

Functional review of Blue Growth RIS3 steering processes and operational structures taking into account economic perspectives in six representative marine regions around the Baltic Sea

Przegląd funkcjonalny procesów wdrażania "niebieskich" RIS3 i ich struktur operacyjnych z uwzględnieniem perspektyw gospodarczych w sześciu reprezentatywnych regionach morskich wokół Morza Bałtyckiego

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Abstract: RIS3 strategies (Regional Innovation Strategy for Smart Specialisations) from six coastal regions around the Baltic Sea as well as smart specialisation processes in these regions have been reviewed and analysed in order to depict the regions' potential to foster the blue growth development by means of the smart specialisation tool.

Analysis of regional context and innovation potential reveal differences between approaches and processes starting from the level on which RIS3 is defined, through a range of smart specialisation supporting the blue growth, ending in a level of stakeholders engagement. However, several common challenges have been identified, like the lack of large blue enterprises having their own research departments and being able to push innovation within their industries or the lack of skilled workers and specialists. A general observation is that the specific RIS3 processes are understaffed and with limited resources, giving the indication that the RIS3 are still partly more of paper products than really living processes. Another important observation is a gap in legitimacy among blue actors in analysed coastal regions. On the other hand, there are on-going processes related to the regional innovation strategies in general, to open innovation arenas and to cluster initiatives that are going on without being earmarked as RIS3 processes.

To address identified challenges and in order to foster blue growth development by means of the smart specialisation strategies a set of key questions to be answer as well as recommendations are proposed. These questions should be answered not only by individual regional administration, it is recommended to deal with them in a continued process of enterprenual discovery with close interaction with all stakeholders concerned and affected by the RIS3 process.

Keywords: implementation of regional innovation strategies, blue growth, smart specializations

Streszczenie: Regionalne Strategie Innowacji dla Inteligentnych Specjalizacji (RIS3) z sześciu regionów przybrzeżnych wokół Morza Bałtyckiego oraz procesy ich wdrażania zostały przeanalizowane w celu identyfikacji potencjału regionów do pobudzenia rozwoju błękitnego wzrostu za pomocą narzędzia w postaci Inteligentnych specjalizacji.

Analiza regionalnego kontekstu i potencjału innowacyjnego ujawnia różnice między podejściami i procesami, począwszy od poziomu, na jakim zdefiniowano RIS3, poprzez szereg różnych inteligentnych specjalizacji wspierających rozwój niebieskiego, skończywszy na poziomie angażowania/zaangażowania interesariuszy. Wykryto jednak kilka wspólnych wyzwań, takich jak brak dużych przedsiębiorstw z sektora morskiego, posiadających własne działy badawcze

i zdolność do wspierania innowacji w swoich branżach lub braku wykwalifikowanych pracowników i specjalistów. Generalną obserwacją jest to, że specyficzne procesy RIS3 są niewystarczające i mają ograniczone zasoby, co wskazuje na fakt, że RIS3 nadal jest jedynie częściowo żywym procesem. Kolejną istotną kwestią jest obserwowany brak (ograniczenie) roli sektorów morskich w definiowaniu inteligentnych specjalizacji zważywszy na istotną rolę tychże w gospodarce analizowanych regionów nadmorskich. Z drugiej strony jednocześnie trwają procesy skutkujące otwarciem aren na innowacje, które nie są oficjalnie włączone w procesy RIS3. Adresując wyzwania i aby wspierać rozwój niebieskiego wzrostu poprzez strategie inteligentnej specjalizacji, przedstawiono zestaw kluczowych pytań, a także sformułowa szereg rekomendacji. Samorządowa administracja regionalna powinna odpowiedzieć na te pytania w ścisłej współpracy ze wszystkimi zainteresowanymi stronami, których dotyczy RIS3 w ramach procesu przedsiębiorczego odkrywania.

