds from 2014 to 2020. The aim of the strategy in Europe is to become competitive in the global economy by concentrating resources in research and innovation (R&I) and linking them to priority economic areas. It is also topical for Baltic States as the EU Member States. The main aim of smart specialization strategy in Latvia is to increase innovation capacity and to create an innovation system that promotes and supports technological progress of economy (Informativais zinojums "Par ..., 2013).

The aim of the paper is to describe and compare the smart specialisation strategy in Latvia, Estonia and Lithuania. The tasks of research are: (1) describe the theoretical aspects of smart specialization concept in state and regional level; (2) analyse smart specialization strategy development in the EU in accordance to Europa 2020 targets; (3) compare and evaluate the smart specialisation strategies in Latvia, Lithuania and Estonia. The research methods are: monographic, comparison, abstract-logical method, synthesis and analysis, induction and deduction, graphical method and statistical data analysis.

### Research results and discussion

*The smart specialisation strategy: the theoretical analysis*

The concept of smart specialization has attracted great interest and has been adopted widely in European regional and innovation policy. In scientific literature, first ideas about smart development strategy at the EU level appeared already between 2006 and 2009. The concept of smart specialization was elaborated by the group of researchers that actually advise the European Commission called as 'Knowledge for Growth'. According to them smart specialisation means the discovery of those potential domains or areas, which are based on exceptional features and assets of each region in order to reinforce the regional economy and build its competitive position on the global market (Gulc A., 2015). zx

The smart specialization strategies of countries with a small economy like the Baltic States should be focused on identification of the unique characteristics of each country and region highlighting competitive advantages of each region. The underlying rationale behind the smart specialization concept is that by concentrating knowledge resources and linking them to a limited number of priority economic activities, countries and regions can become more competitive in the global economy (Jucevicius R., Galbuogiene A., 2014).

Lithuanian researchers (Paliokaite A., Martinaitis Z., Reimeris R., 2015) emphasize that smart specialization needs to be communicated, understood and acknowledged, governance of smart specialization strategy has to ensure participation and ownership in the foresight process and implementation of smart specialization strategy. And also smart specialization process has to encourage innovation and experimentation, so it has to include creative thinking outside the list of fields that are "usual suspects" for research and innovation support.

About smart specialization in regional level writes Polish researcher Gulc (2015): smart specialization does not mean only supporting of existing strengths of the regions but rather finding the new possibilities of their development. Each region can find new areas of development based on local known by diversifying the existing specialization and finding the synergy and links between them. The results in Polish regions showed a big variety of utilized research methods designing smart specialization. Naldi, Nilsson, Wetlund and Wixe (2015) also studied that regions respond differently to investments in innovation – investments in core regions are more efficient when it comes to generating innovations compared to investments in peripheral regions. So, the regions should do smart specialization – identify the sectors, the technological areas or their main competitive advantage and then focus their regional policies to promote innovation exact in these fields (Naldi *et al.*, 2015).

At regional level, Mccann and Ortega-Argiles (2013) think that one of the features of many European regions is a weak correlation between the region's research and development capabilities, its training specializations and its industrial structure. It is necessary to develop regional policies that promote technological diversification amongst the most embedded industries, which have the relevant scale to

generate significant local impacts, whilst at the same time promoting the connectivity of the region.

In Latvia, the smart specialization assessment was done by Pelse and Lesevica (2016) using RIS3 Assessment Wheel. Comparison of the smart specialization strategies of Latvia and Lithuania reveals that a great deal of their priorities is similar, having different definitions.

Other Latvian researchers have analysed situation in Kurzeme region. The smart specialization model for the region should cover key values of the region, which comprise location, national resources, high biological and landscape diversity, transportation and logistics networks and presence of competitive production and service industries (Kreslins K., Stefenberga D., 2016).

In 2014, Vidzeme planning region developed their research study "Smart specialization Possibilities of Vidzeme Planning Region" (2014). During the research, there were set three strategic goals: to promote high value added production in traditional branches of the regions; to diversify economy of the region by developing entrepreneurship in the existing specialization areas and development of new forms of entrepreneurship in knowledge economy branches.

#### *The smart specialisation development in the EU*

The reason of smart specialization strategy implementation in the EU was the economic crisis, which wiped out years of economic and social progress and exposed structural weaknesses in Europe's economy. Economy should regenerate and pass a new development level. So, smart specialization strategy will help Europe to come out stronger from the crisis and turn the EU into a smart, sustainable and inclusive economy delivering high levels of employment, productivity and social cohesion (EUROPE 2020: A European ..., 2010). EU 2020 targets are presented in Table 1.

