IDA-VIRUMAA FUNCTIONAL REVIEW

IDA-VIRU COUNTY GOVERNMENT, TARTU-JÕHVI-NARVA, 2016

Contents

1. Introduction 3

2. Analysis of the regional context and the innovation potential 5

2.1. Ida-Virumaa economic structure and the importance of blue economics 8

2.2. Ida-Virumaa SWOT – general economic development 11

2.3. Ida-Virumaa Blue Growth SWOT 12

2.4. Ida-Virumaa R&D capacity 13

2.5. Conclusion 13

3. The RIS3 process 14

4. Potential stakeholders overview – understanding the target group 20

5. A vision – Ida-Virumaa in the Baltic Sea Region 23

VISION 23

Planning of coastal areas 23

Seaport development 24

Tourism and spa development 24

6. Priorities. Towards an Ida-Virumaa BG action plan 25

7. Action plan in the EU and national framework 26

8. Monitoring and evaluating 27

1. Introduction

Smart Blue Regions seeks to enhance blue growth opportunities based on the increased capacity of the Baltic Sea Region (BSR) to implement research and innovation strategies for smart specialisation (RIS3). This report analyses the opportunities of Ida-Virumaa, Estonia of becoming a part of the blue growth (BG) strategy in the Baltic Sea Region.

Ida-Virumaa is the most industrialised of the 15 counties in Estonia. The restructuring and automation of large scale industries (oil shale mining, oil extracting and electricity production, chemical and metal industries) has reduced employment which, in turn, has resulted in the population declining over the last 25 years. Therefore, the region needs alternative sources of employment, and smart blue growth might provide new opportunities.

In Estonia, RIS3 has been developed on the national level since the country is small enough to count as a single NUTS2 region in the EU. The Estonian government chose the following smart specialisation areas for Estonia in 2013:

- ICT horizontally via other sectors;
- Healthcare technologies and services;
- More efficient use of resources.

To an extent, all three are applicable in Ida-Virumaa, most notably the last one. Still, none of these are directly interlinked with BG. Also, the RIS3 process has been slowing down in Estonia since the end of the Development Fund, an organisation that was institutionally responsible for the design and management of the national smart specialisation strategy. A new national institutional framework for RIS3 process management is currently being developed.

The Ida-Viru (IV) County Government approved the county development plan for 2014-2020[1] which preceded the Ministry of Interior action plan for 2015-2020[2] proposing specific measures for regional development. Both documents include BG and RIS3 elements but do not address blue growth as an integrated concept. The IV development plan underlines the importance of smart specialisation. The IV County Government has also studied opportunities that stem from RIS3, and they conducted a thorough study in 2014[3].

Presently, the most important economic activities that might contribute to BG in IV are more niche oriented and linked with general sub-sectors. In addition to traditional fishing and fish processing, these economic activities can include chemical industry, metalworking, leather and apparel manufacturing, transportation and logistics, the repair and installation of machinery

[1] https://ida-viru.maavalitsus.ee/documents/119835/11381344/Ida-Viru+maakonna+arengukava+2014-2020.pdf/1953b646-6462-445c-afbe-2c961453f074

[2] http://www.fin.ee/public/Regionaalareng_ja_poliitika/Ida-Virumaa_tegevuskava_2015-2020/Ida-Virumaa_tegevuskava_2015-2020.muudetud110815.pdf
http://www.fin.ee/public/Regionaalareng_ja_poliitika/Ida-Virumaa_tegevuskava_2015-2020/IV_tegevuskava_2015-2020_rakendusplaan_muudetud110815.xls

[3] http://skytte.ut.ee/sites/default/files/ec/ida-viru_konkurentsivoime_analuus.pdf

and equipment (e.g., boats) and, last but not least, tourism and related activities (including accommodation and food services). Since the industry and business activities in Ida-Virumaa are mainly situated along the coast or at least not far from the sea, maritime issues are topical *per se.* So far, environmental and nature conservation issues have been dominant but, considering the location of the region and the already existing tradition of seaside tourism and spa industries, the importance of these economic branches is growing.

Hence, the role of IV in the INTERREG Smart Blue Regions project could be more prominent in the field of tourism, health and spa – which is one maritime function particularly suitable for economic peripheries. Health and wellness are considered potentially highly innovative subsectors[4], matching well with the framework conditions of the region. IV has two large regional hospitals, a number of large spas and a well-functioning regional tourism cluster[5]. Three large urban agglomerations: St. Petersburg, Helsinki and Tallinn are located within a 200 km distance. The ageing population in IV (a process that is happening at a faster pace here than elsewhere in Estonia) and similar demographic dynamics in the above mentioned nearby cities (and elsewhere in Europe) create a huge potential for the growth in demand for health services and recreation. In addition, IV has magnificent beaches along the Gulf of Finland and the coast of Lake Peipus, beautiful landscapes and plenty of untouched wilderness, notable historical and cultural sites.

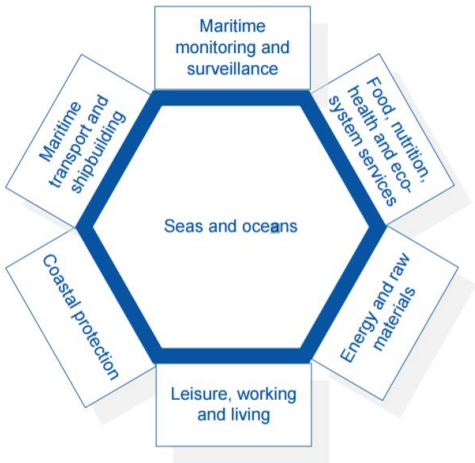

Figure 1. Maritime functions (Source: De Vet et al 2016)

Due to the economic structure and historical background of the region, IV is also fit to contribute to the adaptation of new RIS3 implementation measures in the participating regions, especially in the blue value chain of machinery, technology and energy.

[4] https://webgate.ec.europa.eu/maritimeforum/sites/maritimeforum/files/Blue_Growth_Final_report_annex%206%20Outcomes%20of%20the%20expert%20and%20.pdf

[5] http://ivek.ee/wp-content/uploads/2014/03/Ida-Viru-turismiklastri-strateegia-2014-2020.pdf

2. Analysis of the regional context and the innovation potential

The Ida-Viru County is located in North-East Estonia on the EU and Russia border. The total area of the county is 3364 km^2 and the population is 147,597 (2016). The county has 20 local governments: 5 towns and 15 rural municipalities. The urban centres, where 80% of the population lives, are Narva, Kohtla-Järve, Sillamäe, Jõhvi (the county's administrative capital) and Narva-Jõesuu. The county accounts for 8% of Estonian GDP and produces 14% of the industrial output.