Słowa kluczowe: procesy wdrażania regionalnych strategii innowacji, błękitny wzrost, inteligentne specjalizacje

1. Introduction

The article is a synthesis of the functional reviews of the RIS3 strategies (Regional Innovation Strategy for Smart Specialisations) from six regions around the Baltic Sea: Skane (Sweden), Schleswig-Holstein (Germany), Pomorskie (Poland), Riga Planning Region (Latvia), Ida-Virumaa (Estonia) and Southwest Finland. The reviews as well as the synthesis was carried out in the framework of the Baltic Sea Region Interreg Programme's project titled "Smart Specialisations and Blue Growth in the Baltic Sea Region - Smart Blue Regions". The project is an initiative of the above mentioned regions being the members of the SUBMAIRENR Network for Blue Growth EEIG which have expressed their interest in blue growth topics. Functional review included an analysis of documents of strategic (RIS3 or equivalent) and implementation type (regional evaluation and monitoring strategies). Synthesis and recommendations were drawn by authors based on discussions with regional experts involved in the Smart Blue Regions project sharing their knowledge and observations from the RIS3 processes so far. The main purpose of the synthesis is to present an overview and to compare the RIS3 blue profiles of the regions concerned.

Innovation policy has been persuaded by the European Commission since mid-90s when first Regional Innovation Strategies were developed. Assumptions of the smart specialisations in the regional context lie in several theories and concepts like: H. Innes staple theory, M. Poire and C. Sabel flexible production concept, A. Marshall industrial district concept, M. Porter cluster concept, endogenous development strategy and F. Perroux growth poles concept¹. Following the theory and guides² the regional smart specialisation concept and RIS3 process aims at identification - through an entrepreneurial discovery process - of economy areas 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 (research and development). Implementation of RIS3 shall be carried out in one or more of the following processes (Forey at all, 2012): transformation (moving from one sector to another

relying on existing resources and competences; modernization (technological improvements in existing sectors relying on general application technologies); diversification (broadening activity on new sectors by means of synergy effects), radical transformation (creation of new sector based on available resources).

The European Commission has placed smart specialisation in the spotlight among R&D activities and innovation strategies and turned it into a precondition for receiving dedicated part of ERDF funding. The growth areas selected in the course of smart specialisation identification process are prioritised at EU, national and regional (NUTS II) level in the 2014–2020 financing period. This constitutes a significant challenge for many regions: in the absence of prior experience and established know-how, 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", initiated by DG MARE, 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/blue life science, maritime surveillance/technology or new propulsion technologies based on marine energy resources. Blue growth is R&D intensive but with a high potential for sustainable innovations that require targeted support measures.

2. Analysis of regional context and innovation potential

Three of analysed regions: Schleswig-Holstein, Pomorskie and South West Finland, have an outspoken "blue" profile, with a ship building sector of high significance. Others reveal their interest in the themes related to the blue (maritime/marine) although these were not identified as their smart specialisations (see Table 1).

Schleswig-Holstein has a large maritime economy, including specialized shipbuilders and their suppliers. Another important blue sector is represented by marine/ offshore technologies. The region has a well-developed research infrastructure for

¹ Ropegaj, J., Importance of the implementation of smart specialisations for development of the SME sector, Wrocław, 2016, Nauki o Zarządzaniu = Management Sciences, 2016, Nr 3 (28), s. 99-104

² D. Foray, J. Goddard, X. Goenaga Beldarrain, M. Landabaso, Ph. McCann, K. Morgan, C. Nauwelaers, R. Ortega-Artilés, Guide to Research and Innovation Strategies for Smart Specialisation (RIS 3); European Union Regional Policy, Bruksela 2012; http://s3platform.jrc.ec.europa.eu/en/c/document_library/get_file?uuid=50397e3-f2b1-4086-8608-7b866e9e8553_asOf10 August 2017.

Tab. I. Dominating blue sectors in the partner regions

DOMINATING SECTORS – BLUE AND BLUE CROSS-CUTTING	SCHLESWIG-HOLSTEIN	POMORSKIE REGION	SW-FINLAND	RIGA PLANNING REGION	REGION SKÅNE	IDA-VIRUMAA
Shipbuilding, repair, shipping industry, suppliers	X	X	X		(x)	
Underwater Technologies	X	X				
Offshore energy, Offshore Technologies	X	X				
Maritime Transport	X	X	X	X	X	
Machinery Manufacturing			X	X	X	
New Fuels	X		X			
Blue recreation, Tourism	X	X	X	X	X	X
Marine aquaculture	X		X			
Fishing/fish processing	X	X	X		X	
Blue biotechnology	X	X	X			
Marine Research	X	X	X	X		
Life science	X	X	X	X		
ICT	X	X	X	X	X	X
Food industry	X		X	X	X	
Smart materials	X			X	X	

blue topics. The research institutes are internationally well connected and enjoy good reputation. Cooperation in the German –Danish border region are specifically promoted. There are well developed clusters related to blue sectors. Strong cross-innovation exchange relations exist between the technology fields of health sciences / medical technology & ICT, biotechnology & nanotechnology & materials technology as well as between maritime economy and technology & civil security research. However, the region has a low level of funding acquisition from EU and national programs and a low patent intensity. Big companies with significant R&D activities are missing.