Table 1

**Europe 2020 target evaluation  
(2014-2015)**

Target value (2020)	Year 2014	Year 2015	Progress
Share of the employed population aged 20-64 be (%)			
75	69.2	70.1	93.5 %
Share of the EU's GDP invested in Research and Development (%)			
3	2.04	2.03	67.7 %
The "20/20/20" climate/energy targets:			
1.Greenhouse gas emissions' decrease, base year 1990 (%)			
-20	-22.94	-	114.7 %
2.Share of renewable energy in gross final energy consumption (%):			
20	16.0	-	80 %
3.Primary energy consumption (%):			
20	15.7	-	78.5 %
The share of early school leavers (%)			
<10	11.2	11.0	90.9 %
The share of the younger generation with a tertiary degree (%)			
>40	37.9	38.7	96.8 %
Share of people at risk of poverty in total population (%)			
20	24.4.	23.7	84.4 %

Source: authors' calculation based on EUROPE 2020: A European ..., 2010; EUROSTAT Database

To achieve these targets, the European Commission proposes that EU goals should be translated into national targets and trajectories and monitored in the EU Member States.

The three Baltic States have made the most progress to the EU targets. They increased their score by more than 10 index points. Their improvement on all fronts is impressive. Their employment rates increased by four to five percentage points.

R&D increased in all three, but especially in Estonia. Early school leavers dropped and tertiary education increased. Poverty or social exclusion rates remained below the EU target in Estonia, while Latvia and Lithuania made substantial progress towards the EU target. The share of renewable energy in electricity consumed increased, but GHG emissions also increased.

However, these targets are more representative. As described Mccann and Ortega-Argiles (2013), smart development is not a one-size-fits-all concept and its application requires embedding the various initiatives in the broader multilevel governance of each region context.

The European Commission, based on the analysis of regional features and innovation potential, recommends the EU Member States for developing smart specialization strategy for innovation promotion to adopt one of these development strategies:

- building on current advantages (science push/technology-led or a mix);
- supporting socio-economic transformation (reconversion or identification of a new frontier);
- catching up: towards the creation of knowledge-based capabilities (Guide to Research ..., 2012).

The choice between these three strategies depends on region type and main strategy. As it is seen in Table 2, strategy which is based on building current advantages conform to region with knowledge and technology hubs, knowledge-intensive city/capital districts, scientific and technology intensive production regions and skill intensive regions. For skill intensive regions, as a main priority can be two strategies – building on current advantages and supporting socio-economic transformation (e.g. in Latvia). Regions with medium-tech manufacturing and service providers and structural inertia or de-industrialising regions should choose supporting socio-economic transformation as a main strategy. And the third strategy – catching-up: towards the creation of knowledge-based capabilities is suitable for traditional manufacturing regions, service-led and natural resource-based regions and primary sector intensive regions.

**Innovation strategies for different types of region according to knowledge intensity of productive fabric**

Type of region	Main strategy		
	Building on current advantages (science push/technology-led or a mix)	Supporting socio-economic transformation	Catching-up: Towards the creation of knowledge-based capabilities
<b>Knowledge hubs</b>			
Knowledge and technology hubs	●	○	○
Knowledge-intensive city/capital districts	●	○	○
<b>Industrial production zones</b>			
Scientific and technology intensive production regions	●	○	○
Skill intensive regions	●	●	○
Medium-tech manufacturing and service providers	○	●	○
Traditional manufacturing regions	○	○	●
<b>Non-scientific and technology-driven regional systems</b>			
Service-led and natural resource-based regions	○	○	●
Structural inertia or deindustrialising regions	○	●	○
Primary sector intensive regions	○	○	●

Legend: ● main priority; ○ strategic choice; ○ low priority

Source: (Guide to Research ..., 2012)

*The smart specialisation strategies in Latvia, Lithuania and Estonia.*

All Baltic States have signed memorandum of Understanding on Closer Co-operation in Higher Education, Research and Innovation (2012). The purpose of this Memorandum is to strengthen the cooperation of the Parties in developing coordinated research and development policy and fostering innovation, in particular to meet the conditionality recommendations of the European Union for the next financial planning period for EU structural funds in 2014 – 2020. One of the tasks include supporting actions aiming to coordinate and create a basis for constant exchange of information on research, technology transfer and innovative industries in areas of smart specialization of each country as well as identifying common priorities and areas of synergetic cooperation.