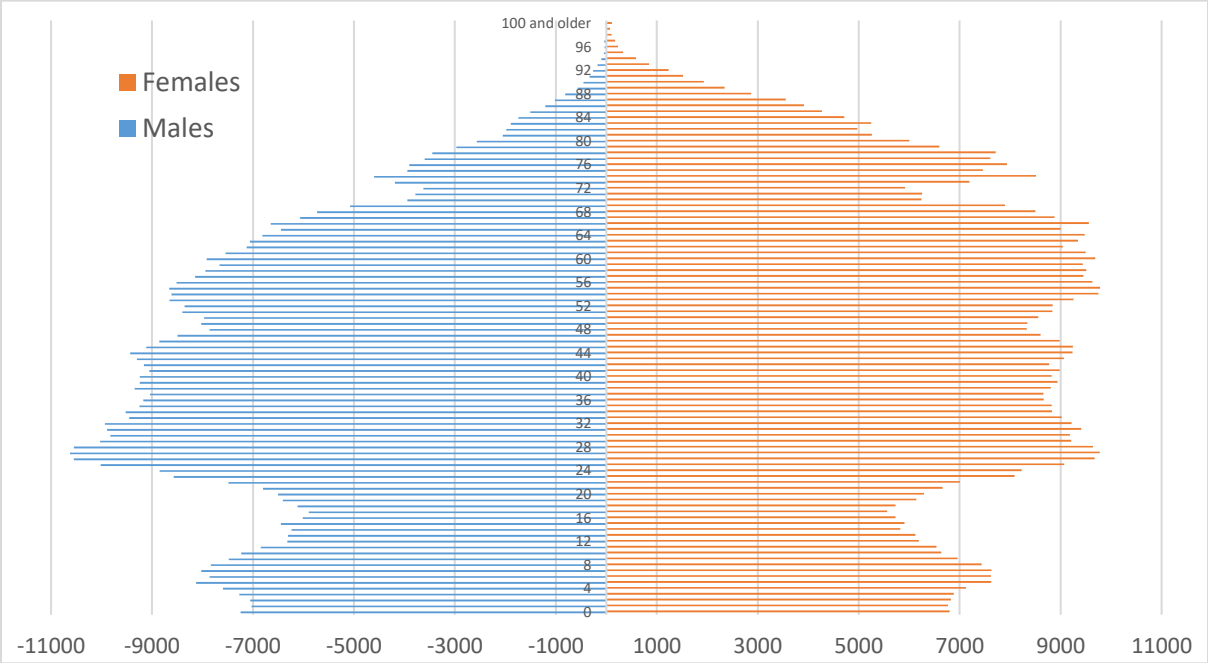

Figure 2. Population age structure of Ida-Virumaa, January 1, 2016. (Statistics Estonia, 2016).

The declining population and low levels of employment are probably the main issues affecting IV in the near future. Cheap labour, which has served as a competitive edge for Estonia and Ida-Virumaa in Europe, is losing its role since the wages are growing fast. The differences in incomes between Estonia (and Ida-Virumaa) and Western Europe are decidedly decreasing. However, in recent years, wages have grown much faster than labour productivity and this will seriously impact the economy and region's ability to attract foreign direct investments.

Compared to other counties, Ida-Virumaa is lagging behind in terms of several socio-economic factors[6]. For one, it is an area where the population is getting older and decreasing at the fastest rate. Over the ten-year period between national censuses (2000–2011), Ida-Virumaa

[6] Based on Statistics Estonia database: http://pub.stat.ee/px-web.2001/dialog/statfile1.asp

population decreased 17%. According to the projections provided by Statistics Estonia, the population of the region will further shrink by 27% by 2040.

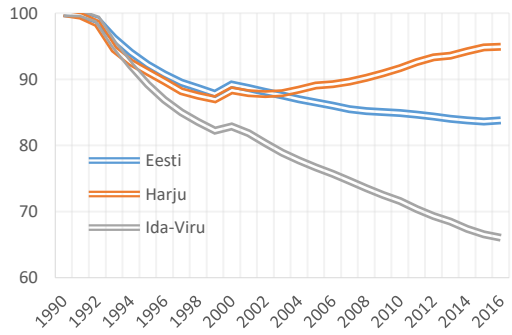

Figure 3. Population Dynamics in Estonia, capital region and Ida-Virumaa (Statistics Estonia, 2016).

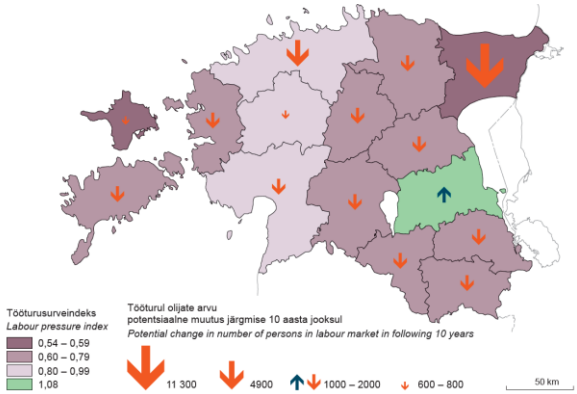

Figure 4. Demographic labour pressure index January 1, 2016 (Statistics Estonia, 2016).

The labour pressure index is the most unfavourable in Ida-Virumaa: in the next ten years, more people will leave the labour market because of their age than will enter it (six new people will enter the labour market per every ten people who will retire). Hence, there will be an increasing demand for health services, but IV hospitals are understaffed and the Estonian Health Insurance Fund is trying to cut expenses even further.

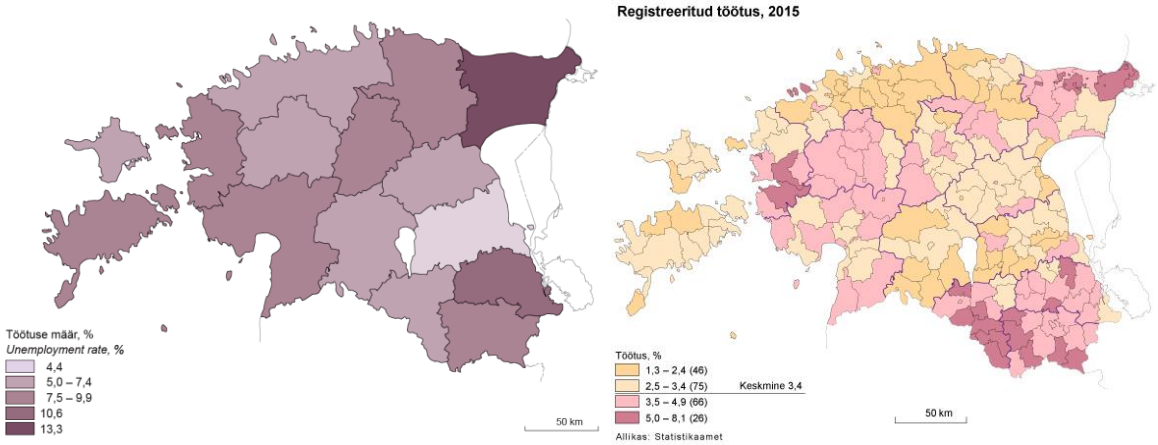

Figure 5. Unemployment: according to ILO by counties (2013–2015) and registered by municipalities (2015) (Statistics Estonia, 2016).

Ida-Virumaa also has the highest numbers of unemployed and people inactive on the labour market in Estonia: in 2015, only 54% of the working-age people in the county were employed. This is an indicator of structural unemployment (that accompanies changes in the economic structure), a high percentage of inactive people and unreported employment. Although unemployment rates have also decreased in recent years (2011: 19.7%, 2015: 11.0%), this can partly be attributed to a decrease in the numbers of working-age people and to an exodus of

people from Ida-Virumaa. Despite the high rate of unemployment, there is a lack of qualified workers. This has been caused by brain drain driven by low prestige and lacking opportunities for study and employment.