In Pomorskie the maritime sector is the leading industry and historically the region has been an important centre of traditional shipbuilding in the Baltic region and has also the largest maritime university in Europe. Since shipbuilding orders today do not provide enough use of existing capacity there is a need to expand into new blue subsectors. To be able to do this, especially entrepreneurship and innovation capabilities as well international collaboration need to be improved.

In Southwest Finland the marine industry is the major employer and represents global top competence, i.e. building the world's biggest and most environmental friendly cruise ships. There is a link to marine renewables through high performance vessel for energy projects. For the upcoming years the order book situation is excellent for the cruising ship industry. However, as for all European maritime industry the competition from Asia is expected to increase in the years to come and will require great efforts to keep the region at top level.

Riga Planning Region has a vision for blue economy of tomorrow, making use of the natural resources of the Gulf of Riga, i.e.

for the development of medical products and services, as well of crosscutting links between blue fields and flourishing sectors in the region as ICT and (bio-) pharmacy.

Region Skane has a considerable maritime technological sector of high diversity. It is not comparable to the blue high profile regions Schleswig-Holstein, Pomorskie and SW Finland, however there are facilities for environmental updating, repair and maintenance of ships, linked to a large number of suppliers and subcontractors, as well as companies delivering high quality components to a broad palette of players, non-blue as well as blue. Moreover there is also a diversity of modern ports. As in the case of Riga planning Region, the cross-disciplinary aspects are of high relevance. i. e. between nanotechnology and the maritime sector.

In Ida-Virumaa the blue economy today is still of low importance. Making use of the RIS3 concept is for Ida-Virumaa a way forward to find alternatives and new ways to an economy that today depends too much on oil shale mining, oil extracting, energy production and other heavy industries. Health and wellness are considered potentially highly innovative subsectors, matching well with the framework conditions of the region. Due to the economic structure and historical background of the region, Ida-Virumaa 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.

Ida-Virumaa has the highest numbers of unemployed Estonia. In terms of industrial composition, the region 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 has a need to move

Tab. II. Priority fields of smart specialisation

SCHLESWIG-HOLSTEIN	POMORSKIE REGION	SW FINLAND (PRELIMINARY)	RIGA PLANNING REGION	REGION SKÅNE	IDA-VIRUMAA
Maritime economy	Offshore, port and logistics technologies	Shipbuilding and mechanical engineering industry			
Renewable Energies	Eco-effective technologies in the generation, transmission, distribution and consumption of energy and fuels and in construction	Smart bioenergy	Smart energetic	Smart sustainable cities	More efficient use of resources
Life Sciences	Medical technologies in the area of civilization and ageing-associated diseases	Bio science and medicine with related industry	Biomedicine, medical technologies, biopharmacy and biotechnologies	Personalized health	Healthcare technologies and services
ICT, Telecommunication and media	Interactive technologies in an information-saturated environment	ICT and embedded systems	ICT		ICT horizontally via other sectors
Food Industry		Food industry and food value chain			
			Knowledge-intensive bio economics		
			Smart materials, technologies and engineering systems	Smart materials	

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. 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.

The lack of large blue enterprises having their own research departments and being able to push innovation within their industries is a fact in all partner regions.

In all the six regions the companies at first trust on their own abilities but they also expect support by scientific institution. The extent of this very much depends on the individual company and ranges from extensive co-operations to very loose contacts.

The lack of skilled workers and specialists is named a general issue by companies in the partner regions, even in SW Finland, who still needs more high competence people to match the booming cruising ship building in the region.