**Latvia** has chosen strategy supporting socio-economic transformation foreseeing science and technology caused growth and progress towards a knowledge-based capacity development. At the

same time, in smart specialization strategy of Latvia there are included elements from the other two strategies mentioned before (Informativais ziņojums "Par ..., 2013).

The reason of choosing such model in Latvia was the existing economic problems as mono-centric regional development, not enough science and research capacity, existing education system did not match demand and supply of labour, weak cooperation between industry and science and prevalent business model of Latvian companies is not oriented toward innovation but on cheap labour and exploiting natural resources (Kiopa, 2014).

The task of smart specialization strategy in Latvia is to provide highlighting developing priorities and regular reviewing, targeted investment focusing, including strategy settings appropriate policy instrument selection and monitoring system development, which are aimed at Latvia competitiveness strengthening in regional, European and world level. Therefore, there are detected three transformation

directions of smart specialization in Latvia and such priorities:

- structural changes of production and export in the traditional sectors of the economy (products with high added value);
- growth in sectors where there is or is likely to create products and services with high added value (productive innovation system);
- sectors with significant horizontal impact and contribution to economic transformation (energy efficiency, advanced information communication technologies, advanced education system, knowledge base and human capital and polycentric development) (Informativais zinojums "Par ..., 2013).

Smart specialization strategy in Latvia provides development of human capital by attracting young scientists, avoiding fragmentation of resources and supporting cooperation programs (internationalization of science). Closer integration of education, science and industry sectors provides facilitate technology transfer via attraction of technology transfer experts in universities and introducing new transfer services, better linkages with instruments oriented to support creation of new businesses, continue to develop Competence Centres, especially in specialization areas, as long-term collaboration platforms between industry and academia and coordination platform among industry players themselves and support for development of technology transfer infrastructure (open labs, prototyping labs, living labs) in universities and research organizations. To develop building innovation capacity of industry, it is important to create new tax relief to support industry investments in R&D, to support development of enterprises, especially newly established businesses formed on the basis of research results, to support business with fast growth potential via early stage investment instruments and to support non-technological innovation and creative industries (Informativais zinojums "Par ..., 2013).

About smart specialization strategy status in Latvia – it has a national policy status; it is accepted by the Cabinet of Ministers by creating implementing plan and executing a monitoring system. The governance institutions responsible for smart specialization strategy design and implementation process are the Ministry of Education and Science and the Ministry of Economics. But Latvian Research and Innovation Strategic Council chaired by Prime Minister is responsible for strategic tasks (Kiopa, 2014).

**Estonia** emphasizes that the problem of their economy is that its productivity is lower than in west European countries – people in Estonia works hard but add less value per hour than people doing the same work in some other European countries. As explained by K. Lepik form Estonian Development Fund: "Estonia must move up in the production chain and concentrate more on innovation and development" (Smart Specialisation – Qualitative..., 2013).

The activity areas of Estonian economy are producing higher added value, to be export-intensive and characterized by large volumes of foreign trade and having a high rate of employment. A quantitative analysis of smart specialisation process in Estonia identified eight areas in which country currently has the highest economic potential – information and communications technology (ICT), health technology and health services, mechanical engineering, logistics, chemical products, innovative house-building (wooden houses), timber enhancement (doors, windows, furniture, design, cellulose, paper and cardboard) and functional food.

There were selected three important global trends as growth areas, in which Estonia's potential for cooperation between enterprise and research was strongest.

- 1) Information and communications technology (ICT) via other sectors – this sector may be considered as the sector with the highest potential for Estonia. There are highlighted

three sub-sectors (use of ICT industry, cyber security, software development) with a condition that the support may also be given to other sectors that cross paths with ICT.

- 2) Health technology and services – they have the greatest potential in such sub-sectors – biotechnology and e-medicine (use of IT for the development of medical services and products).
- 3) More efficient use of resources with three sub-sectors – materials science and industry, development of the "smart house" concept, food that supports health.

In addition, Estonians emphasize that growth areas should not be rigidly determined for a long period but they must be flexible (Smart Specialisation – Qualitative..., 2013).

In Estonia, the responsible ministries for the process of smart specialisation strategy development are the Ministry of Education and Research and the Ministry of Economic Affairs and Communications. Smart specialisation monitoring and analysis in Estonia are carried out by Estonian Development Fund.