Ida-Virumaa also has **the highest percentage of people living in relative poverty** (almost 30.5% of the population in 2013). Relative poverty and the resulting poor quality of life is a particularly serious problem in the IV urban areas. Based on the numbers of registered crime, IV has the least safe living environment in Estonia.

In terms of industrial composition, Ida-Virumaa still has quite a high share of labour intensive industries. There is a need for a renewed focus on the so-called “smart” jobs to avoid losing competitiveness even further. The region must move up in the production chain and concentrate more on innovation and development. One problem in this is the lack of capital and foreign direct investments. In addition, the development and resource allocation of the large companies in IV is mostly determined from outside the region. The majority of sales profits and even environmental fines are directed elsewhere, although the region strongly lacks capital. The large investments made in power and oil plants in the 2010s have not increased employment substantially, which is greatly due to the difficulties caused by the lowering of energy prices since 2014.

Environmental pollution is a significant characteristic external negative factor in IV. Large investments have been made to ease pollution problems but protecting the environment will require substantial investments in the future as well. Low real estate prices exclude small businesses from commercial loans, a situation that is caused by an inactive market and poor reputation that stems from the factors mentioned.

There is insufficient contacts and cooperation between communities and sub-regions. The county is a highly heterogeneous collection of urban regions, ethnic groups, large businesses and business clubs. IV is isolated from the rest of Estonia but encapsulation also happens within the region.

The county has long-standing traditions of manufacturing industries. For almost 100 years, Ida-Virumaa has been dominated by oil shale mining, oil extracting, energy production and other heavy industries. The major growth took place after World War II when the production of nuclear materials began in Sillamäe, large thermal power plants were built and several metal, engineering and textile industries were extended. The population of the region grew from 64,000 in 1940 to over 230,000 by 1989.

Today, the region has a highly developed technical infrastructure and logistical network. Its location next to both north-western Russia and Finland should ideally favour the development of trilateral economic links of transit and border trade. Ida-Virumaa also has a long-distance seaport in Sillamäe, well extended in the first decade of this century. This potential has not been entirely utilised, however, due to the problematic Estonian-Russian relations, the recent EU-Russian relations and, to some extent, the very limited, or so to say liberal, regional policy of Estonia.

Ida-Virumaa is actually much more diverse historically, possessing remarkable renewable natural resources and recreational amenities. The region has always had numerous traditional manufacturing industries producing wood and fish products. Also, since the 1870s already, it has served as a decent seaside resort for St. Petersburg elites. IV main tourist attractions include perennially operating spa hotels, long sandy beaches along the coast of the Gulf of Finland and Lake Peipus, areas for recreational activities (e.g., former industrial areas which are now converted to tourist attractions) as well as numerous historical sights.

2.1. Ida-Virumaa economic structure and the importance of blue economics

In 2014, Ida-Viru's GDP was 1566.5 million euros which was 7.8% of the overall GDP of Estonia (8.3% in 2011). By turnover, in 2014 the most important sectors in Ida-Virumaa were manufacturing and the supply of electricity, gas and so on (see Table 1). Turnover in manufacturing in IV accounts for 9% of the total in Estonia; for the supply of electricity and gas, the percentage was 26%. Retail and wholesale, mining industry, transportation and storage and constructions were also among the most important sectors in IV by turnover. These ecnomic branches are also with the highest employement figures.

Table 1. Importance of economic sectors in Ida-Virumaa by turnover in 2014.

Sector	Estonia	Ida-Virumaa	Ida-Virumaa share (%)
	2014, mil	2014, mil	2014
Manufacturing industry	10,579.7	933.6	9%
Supply of electricity, gas, etc.	1830.8	480.1	26%
Retail and wholesale	20,677.3	351.2	2%
Mining industry	484.2	311.3	64%
Transportation and storage	3978.2	219.1	6%
Constructions	3652.5	111.5	3%

The highest wage costs were in the supply of energy, gas and so on, where wages increased by 14% between 2012 and 2014. In the mining industry, wage cost per employee decreased, but it was still among the industries highest wage cost per employee.

Table 2. Wage costs per employee in Ida-Virumaa.

Sector	Wage cost per employee		
	2014	2012	% change
Supply of electrical energy, gas, etc.	21,687	18,715	14%
Water supply; sewerage, waste management	16,333	11,669	29%
Mining industry	16,015	18,959	-18%
Manufacturing industry	13,188	12,821	3%
Information and communications	11,924	10,465	12%

In the manufacturing industry, the most important sub-sectors in 2014 were the manufacturing of chemical products, building and repairing machinery and the manufacturing of coke and refined petroleum products, the latter being related to the oil shale processing which uniquely takes place in IV.

Table 3. The biggest sub-sectors in manufacturing industry in 2014.

Sub-sector	Turnover in 2014	% of total turnover in Estonia
Manufacturing of chemical products	249,904,395	46.9%
Manufacturing of coke and refined petroleum products	249,397,960	100.0%
Building and repairing machinery	110,107,782	25.3%
Production of metal products	85,101,106	7.6%
Production of food products	65,832,447	4.6%

The highest value added per employee in the manufacturing industry was in the manufacturing of coke and refined petroleum, followed by the building and repairing of machinery. The value added in the manufacturing of chemicals has shown a significant drop as a consequence of the turbulent times in the global markets.

Table 4. Added value per person in manufacturing industry in Ida-Virumaa.

	Added value per person, thousands		
	2014	2012	%
Manufacturing of coke and refined petroleum products	185.1	109.7	41%
Building and repairing machinery	45.7	16.1	65%
Manufacture of other non-metallic mineral products	38.1	13.8	64%
Chemical manufacturing	36.9	51.5	-40%
Manufacture of rubber and plastic products	29.7	25.6	14%

In the service sector, the most important sub-sectors in 2014 were wholesale trade, warehousing and support activities for transportation and land transport and transport via pipelines.

Table 5. Turnover in service sector in Ida-Virumaa.

	Turnover in IV in 2014	% of turnover in EST
Wholesale trade	230,656,602	1.87%
Warehousing and support activities for transportation	135,625,650	6.29%
Land transport and transport via pipelines	82,641,486	5.92%
Retail trade	78,366,068	1.45%
Wholesale and retail of motor vehicles	36,711,724	1.61%

The biggest branches in service economy according to employer figures were land transport and transport via pipelines and retail trade, the first having 1488 people employed in 2014 and the latter having almost the same number of people employed.

Table 6. Number of employees in service sector.

	No of employees in IV in 2014	% of no of employees in EST
Land transport and transport via pipelines	1488	7.6%
Retail trade	1483	4.2%
Warehousing and support activities for transportation	651	9.1%
Wholesale trade	614	3.0%
Serving food and beverages	579	4.7%

The highest value added per employee was in warehousing and support activities for transportation, having increased 44% between 2012 and 2014.

Table 7. Added value per employee 2012-1014.