3. Analysis of the RIS3 governance and functional processes.

In the Smart Blue Region project's partner regions except for Ida-Virumaa, which is still at an early stage, the RIS3 were elaborated in intensive processes involving relevant stakeholders, including business. Typically the RIS3 process is embedded in the work with the regional development strategies and regional policy making in the partner regions. As a consequence there is no separate governance structure dedicated

to RIS3 in any of the partner regions. In Pomorskie there is no formal separated RIS3 document, however the elements of RIS3 are all in place ('served' by two documents: Pomorskie Regional Development Strategy 2020 and Regional Strategic Programme Pomorskie Creativity Port), practically expressed in the Pomorskie Smart Specialisation (PSS) – see Table 2. In Riga Planning Region the RIS3 process has been separately defined at the national level in Latvia, but is incorporated in the management, implementation and monitoring system of the region development strategy/programme. For Riga region, the economically predominant region in Latvia, the national RIS3 matches quite well the regional conditions. For Ida-Virumaa region this is however not the case, with a national RIS3 only to some degree in line with the regional situation.

In the typical structure for the RIS3 governance the regional self-government is the RIS3 process leader. This is however not the case for Ida-Virumaa and Riga PR where the national level is in charge of the RIS3 as a whole, i.e. there are no regional RIS3.

In the other regions the regional administration provides political direction and ensures the management of RIS3 by running a steering team as well as a more technical secretariat. The connection with the key stakeholder is managed by a forum and/or a council, or by partnership agreements, allowing the stakeholders to give input on a regular and structured basis and also find ways to collaboration. Furthermore there are typically working groups operating instrumentally on the implementation and revision of RIS3, whereas referring to the priority areas.

However, there is a gap between theory and praxis. A general observation is that the specific RIS3 processes are under-

Tab. III. Strengths/weaknesses within general innovation policy and implementation (+++ well developed; ++existing; +very weak/low; ?—lack of information enabling assessment), based on functional analysis and subjective assessments of projects partners

STRENGTHS/WEAKNESSES	SCHLESWIG-HOLSTEIN	POMORSKIE REGION	SW-FINLAND	RIGA PLANNING REGION	REGION SKÅNE	IDA-VIRUMAA
Basic infrastructure for research and development	+++	+++	+++	+++	+++	++
Non-university research institutes	+++	++	+++	+++	++	+
International cooperation between scientific institutes	+++	++	+++	++	+++	+
Connection between research and business	++	+	++	+	+	+
Clusters	+++	++	+++	++	+++	+
cross-innovation exchange relations	++	+	++	+	+++	+
Level of funding acquisition (EU)	+	++	++	?	++	
Level of funding acquisition (national)	+	+	++	?	++	
Patent intensity	+	+	++	?	+++	
Innovation activity and/or R&D facilities within companies	+	+	++	?	++	+
Large and research oriented enterprises ²	+	+	+++	?	++	+
Share of personnel employed in R&D	+	? ³	?	+++	+++	++
Spin-offs from universities and from research centres	+	?	++	++	++	+

staffed and with limited resources, giving the indication that the RIS3 are still partly more of paper products than really living processes (see Table 3). On the other hands there are ongoing processes related to the regional innovation strategies in general, to open innovation arenas and to cluster initiatives that are going on without being earmarked as RIS3 processes. In all regions Smart Specialisation is regarded by the regional authorities and intermediaries in charge as crucial for regional development, however there is still a long way to go from good intentions to real RIS3 performance. A new national institutional framework for RIS3 process management is currently being developed in Ida-Virumaa.

A general challenge in all partner regions is the lacking capability of the regional blue RIS3 to attract and mobilize resources of different kind (technical, scientific, financial, human). This concerns both the general processes and specific projects. A continuous dialogue between EU bodies preparing calls and RIS3 players is of great importance here.

In the Smart Blue Region partner's regions except for Riga PR and Ida-Virumaa there is generally more or less an established structure for regional development of business ideas and innovation including incubators, business parks, clusters and business development support as well platforms enabling meetings between business and academia in the blue sectors (see Table 4). There are however differences as regards to the degree to which the actors involved are anchored in the business sector.

As regards the system of blue intermediaries, i.e. the structure of actors established to support the development and commercializing of blue innovations, from innovation /idea to market, there is generally a quite fragmented situation, especially concerning funding sources. To be added to this is the fact that

many intermediary players don't have a critical size and are underfinanced as well dependant on short term project funding, all this leading to unstable systems. As a consequence, the ability of supporting players to reach out to the enterprises and to engage these in development projects is limited.