**Lithuanian** economy has shown the necessity for economic transformation, which means

structural change that leads to growth of economic activities characterised by high productivity knowledge and human capital intensity. It is necessary to lead to closer collaboration and to formation of the critical mass of business and research representatives whose joint work would bring systemic changes and lead to higher competitiveness.

After discussions of expert groups and surveys, Lithuania proposed six priority areas of smart specialisation which are energy and sustainable development, health technologies and biotechnologies, new production processes, materials and technologies, transport, logistics and ICT and inclusive and creative society. Expert groups consisted of representatives from research, business, non-governmental and governmental sectors to get the most objective view. As a whole they proposed 20 priorities to promote experimentation and entrepreneurial discovery and providing strong monitoring system it is planned to terminated the "unsuccessful" priorities (Identification of Specific... , 2013).

Summary of smart specialisation priorities of all three Baltic States is shown in Table 3.

Table 3

**Smart specialisation priorities of Latvia, Lithuania and Estonia**

No.	Latvia	Lithuania	Estonia
1.	ICT	ICT (technologies for developing advanced e-content and information interoperability)	ICT
2.	Biomedicine, medical technologies, biopharmacy and biotechnologies	Intelligent applied technologies for personal and public health	Health technology and health services
		Biotechnologies and biopharmacy	Chemical products
		Advanced medical engineering for early diagnostics and treatment	
3.	Advanced materials, technologies and engineering systems	New production processes, materials and technologies	Mechanical engineering
			Innovative house-building (wooden houses), timber enhancement
4.	Smart energy	Smart and efficient energy and sustainable environment	-
5.	Knowledge-based bio-economics	Safer and functional food, agro-innovation	Functional food
6.	-	Transport and logistics	Logistics
7.	-	Inclusive and creative society	-

Source: authors' construction

Information and communication technologies is the common priority of all three Baltic states. Other common priorities have some differences depending on state planned economy development direction. In area of biomedicine, Latvia has a wide focus on this area, Estonia is more focused on health technology, health services and chemical products but Lithuania focuses also on medical engineering for early diagnostics.

In area of materials, technologies and engineering Estonia has just two directions – mechanical engineering and wooden materials using for innovative house-building and timber enhancement. Latvia and Lithuania have defined this area more generally as advanced materials, technologies and new production processes.

Smart energy as a priority has been proposed just by Latvia and Lithuania, where Lithuania also has included sustainable environment.

Lithuania and Estonia have thought more about functional food, while Latvia has nominated a broader concept – knowledge based bio-economics.

Logistics as a priority has been detected just by Lithuania and Estonia; Lithuania has also enclosed smart transport systems.

Lithuania is the only country of the Baltic States which has set inclusive and creative society area as a priority with modern learning technologies and processes and technologies and processes for breakthrough innovation.

### **Conclusions, proposals, recommendations**

- 1) Each EU country has developed its own smart specialisation direction but with a common aim to improve certain economic indicators in the whole EU.
- 2) Most of Europa 2020 targets since 2014 have improved, the slowest progress of targets is related to GDP investment in Research and Development - in 2015 it reached just 67.7 % of target value.

- 3) The three Baltic States have made the most progress to the EU targets by more than 10 index points. R&D increased in all the three countries, but especially in Estonia. Early school leavers dropped and tertiary education increased. Poverty or social exclusion rates remained below the EU target in Estonia, while Latvia and Lithuania made substantial progress towards the EU target. The share of renewable energy in electricity consumed increased, but GHG emissions also increased.
- 4) Several researchers about smart specialization emphasize that regions and countries respond differently to investments and innovation, each region should find synergy and links between new development areas based on local known by diversifying the existing specialisation.
- 5) Comparing smart specialisation priorities in the Baltic States, most priority areas largely coincide but some priorities have been proposed just by one or two countries. Latvia has proposed wide area priorities; Lithuanians have divided even 20 priorities but Estonians have defined their priorities very laconic.
- 6) Information and communication technologies are the common priority of all the three Baltic States. Smart energy as a priority has been proposed just by Latvia and Lithuania, Lithuania and Estonia have thought more about functional food, also the logistics as a priority have been detected just by Lithuania and Estonia.
- 7) Lithuania is the only country of the Baltic States which has set inclusive and creative society area with modern learning technologies and processes and technologies and processes for breakthrough innovation as a priority.

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