	Added value per employee in IV, 2014	Added value per employee in IV 2012	%
Support activities for warehousing and transportation	83.2	46.7	44%
Rental and leasing activities	61.1	54.2	11%
Information service activities	44.8	24.0	46%
Programming	24.3	21.2	13%
Wholesale trade	23.5	37.1	-58%

From the branches of blue economy, we analysed activities such as accommodation and water transport (including harbor building and other). Table 8 lists the five largest accommodation enterprises by turnover. Companies located in the coastal area are coloured blue (although Narva can also be seen as a coastal area since it is located on a riverbank of Narva river and is very close to the sea area). The biggest accommodation enterprise in 2014 was Egeria Kinnisvara OÜ, which was a spa-hotel on the seaside in the town of Narva-Jõesuu. It employed 101 people and its revenue in 2014 was 3 million euros which had decreased 17% since 2013. 2nd largest company in accommodation sector was also a spa-hotel, AS Narva-Jõesuu Sanatoorium which employed 70 people in 2014 and who's revenues had increased 4% since 2013. A slight overall decrease (4.6%) was seen in the accommodation field between 2013 and 2014, caused by Russian crisis and devaluation of the rouble. However, in 2015 and 2016 the situation is improving and the number of tourists is growing.

Table 8. Enterprises in accommodation in Ida-Virumaa.

Name of the company	City	No of employees 2014	Revenue 2014	Change of revenue from 2013	Added value per employee
Egeria Kinnisvara OÜ[7]	Narva-Jõesuu	101	3,022,875	-17%	14,441.0
AS NARVA-JÕESUU SANATOORIUM	Narva-Jõesuu	70	1,853,580	4%	14,254.6
OÜ Travel Balt	Narva	43	1,059,399	-5%	12,301.3

[7] In May 2016 the company was bankrupt.

Saka Mõis OÜ	Saka	27	729,532	-4%	13,380.3
Mehntack OÜ	Mäetaguse	19	620,123	8%	13,759.1
OÜ SANESI	Narva	20	356,162	-19%	9350.7
Total of accommodation sector		**450**	**69,510,693**	**-4.6%**	**220,472.1**

The number of water transport companies in Ida-Virumaa is rather modest. According to business reports, only 178 people were employed in the water transport sector in 2014. Although 10 companies were listed in the area of water transport, only four indicated employees and revenue for 2014.

Table 9. Enterprises in water transport in Ida-Virumaa

Name of the company	City	No of employees 2014	Revenue 2014	Change of revenue from 2013	Added value per employee
Aktsiaselts SILLAMÄE SADAM	Sillamäe	142	21,579,000	2.5%	117,528.2
Osaühing Akvamarin	Narva	26	433,767	-6.5%	7753.8
Astnik Grupp OÜ	Jõhvi	5	359,302	80.0%	26078.8
Osaühing StimReis	Kohtla-Järve	5	75,424	-4.9%	4482.8
Total of water transport sector		178	22,447,494	2.3%	155,843.6

2.2. Ida-Virumaa SWOT – general economic development

Strengths in terms of business development are based on the concentration of the labour force. Industry tradition, the existing infrastructure and proximity to large metropolises St. Petersburg and Tallinn-Helsinki provide IV with good basis to draw industrial investments.

Table 10. Ida-Virumaa general SWOT

OPPORTUNITIES	**THREATS**
Ability to absorb large investments Tourism and healt services expansion because of agening Business Services, B2B with Russia Foodsector growth, greenhouses and fish farming in particular Extension of (applied) higher education EU border region status (transit trade, logistics)	Environmental Threats Personnel structure deterioration (through emigration) Border Closing University colleges closing

STRENGHTS	WEAKNESSES
Industrial tradition Concentration of industrial workforce Industrial infrastructure Location between Tallinn and St. Petersburg Spa-tradition and growing visitor numbers	Educational bias Weak vocational education Rigid labor, no re-training Cultural encapsulation, communities do not communicate Bad reputation and low value of real estate Lack of capital for SMEs Business information in Russian is not available

Opportunities are linked with obtaining large industrial investments. Still, there is much that remains to be done in developing one new branch: the service industry (both for individuals and companies). The key to IV future (which links well with the RIS3 ideology) is the development of local technical and business higher education, which would help increase the innovativeness of the economy. Opportunities lie both in being the border region in the EU and in energising and diversifying local land and recreational activities. In that sense, BG would be a great opportunity to introduce new businesses and job creation.

Threats to the IV enterprises are mainly the negative external factors caused primarily by the old economy: social problems and environmental damage. IV has already lost its youth who have not found suitable work or study opportunities in the region. Since universities also lack motivation to operate in the region, there is a danger that the existing centres of knowledge shrink or close. Local enterprises might find themselves even more paralysed by the further closing down of the Russian border.

Weaknesses are mainly based on the IV culture that is dominated by the old economy, by social rigidness and a peripheral role in the Estonian public space and in connection to the state government and the linguistic landscape. The population and enterprises in the region are unable to cope with changes, they do not re-train and, instead, become encapsulated, thus amplifying the external factors of the old economy and leading to a negative reputation and wary placement of capital.

2.3. Ida-Virumaa Blue Growth SWOT

OPPORTUNITIES	STRENGHTS
Tourism, spa and health services → high growth considering ageing Sailing tourism Wind energy Fish farming (using power stations cooling water) Boat building and repair	Numerous fisheries and fish processing Spa tradition and extending spa-firms Well-functioning regional tourism cluster Large companies looking for green/blue investment opportunities Industrial low cost labour force still available
THREATS	**WEAKNESSES**
Environmental issues still not solved Border crossing troubles may increase Economic sanctions set for and by Russia	Weak regional governance, additional confusion due to municipal amalgamation Educational bias, structural unemployment Worsening labour market situation in the long run

Further economic and political centralisation that will not account for local needs	No regional university and/or research institute focused on the blue field Ida-Virumaa and Narva hospitals that could collaborate with the spa sector are understaffed

2.4. Ida-Virumaa R&D capacity

The R&D capacity in IV is limited to two university colleges and the Tallinn University of Technology Oil Shale Competence Centre, which includes a well-equipped chemistry lab, and few narrowly focussed corporate R&D units, some of them rather specific (e.g., a rare metals plant in Sillamäe).

Neither university colleges nor the competence centre or corporate R&D units are working with BG themes so far. Both colleges are able and willing to improve the ICT capability of local SMEs and add new fields in the study line. There are BG-related R&D and training challenges in every sector mentioned above, especially in those connected to:

- maritime knowledge to improve the overall access to information about the sea;
- maritime spatial planning to ensure sustainable management and the development of regional activities at sea and along the coast;
- providing authorities with information and guidelines about maritime activities: planning and provision of on-water border control, safety and security, fisheries control and environmental issues.

2.5. Conclusion

The continuation of Ida-Virumaa oil shale industry is not sustainable in terms of employment and revenues. The employment situation is worsening due to high unemployment, selective emigration and ageing. Thus, IV quickly needs alternative jobs for about 7000 unemployed workers. Blue growth related businesses development could be one realistic option. Since several Baltic Sea regions lack industrial workforce, some plants can be moved here or new subcontracting partnerships can be initiated.

One future specialisation, considering IV's historical spa tradition, could be the extension of export oriented spa and health services, attracting capital and clients from St. Petersburg and Tallinn. Those cities are also ageing but lack affordable nursing and recreational establishments for their middle-class citizens. Other tourism industry related activities include the re-opening of a direct ferry route to Eastern Finland and the development of yacht marinas along the North-Estonian coastline.