The RIS3 and their implementation differ from region to region. While e.g. in Schleswig-Holstein and Pomorskie the RIS3 is primarily a prerequisite for allocating ERDF funds to R&I, in Southwest Finland and Skåne the ERDF funds are of little importance and the RIS3 serve other purposes (e.g. alignment of bodies working in R&I). Riga Planning Region and Ida-Virumaa again have a different perspective as in Estonia and Latvia there is only one RIS3 for the whole country and thus they don't have their own RIS3 as the other Smart Blue Regions. The RIS3 being controlled by the national level may be regarded as feasible in smaller countries with small regions, however it may also lead to a more instable situation in the long term situation, when political changes and their consequences are more pronounced at the national level.

The international dimension of blue RIS3 functional processes is still insufficient in the partner regions, however, the interregional cooperation *within* the countries of the partner regions is developed in most of the regions.

Looking more specifically at the governance related to RIS3, Schleswig-Holstein is still in an early phase of application of their RIS3. Skåne who started already 2011 with RIS3 related processes (however not blue) has an elaborated innovation system, including smart specialisation. SW Finland has also come far considering the governance aspects, and has profited from a history of co-evolution between universities and maritime industry, both sides relying on one another's successes and

Tab. IV. Strengths/weaknesses within BLUE innovation policy and implementation (+++ well developed; ++existing; +very weak/low), based on functional analysis and subjective assessments of projects partners

Strengths/Weaknesses	Schleswig-Holstein	Pomorskie Region	SW-Finland	Riga Planning Region	Region Skåne	Ida-Virumaa
Blue machinery	+++	+++	+++	+	++	+
Blue energy	+++	+++	++	+	++	+
Blue Life Science/Healthcare	++	++	++	+++	+	+++
Basic infrastructure for research and development	+++	+++	+++	++	++	+
Non-university blue research institutes	+++	+++	+	++	++	+
International cooperation between scientific institutes	+++	++	++	++	++	+
Connection between blue research and business	++	+	++	+	+	+
Blue clusters	+++	++	+++	++	+++	+
Cross-innovation exchange relations	+++	+	++	+	+++	
Level of funding acquisition (EU)	+	++	++	+++	++	++
Level of funding acquisition (national)	+	+	++	?	++	++
Availability of blue skilled people	++	++	++	++	++	+
Innovation activity and/or R&D facilities within companies	+	?	++	?	++	+
Large and research oriented blue enterprises	+	?	++	?	++	+
Share of personnel employed in blue R&D	+	*)	++	+	+	+

achievements. Industry and academia are connected through regional labour markets, institutional agreements and supported through increasing mobility of experts. In Pomorskie, with an advanced RIS3 on the paper, academia and industry are distinctly different worlds with different rules, linked into widely different knowledge networks. The governance system is also suffering from weak coordination between players as industrial actors, cluster organisations and academia, as well by weak links 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.

There are great differences as regards cluster initiatives, who play a crucial role in the RIS3 governance system in a majority of the partner regions. Skåne and Schleswig-Holstein have developed approaches with systematic, basic financing of clusters, whereas for instant Riga PR has no specific funding of clusters, only smaller project based funding. In Schleswig-Holstein there are cluster organisations i.a. related to ICT, Energy, Life Science and Maritime Economy. The Polish Maritime Cluster Organisation (being a member of the PPS1 partnership) is perceived as important in Pomorskie, both in the innovation field as concerning international strategical relationships. It suffers however from a low engagement from heavy industrial actors in the region. There is another 'cluster – type' organisation in Pomorskie (The Association of Polish Maritime Industries FORUM OKRĘTOWE) which gathers important industrial actors but it has not been active in RIS3 process so far.

In South West Finland the co-operational innovation network Turku Future Technologies (TFT) contributes to strengthen-

ing research cooperation between SMEs and universities. TFT tailors a broad-based research excellence to improve competitiveness and growth in technology companies. TFT supports strategic development projects of companies by speeding up know-how development related product, production and business, as well as market entries.

In Skåne the Swedish Maritime Technology Forum (SMTF) as a cluster organisation plays an important role for shipbuilding, offshore activities as well as ports/sea transports. It focuses both on long-term strategy and policy, economy (e.g. level playing field and growth), education and recruitment, rules and regulation, research, development and innovation, export, environment, professionalism and cooperation /integration of maritime sectors, as well as innovation project support. SMTF works both on regional, national and EU/international level. Lately SMTF has focused on cross-functional blue – non blue events for companies.

The target groups for a RIS3 multilevel implementation system generally consist of the following categories of players: companies, entrepreneurs, R&D organisations, consumers and end-users, intermediaries, clusters, business institutions, regional and local government units, politicians, unions and associations, NGOs (see Table 5). There is generally a challenge to get the companies involved and engaged in the RIS3 related processes. Questions as "What's in it for us?" and fears like "They may steal our ideas" are common among company players.

Generally spoken, the experience within the partner regions is that there still is a considerable gap in the legitimacy of RIS3,

Tab. V. General picture of business landscape in the partner regions

BUSINESS LANDSCAPE IN GENERAL	SCHLESWIG-HOLSTEIN	POMORSKIE REGION	SW-FINLAND	RICA PLANNING REGION	REGION SKÅNE	IDA-VIRUMAA
Medical Technology, Pharmaceuticals and Healthcare (Life Science)	X	X	X	X	X	
Energy	X	X	X		X	X
Chemical Industry		X	X			X
Agriculture and Food Industry	X	X	X		X	
Ship yards, ship building	X	X	X		X	
Automobile manufacturing			X			
High quality business services including ICT/software	X	X	X		X	
Logistics	X	X	X	X	X	X
Tourism	X	X	X		X	X

more specifically to get RIS3 as an idea and concept broadly accepted as a potential driver for (blue) growth and development among the relevant actors. The capability to create strategic relations and coordinate the players in the value chains is still limited in the partner regions, when it comes to the industrial network used by the public players, as well as by the academy players. There may be some collaborations with bigger companies and university spin offs, but very limited relations with other kind of companies.

An example of how to tackle this challenge is the Vanguard Initiative that Region Skåne is involved in. The initiative as a whole was founded by 10 regions in 2013, based on the conviction of the political level that the regions may play a key role in the re-industrialization of Europe. Thus the initiative has the objective to strengthen the industrial capacity and competitiveness in Europe through interregional collaboration based on smart specialisation. Skåne is taking part in three of five pilots within the Vanguard Initiative, i.a. a pilot related to offshore energy. Skåne is also, together with the Tampere region, leading a pilot on nanotechnology. The mentioned “blue” pilot within the Vanguard Initiative is the demand and user driven pilot called “Advanced Manufacturing (ADMA) for Energy Related Applications in Harsh Environments”, a pilot that seeks to make the EU the global leader in manufacturing robust high integrity components for marine renewables and offshore energy applications. The main goal of this specific, Blue Growth related pilot is to create new business opportunities and increased growth for the sector by helping larger companies expand their supply chains with innovative SMEs across Europe, and by providing smaller companies with new, high-demand customers to grow their businesses. This specific blue ADMA initiative within Vanguard is led by the Basque Country and Scotland, while 11 other European regions take part. Early 2017 the 29 member regions of the Vanguard Initiative are formalizing the collaboration to gain more force and dedication. The Vanguard Initiative is changing from a network to juridical body. A membership fee is introduced (10 000 Euro), going to the five pilots, to enhance the upcoming activities, i.e. the work of established working groups, each dealing with specific challenges, including cross-sectoral processes.

For the time being ADMA focuses on applications for inter-regional collaborative projects for demonstration facilities, based on the urgent need to share expensive infrastructures for the innovative work. An application to EASME/EMFF (Blue Technology: Transfer of innovative solutions to sea basin economies) has been successful. Now the project – focusing on corrosion solutions that incorporate new materials - will develop a roadmap that can serve as a model for other sea basins and consortia to address common technical challenges and develop bankable/ready to invest demonstration projects.

4. Recommendations and key questions for upcoming work on improvement of blue RIS3 implementation schemes

The continuing work in the Smart Blue Regions project with aspects of policy measures and transnational/regional collaboration should include a discussion and analysis on how to develop ways of strengthening the international competitiveness. How to gain access to international expertise to create innovative capability? Knowledge production in the own region might need to be implemented together with other partners in the macro-region. Would it be helpful to stimulate Open innovation arenas to develop more strategic alliances and strengthen international links? How could different forms of collaboration with other regions be developed to enhance the blue regional innovation ecosystem understood as a combination of: existing and emerging industrial strengths, knowledge providers inside the regions, connections between these two and linkages with external networks including value chains (see Figure 1 below). How could a strategic approach to the internationalization of R&D be developed?