3. The RIS3 process

The purpose of smart specialisation and RIS3 process is to identify areas of the economy where the potential for growth and the value added are above average and where a competitive advantage can be achieved by investing in R&D. The European Commission has placed smart specialisation in the spotlight among R&D activities and innovation strategies and turned it into a precondition for receipt of EU funds for CEE countries. The growth areas selected in the course of smart specialisation are priorities in the 2014–2020 financing period.

This constitutes a significant challenge for many regions in the BSR: in the absence of prior experience and established knowhow, great variations in regional capacities to implement RIS3 have already appeared in the early stages of priority setting. Further, it is not only RIS3 that is a new policy instrument – "Blue Growth" is also a relatively new concept still. Whereas traditional maritime activities such as shipping and fishery have been targeted by European, national and regional policies for decades, there is still only a limited base of experience of proven policy measures when it comes to blue biotechnology / life science, maritime surveillance / technology or new propulsion technologies based on marine energy resources. Even on the European level, there is no RIS3 specific guidance for blue topics. Blue growth is R&D intensive but with a high potential for sustainable innovations that require targeted support measures.

Blue growth is a concept which is used by the European Commission (DG MARE) to harness the untapped potential of Europe's oceans, seas and coasts for jobs and growth. Blue growth is seen as an innovative way to develop a range of maritime activities that are often dependent on each other, for instance, by relying on common skills and shared infrastructure. In the subsequent implementation of the blue growth concept, the importance of innovation across all sectors of the blue economy has been highlighted.

In terms of innovativeness, Estonia belongs among the moderate innovators in the group of advanced Eastern European counties. According to Statistics Estonia, the expenditure on R&D amounted to 302.8 million euros in 2015, which was 6% more than in 2014. Expenditure on R&D in 2011–2015 experienced an escalation and decline trend (Figures 6 and 8). Changes were caused by one-time, large-scale investments in 2010–2012, namely into Ida-Virumaa oil extracting and energy sector, followed by a decline in the next two years due to the absence of major new investments. It is characteristic of the economy of a small country that one-time investments, especially if they are not followed by equivalent investments in subsequent years, can significantly impact statistical indicators.

46% of R&D expenditure came from the 2015 state budget. The government funds a substantial share of R&D spending, and this remained stable in 2013–2015. The share of R&D financing of the total general government expenditure was 1.7%. It is important to note that the funding allocated to R&D by the government also includes EU subsidies, which are included in the state budget and are counted as government allocations.

The ratio of R&D expenditure to gross domestic product (GDP) was 1.5%, remaining on last year's level. According to Eurostat's preliminary data, Estonia retained its intermediate position among the EU member states according to the R&D intensity indicator.

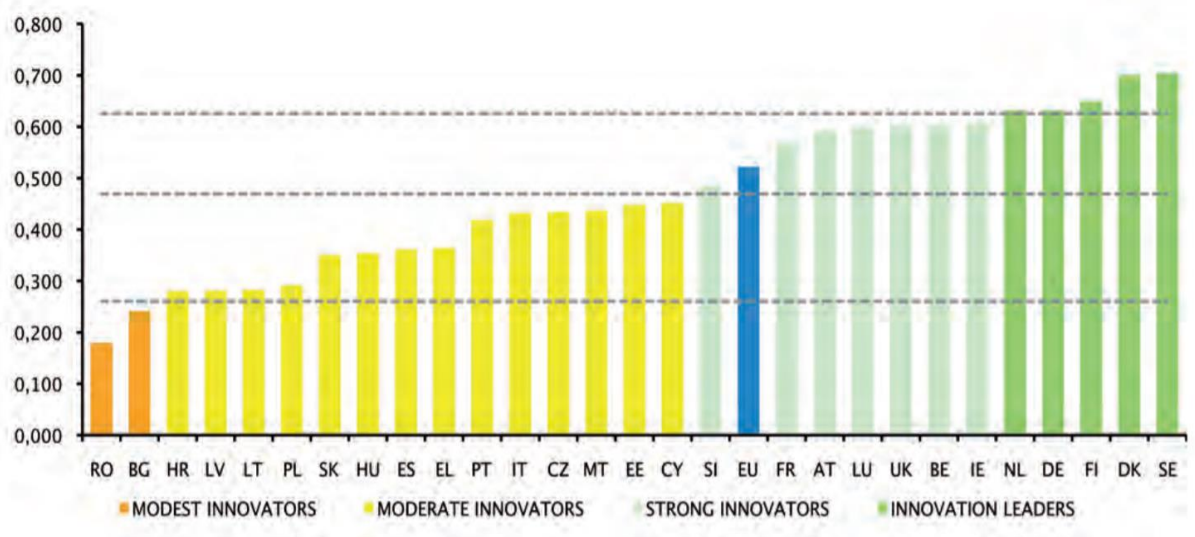

Figure 6. Innovativeness of EU countries according to the community innovation survey (CIS 2016).

R&D expenditure in the business enterprise sector was 139.4 million euros, which accounted for 46% of the total R&D expenditure. Spending increased by 11% compared to the previous year which is mainly due to increased labour costs. The share of investments in the R&D expenditure of the business enterprise sector was at a record low, amounting to only 17% of the total expenditure, the lowest in the last five years. Obviously, this is influenced by the overall economic situation where investment activity started to decline already in 2013, and this downward trend continued in 2015.

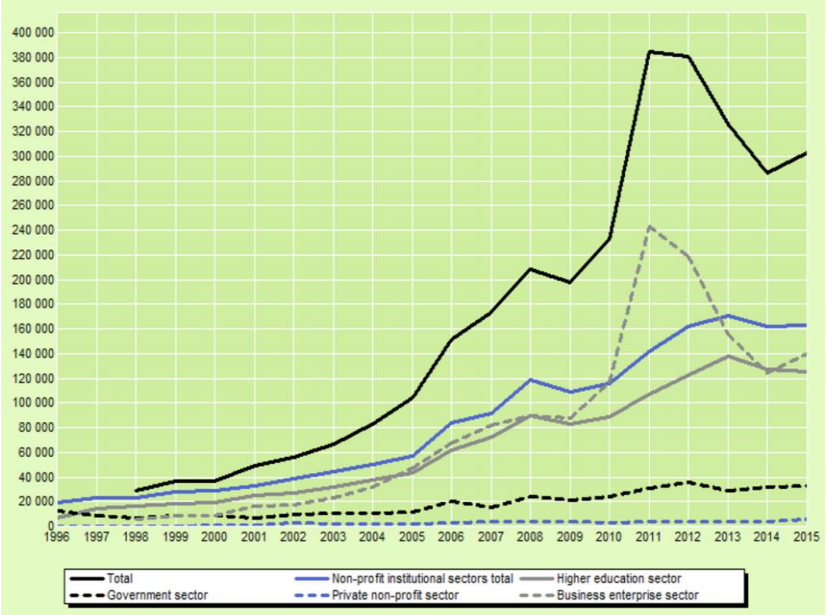

Figure 7. R&D sectoral spending in Estonia (Statistics Estonia, 2016).

The R&D expenditure in the non-profit sector (higher education, government and non-profit private sector) was 163.4 million euros, that is, 54% of total R&D costs. Of

these, 79% were funded by the government. The largest share – 41% of the non-profit institutional sector's R&D expenditure – was in the higher education sector. Similarly to the business enterprise sector, in the non-profit institutional sector, labour costs accounted for the greatest share of R&D expenditure: 50%.

The number of research and development employees calculated in full-time equivalents declined 6% compared to 2014. Calculated in full-time equivalents, the number of researchers and engineers declined slightly less – by 3%. The decrease in the number of full-time researchers and engineers was influenced the most by the business enterprise sector, where the figure fell by 9% compared to 2014; in the non-profit sector, the decline was only 1%. However, labour costs in R&D grew by a total of 9%, including by 18% in the business enterprise sector and by 1% in non-profit sectors.

Estonian R&D has been predominantly university and science centred (Figure 8). The Triple helix type or university-industry bilateral cooperation has been fairly modest.

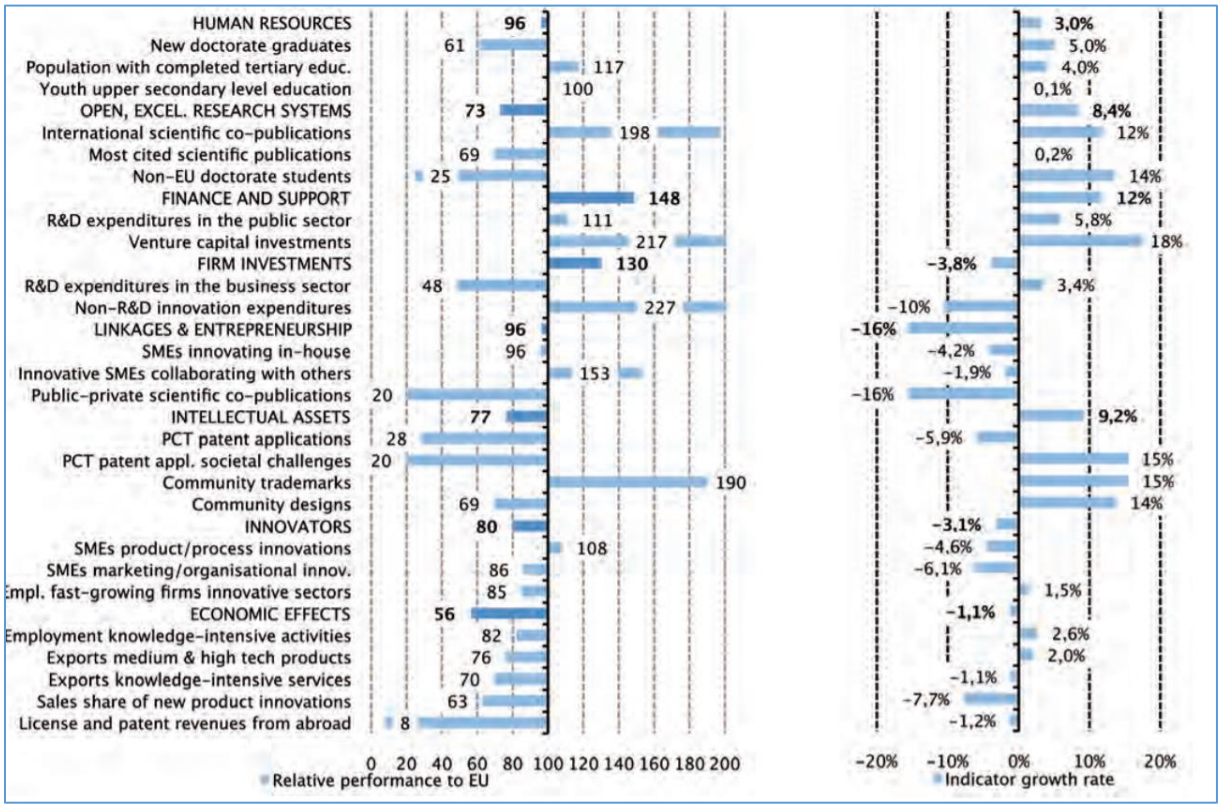

Figure 8. Estonian innovativeness in comparison with EU countries according to the community innovation survey (CIS 2016).

In Estonia, the Ministry of Research and Education and the Ministry of Economic Affairs are responsible for the application of RIS3. The task was subcontracted to the Development Fund[8] which created relevant teams and produced RIS3 documents. However, since 2016, the

[8] http://www.arengufond.ee/en/smart-specialization/overview/

Development Fund no longer exists and work on establishing a new structure has started recently. Estonian Enterprise Foundation and Archimedes Foundation act as implementing agencies for the new RIS3 national measures.

The following fields of economic activity were chosen for RIS3[9] by the Estonian Development Fund.

1. **Information and communications technology (ICT) horizontally** via other sectors. It is important to note that the development of this sector around the world has reached a stage where larger opportunities can be found in the application of ICT technology in other sectors. The three sub-sectors of the highest priority are listed below but, in the case of ICT, the sub-sectors should not be strictly limited to the list and support may also be given to other sectors that cross paths with ICT. Sub-sectors: a) use of ICT in industry (including automation and robotics), b) cyber security, and c) software development.
2. **Healthcare technology and services.** Demand for healthcare services is growing globally as populations age. Estonia has the greatest potential in a) biotechnology (a strong scientific basis) and b) e-health (use of IT for the development of medical services and products).
3. **More efficient use of resources.** The increasing global population is likely to lead to the need to use resources more efficiently. Estonia's potential in this area is greatest in a) materials science and industry, b) the development of the 'smart house' concept (IT solutions and a more efficient construction of houses (passive house)), and c) food that supports health.

However, the Ministry of the Interior Regional Development Department (under the Ministry of Finance since 2015) detailed its own regional SS approach, which has been used for elaborating regional strategies and investment programmes. One of the Regional Development Department measures is the development of regional competence centres outside the university cities Tallinn and Tartu. The Ida-Virumaa Oil Shale Competence Centre was financed from this source. The Competence Centres Programme will continue during the 2014–2020 period.

Additionally, the Ministry of Agriculture is responsible for primary sector related R&D development, the Ministry of Culture for creative industries and the Ministry of Social Affairs for major investments into the hospitals and local health centres network and training programmes. Thus, Estonian RIS is very much dominated by central ministries and agencies and there is little cooperation between these administrative silos.

The recent termination of the Development Fund, which was institutionally responsible for SS design, weakened horizontal coordination even more. Enterprise and innovation policy is also

[9]http://www.arengufond.ee/upload/Editor/Publikatsioonid/Nutikas%20spetsialiseerumine%2020_02_2013.pdf
http://www.arengufond.ee/wp-content/uploads/2013/06/AF_kitsaskohad_final2.pdf

centralised within Enterprise Estonia. The IV business development centre, like most similar county based institutions, is understaffed.

Further confusion is created by the ongoing Territorial Administrative Reform that aims to amalgamate municipalities and proposes dismissing county governments that have, thus far, been responsible for the balanced regional development of counties. The problem is that the new institutional set up on the regional level is unclear. As a result, the future development or regional RIS3 processes has no clear and motivated owner.

Another characteristic of IV is also branch plant economy. Large companies (e.g., Eesti Energia) are managed from outside and decisions are not always coordinated with local and regional authorities.