One should bear in mind that successful implementation of RIS3 strategies relies very much on overall regional economic conditions as well as a state of the human capital in the given region. If these are lagging behind, the regional innovation strategy may fail³. Another important factor to consider is the role of clusters

³ Andrzej Pawlik, 2016, Potencjał jako kluczowy czynnik do rozwoju inteligentnych specjalizacji. Doświadczenia województwa świętokrzyskiego; Uniwersytet Jana Kochanowskiego w Kielcach skpzcz.czasopisma.pan.pl/images/data/skpzk/wydania/No_170.../z4_21_Pawlik.pdf

in RIS3 process. Though some of researchers indicate that Europe draws away from clusters towards a regional innovation system influenced approach of which geographical clustering is only one dimension⁴, there are still tendencies to follow 'well rooted' cluster-based rationale, which omits the entrepreneurial discover process to identify the real strengths of the region⁵.

Recommendations:

- ◆ There is a need for a stronger legitimacy for blue RIS3, especially in the business world. This includes better coordination between the actors of the RIS3 support system (e.g. more efficient cluster initiatives, more stable support to intermediary actors, opening up for new actors - not yet involved)
- ◆ Reinforcement of the demand-driven approach (user-driven/outcome driven approach) may help to put business in the driver seat of RIS3.
- ◆ Identification of appropriate models and priority issues for cross-sectoral, cross-regional cooperation.
- ◆ Identification of the cross-cutting issues, as digitalization and internationalization. This includes strengthening the ability to identify and develop new innovation areas - one of the success factors for innovation of whole systems and increased innovation capacity. This includes also a broad sense of what innovation is (not only technical). There is great potential for synergy in the intersections between a region's/partner regions different strengths, and also between different industries and areas of knowledge. Not at least in the interface to the blue growth field. Maritime sectors like shipping, energy, fisheries, aquaculture or nature conservation depend on shared resources and transcend regional and national borders. Greater intra-sectoral dialogue is necessary to enable marine/maritime sectors to develop common positions ('Toward sectoral stakeholder involvement in a pan-Baltic MSP dialogue', Schultz-Zehden A., Gee K., BMI 2015, 30(1): 139-149). Processes like maritime spatial planning (MSP) may stimulate identification of possible synergies between different marine/maritime uses or users ('How can maritime spatial planning contribute to sustainable Blue Growth in the Baltic Sea', Tarvainen H, Tolvanen H, Repka S, BMI 2015, 30(1): 86-95).
- ◆ Financing for collaboration. Trans-regional value chains should become a new focus for investment planning of EU-funding. The Vanguard Initiative have shown the lack of 'matching' between the identified joint-demonstration cases co-developed within the Vanguard Pilots one the one hand (demand-side), and the available funding possibilities on the other hand (supply side). This is probably the most acute constraint which is hindering progress for some pilots at this moment. Finding appropriate solutions for this is very important.
- ◆ Reinforcement of entrepreneurship and innovations. This includes streamlining the support structure for innovation. Traditionally we have experienced close cooperation between certain parts of industry and the academic world, in

the pharmaceutical and automotive industries and the ICT sector, for example. However, also small and medium sized enterprises need more active cooperation with institutes of technology to strengthen their innovation capacity. There has been a shortage of effective ways of working together with companies. Strong relationships and new methods that focus on strengthening innovation capacity within our existing industry, and cooperation between large and small companies play a crucial role. Also the public sector has a major role to play in creating the conditions for innovation within its own activities.

- ◆ Innovations are not only generated from new knowledge: they often represent a new application of existing knowledge. New combinations of existing knowledge and skills need to be promoted. This is especially true between large, medium-sized and small enterprises. Furthermore, the need to improve skills in sales and marketing, particularly in small and medium-sized enterprises should not be underestimated.
- ◆ There is a need to improve the regional RIS3 ecosystem, the need for international interfaces, strategical relations, e.g. RIS3 institutions which act as mediators for regional/local diffusion between global networks nodes and regional resource bases and reinforces the international dimension of innovation. Experience shows that firms with high innovation intensity tend also to show high internationalization intensity.