Thus, RIS3 processes in Estonian and IV are facing serious governance issues on both levels. On the one hand, 'innovation' is considered a priority for the IV region and the understanding of innovation is adequate. A few years ago, innovation and smart specialisation was understood as something related to high tech and science, but by now, a much more pragmatic approach prevails. Also, when designing the regional development plan, the development priorities for IV were chosen through a wide participation process that also included a critical number of enterprises and educational institutions. However, due to weak guidance from the ministries, regional development documents lack analytical depth and strategic goal setting.

There seems to be a missing link between regional and national policy makers which means that regional interests in terms of regional development priorities are not always acknowledged by the national government, that is, ministerial silos, and the influence on formulating regional development policy in the national government remains weak. The programmes that consist of fairly reasonable activities are not always implemented reasonably. In reality, governors and municipal leaders try to lobby on the ministerial and political level in order to receive more funds. At the same time, since Estonia depends heavily on EU investment grants between 2013–2020, most investment funds are delivered through public calls for applications, which requires high project writing and management capacity. These calls also include EU requirements for the strategies of smart specialisation. Local authorities as well as county government have low administrative and development capacity and most of them are not able, considering available limited human resources and co-financing, to generate extra revenues from the EU project schemes.

Table 11. RIS3 main principles and focus areas.

Document	Themes and/or Goals
EU RIS3 themes	1. Agri-Food 2. Digital Growth 3. Energy 4. Industrial modernization 5. Value chains
EU Blue Growth Focus Areas	1. Blue energy 2. Aquaculture 3. Maritime, coastal and cruise tourism 4. Marine mineral resources 5. Blue biotechnology
Estonia RIS3	1. Information and communications technology (ICT) horizontally via other sectors. 2. Healthcare technology and services. 3. More efficient use of resources.
Ida-Virumaa development plan	1. Ida-Virumaa enterprises have the capacity to produce, offer services and operate on developing markets, especially in the priority branches. 2. The county is integrated through East-West and North-South logistics corridors. 3. The emergence of new small and mid-sized enterprises in the region could be stimulated through developing business infrastructure and offering support services locally. 4. Conditions and infrastructure have been created in Ida-Virumaa for the active use of seaways and for safe navigation. 5. Under the leadership of the Virumaa College of the Tallinn University of Technology Oil Shale Competence Centre, knowledge and skills in the oil shale field are put in the service of increasing the volume of R&D and innovativeness of the private sector. 6. Based on the county's peripheral location as well as on the knowledge and competences of European and Russian culture, a competence centre of EU and Russian cross-border cooperation has been established. 7. Ida-Virumaa creative industry is used to increase the competitiveness of local enterprises. 8. Relying on fully-developed industries, the county has drawn investments that offer high added value. 9. A tourism sector that offers active holidays and recreation has changed Ida-Virumaa into an attractive niche location among Asian and European families.

4. Potential stakeholders overview – understanding the target group

Ida-Virumaa is characterised by the presence of a number of large scale enterprises in oil shale, energy and metal industries. This sector depends largely on world oil and rare metal prices and has recently faced major difficulties. Despite several large investments in the last decade, the sector is forced to restructure in the long run. Estonian Energy, the largest fully state owned company thus far, already started an ambiguous wind-energy programme.

Oil Shale companies:

- Eesti Energia, https://www.energia.ee/en/avaleht
- Viru Keemia Grupp, http://www.vkg.ee/eng
- Kiviõli Keemiatööstus, http://www.keemiatoostus.ee/eng/frontpage
- Molycorp Silmet (http://www.molycorp.com/about-us/our-facilities/molycorp-silmet) is on the list of top six rare metal (niobium, tantalum) extracting plants in the world.
- Ökosil (http://www.ecosil.ee/index.php?page=2&) deals mainly with industrial waste conservation.

In the first decade of this century, a new large sea port was developed in Sillamäe. This created a space for several new businesses. However, problematic relations with Russia and administrative restrictions have broken this development.

Ro-Ro company:

- Silsteve, http://silsteve.ee/en/avaleht/

Main companies in the Port of Sillamäe (http://www.silport.ee/general_information.html):

- Alexela Sillamäe (terminal for dark oil products and oil shale produced in Estonia), http://www.alexelasillamae.ee/eng
- Baltic Chemical Terminal (L&G terminals), http://www.bct.ee/main/
- EuroChem, http://www.eurochemgroup.com/en/home/#
- Ust-Luga – Sillamäe connection ULS, http://en.uls-global.ru/

Fishing and fish processing companies have traditionally been significant employers in Ida-Virumaa. At the same time, IV coastal sea does not have remarkable fish resources. So far, due to the availability of relatively cheap labour, several fish processing companies operate, using imported fish. Similar industries have been closed down elsewhere in Estonia. This industry will be most probably downsizing as labour costs rise. Thus, there is a need for product

development and marketing. Also, there is a vast potential for extending aquaculture that uses hot cooling water from the power plants and produces exotic fish species like sturgeon.

- Vitarsis Ltd (fish processing)
- Viru Progress Ltd (fish processing)
- Worldpoint Ltd (fish processing)
- Viru Fishexport Ltd (fish processing)
- Creditline Ltd (fish processing)
- Viru Rand Ltd (fish processing and sailing)
- Kirde Rand Ltd (fish processing and sailing)
- Maseko Narva Kalamajand (fish processing and sailing)

The fishing fleet is located in Toila, Purtse, Narva-Jõesuu and Sillamäe ports. Local fishermen have an NGO which develops fishing harbours and some joint production facilities.

R&D capacity in Ida-Virumaa is fairly limited.

- The Oil Shale Competence Centre (http://pkk.ee/en/science) and the R&D divisions in the largest oil shale companies VKG and Eesti Energia (Estonian Energy) have, thus far, focused mainly on oil shale mining and extracting know how.
- Tallinn University of Technology Virumaa College (http://www.ttu.ee/virumaa-college) has the following specialities:
    - Applied Information Technology;
    - Constructing Engineering;
    - Fuel Technology;
    - Industrial Automation;
    - Machine Building Engineering;
    - Power Engineering;
    - Master's Degree: Fuel Chemistry and Engineering.
- The University of Tartu Narva College is a regional college of the University of Tartu and a part of the Faculty of Social Sciences. It was founded in 1999. It is the only institution of higher education in Estonia which focuses mainly on the preparation of teachers for Estonian schools with Russian as the language of instruction (the state language is Estonian). It covers areas such as Civic Studies, Psychology and Pedagogy, Estonian Language and Literature, Russian Language and Literature, Foreign Languages. The college offers the following programmes:
    - Entrepreneurship and Project Management (Diploma Studies)

- Youth Work (Diploma Studies)
- Humanities in Multilingual School (BA)
- Early Years Teacher in Multilingual Learning Environment (BA)
- Primary School Teacher in Multilingual School (MA)
- Teacher of Humanities in Multilingual School (MA)
- Early Years Teacher in Multilingual Learning Environment (MA)

In the context of the current project and partly related to R&D capacity, we should also mention that the IV tourism cluster has another Interreg project related to BG: Central-Baltic programme: 30 miles (small harbours' services), http://www.merikotka.fi/projects/current-projects/30miles/.

5. A vision – Ida-Virumaa in the Baltic Sea Region

According to the Estonian Regional Development strategy, the specialization sectors for Ida-Virumaa are:

- oil-shale energy;
- chemical industry;
- logistics;
- tourism.

The Ida-Virumaa development plan for 2014–2020 was first detailed and approved in 2012. In 2015, it was substantially updated. The new version of the IV development plan for 2014–2020 also includes a new key word ("maritime areas", *merealad* in Estonian) and touches on several themes that are highly relevant for blue growth, most notably, ports and tourism development.

VISION

By 2020, Ida-Virumaa is socially cohesive, has a high quality living environment, a region that is culturally and economically well-developed and a leader of the development activities in the Eastern region of the Gulf of Finland.

The goals for the development areas have been based on a balanced approach to building a strategy and each area reflects four development themes:

1) The cohesiveness of communities and the development of local identity;
2) Increasing the competitiveness of local people;
3) Growing the competitiveness and export capabilities of enterprises;
4) Improving the living environment by making the urban space more attractive and by optimising movement (public transport + non-motorised transport).

Planning of coastal areas

In planning the development of the technical infrastructure in the county, its seaside areas as well as the Lake Peipus area should be taken into account in the future. It would be reasonable to cover these areas with plans for technical infrastructure but this requires first conducting initial studies. Planning the seaside and Lake Peipus areas is important in order to determine which technical constructions and where would be reasonable.

NB! Estonian government will go through the process of spatial planning of coastal areas staring in 2017.

Seaport development

In seaport development, the perspective development of the Sillamäe port will have the largest impact on the county. A container ship terminal will be made operational there. In the future, the port is interested in building the facilities for and offering the services of passenger transport.

For small ports, it is important to develop a network all the way to Narva. In the long run, the same should be done for the North coast of Lake Peipus. Small ports are directed not only to small local entrepreneurs (fishermen) and owners of floating vessels but also to tourists.

Tourism and spa development

The developments of the tourism sector are summarised in the Ida-Virumaa tourism cluster strategy (available at http://www.ivek.ee/wp-content/uploads/2012/06/ivtk_strateegia-2011-2020-tegevuskava-2011-2013.pdf).

Tourism-related developments have been positive in recent years. The numbers of tourists have increased and the growth has been especially fast on the Eastern market. A characteristic and unique trait of IV tourism is the existence of an extensive industrial legacy and its presentation to the public. The county has three tourism centres: Narva-Narva-Jõesuu, the coast of Lake Peipus along with Avinurme and Toila-Jõhvi-Kohtla.

At the same time, tourism infrastructure is insufficient. IV lacks accommodation in hotels as well as in more affordable hotels and tourism farms, and this has made it difficult to make full use of the attractions and facilities (Jõhvi Concert Hall, Kohtla Mining Museum, Narva Castle and bastions, Kiviõli ash hill, Aidu watersport centre).

It is important to make sure that IV has a system of quality gates both in the physical world (bus and railway stations, ports) and the virtual one (Internet, videos, apps). Tourists need to have access to quality information in several languages (Estonian, Russian and English at least). Tourists need to be able to cross the border quickly and smoothly – this requires a new border facility on the Narva River. The county is not open enough to the sea; this needs a qualitative leap forward through developing small ports. It is also sensible to make more use of the environmental richness of the county (bog hikes, hunting, photo hunts, fishing, foraging, etc.) and to further develop the tourism infrastructure that has been built in the nature (wooden boardwalks, camping sites, cabins, etc.).

6. Priorities. Towards an Ida-Virumaa BG action plan

First mappings indicate that the blue growth long-term strategy can be integrated into other themes of the Ida-Virumaa regional development strategy.

1) The environmental condition of the Gulf of Finland can be continuously improved through:
   a) reconstructions of small harbours and port infrastructure;
   b) increased quality of harbour services;
   c) increased safety and security of maritime transport;
   d) decreased inland inflows and air pollution.
2) An attractive coastal living environment draws maritime and spa tourism based on innovative and year-round services and attractions.
3) The development of high added value food, nutrition production and health, eco-system services:
   a) increasing fish farming and its added value;
   b) researching Ida-Virumaa's potential for algae cultivation;
   c) improving coastal tourism and living environment.
4) The development of maritime transport from Sillamäe port:
   a) increasing trade flows;
   b) ensuring safety levels for liquid chemicals and oil transportation;
   c) re-establishing passengers' regular travel to the Eastern part of the Gulf of Finland.
5) Contributing to increasing the diversity and internationalisation of the regional business environment.
6) Existing machinery repairing enterprises can provide services for maritime needs;
7) Aquaculture can be integrated into the regional food-production sector:
   a) Increased diversity of aquacultures in the Gulf of Finland;
   b) Research-based aquaculture can be developed.
8) Maritime culture and activities can be supported via tourism and creative industries' development.
   a) Locals get training and information about maritime issues from regional university colleges and vocational centres.

7. Action plan in the EU and national framework

The following list describes the activities and principles for adaption and implementation of blue growth policy measures to RIS3.

- Building operational capacity for RIS3 (Smart Specialisation Strategy) implementation.
- Analysing Gulf of Finland bordering Russian regions.
- Monitoring and review system for evaluating, monitoring and benchmarking blue growth (M&E system): a German partner will research possible indicators, but Ida-Virumaa is tasked with creating an analytical tool to help blue growth be more visible and to increase the importance in innovation policies, but also to measure the success of RIS3.
- Incorporating new blue growth policy measures into RIS implementation.
- Transnational identification of effective Blue RIS3 implementation measures.
- Engagement strategy for regional innovation actors with targeted information material on Blue RIS3 (work with enterprises and relevant authorities).
- Selection, adaptation and uptake of new policy measures supporting blue growth - Ida-Virumaa is responsible for this WP (coordinating task).
- Reflecting on the experience of others (individual and organisational capacity building).
- Uptake of new, adapted RIS3 implementation measures in the revised action plans designed to implement the RIS3 in the participating regions.
- Drafting of new measures supporting a relevant focus area of blue growth.
- Close collaboration with responsible Managing Authority for the use of EU structural funds in the region.
- Endorsement of new measure(s) such as upgrading existing competence centre with the blue value chain of life sciences.
- Facilitating the employment (also transnationally) of innovation assistants, bringing in cross sectoral ideas; developing innovative financing concepts for cost intensive R&I areas such as new sustainable propulsion means for ships.
- Identifying macro-regional synergies and initiating transnational cooperation:

- elaborating a *Baltic Sea-wide study* identifying blue growth cooperation opportunities;
- specifiing identified opportunities for transnational cooperation – transnational workshops. Ida-Virumaa is responsible for one transnational workshop, one that might be dedicated to eco/maritime start-ups. Negotiations with Tehnopol, a member of Bio- & cleantech clusters. Opportunity to do it with the Ministry of Environment as I was involved in designing the Eco-Innovation forum this year.

- Organization of joint transnational projects in blue RIS3 implementation.

8. Monitoring and evaluating

Monitoring of implementation of the Ida-Virumaa regional action plan is coordinated by the Minister of Public Administration together with county government. To monitor and evaluate the RIS3 process in Ida-Virumaa, the county government has developed the following structure. The tasks of the monitoring and evaluating structure include:

- Monitoring and evaluation of the BG spatial and development planning process in Ida-Virumaa.
- Coordination between different ministries and regional institutions in order to improve and intensify cooperation.
- Empowering of BG clustering and network activities.
- Inviting new BG related HEIs and/or projects to Ida-Virumaa.