Key questions for transnational cooperation and for RIS3 policy measures for Blue Growth:

- ◆ What are the good practises in creating RIS3 ecosystems?
- ◆ What are the instruments and frameworks that facilitates the different stages of RIS3 cooperation?
- ◆ What are the challenges faced by regions and countries expanding transnationally and how to address them?
- ◆ How can RIS3 integrate local economies into the global networks?
- ◆ How do we go from temporary programmes/projects and networks (cooperation) to new long-term frameworks for co-evolution and collaboration between RIS3 regions. How do we strengthen the macro-regional systems of innovation (integration)? We need to go from pilots to inter-regional industry ecosystems: individual projects are insufficient basis for further technology upgrading without some durable joint infrastructure.⁶
- ◆ What kind of operational capacity for implementation do we need for this? Shall Smart Blue Regions focus on collaboration between business and regions or more focus on how the regions should work to strengthen competitiveness and internationalization?
- ◆ How should the actors responsible for RIS3 implementation (for example regional authorities) launch strategic initiatives close to the core of (blue) RIS3 in (partner) regions? Actions that may gather a large community of players of the quadru-

⁴ McCann, P. & Ortega-Argilés, R. (2013). Modern regional innovation policy. Cambridge Journal of Regions, Economy and Society, 6(2), 182-216.

⁵ Pugh R.E., 'Old wine in new bottles? Smart Specialisation in Wales', Regional Studies, Regional Science, 2014 Vol. 1, No. 1, 152-157, <http://dx.doi.org/10.1080/21681376.2014.944209>

⁶ Involving stakeholders from the business sector is crucial to get right here and to identify "best practise" from the business perspective. Who is the appropriate partner for collaboration for the business sector? This may naturally differ from different parts of the business sector. Global companies have their own cooperation arena, their "world-ivy-league", however Smart Blue Regions project can help those who are not there yet.

The regional innovation ecosystem and its external environment

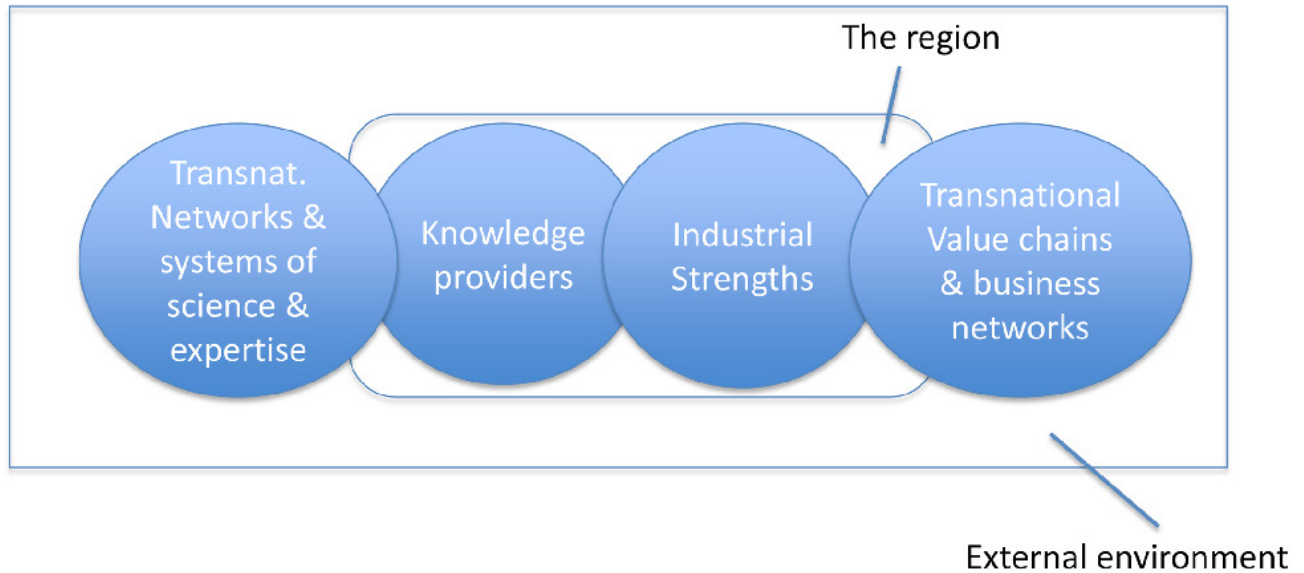


Fig1. Regional innovation ecosystem

ple helix around themes that lie at the heart of a RIS3 priority domain. This can serve as a framework for several smaller projects.

- ◆ How to ensure that the strategic agendas of key players are

updated to ensure synergies and complementarities around the RIS3 domains?

- ◆ How to redefined priorities and criteria for funding innovation infrastructure to align them to the RIS3 agenda?

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