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Integration of Baltic Small and Medium-Sized Ports in Regional Innovation Strategies on Smart Specialisation (RIS3)

Christopher Meyer [1,2]

[1] Department of Business Administration, School of Business and Governance, Tallinn University of Technology, 19086 Tallinn, Estonia; chmeye@taltech.ee
[2] Wismar Business School, Hochschule Wismar, University of Applied Sciences: Technology, Business and Design, 23966 Wismar, Germany

Abstract: Small and medium-sized ports in the Baltic Sea Region find themselves in a dilemma to participate in the governance of innovation policies such as Smart Specialisation. The Smart Specialisation policy introduced by the European Commission supports regional economic and innovation development focusing on regional strength through selection of defined priorities, offering smaller ports an opportunity to overcome their dilemma. Currently, all European regions are monitoring and evaluating their performances alongside with the Smart Specialisation policy to make adjustments for the upcoming funding period. The Blue Growth concept entitles a large contribution to reach the emphasised goals and thus, ports can be an important actor and key driver for a sustainable and green future development. Hence, this paper analyses the current significance of smaller ports in Baltic Sea NUTS-2 regions reflected in the individual RIS3 maritime and/or logistic priorities as well as Blue Growth sub-sectors from the funding period 2014–2020 to contribute to the future design of RIS3. Yielded results will illustrate whether regional governances are aware of the potential small ports bring up to their economies with consideration to Smart Specialisation, Green Deal and Blue Growth Strategies and how RIS3 might effects small port performances.

Keywords: small and medium-sized ports; Baltic Sea; Blue Growth; blue economy; smart specialisation; RIS3; regional development

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1. Introduction

The Baltic Sea is one of the top seas worldwide regarding maritime traffic [1], putting seaports into focus as regional nodes and gateways for economic and social interactions, thus, playing a key role in distribution and transportation of goods and services. Nevertheless, small and medium-sized ports (SMSPs) recognise a specific role for regional development as well as partly individual challenges and obstacles in the maritime sector. However, besides the growing economic pressure, SMSPs lack on policy conformity and compliance [2] when it comes to governmental strategy exploitation such as the Regional Innovation Strategies on Smart Specialisation (RIS3). This especially includes disadvantageous positioning for fund allocation [3].

In line with the Europe 2020 Strategy, the RIS3 approach was launched as one key pillar for regional economic development as well as growth policy thinking [4]. As an instrument to enable efficient fund distribution among European regions [5], this governance innovation policy approach contributes to Smart Growth, Sustainable Development Goals of the UN and the recently launched European Green Deal [6–8]. The core elements of RIS3 implementation are the individually developed and implemented strategies determining the key priorities of a NUTS-2 region, which are currently elaborated and revised for the upcoming funding period [9] using gained experiences and knowledge [10].

Additionally, the Blue Growth Strategy of the European Union was introduced in 2012 aiming to foster sustainable growth in the blue economy sector [11]. A breakdown of both policy concepts reveal synergy opportunities and overlapping principles such as

sustainable and innovative development, strengthening regional value chains, sharing infrastructure or support of clustering and networks [12]. Within the RIS3 approach, the selected priorities structure the distribution of European funds available [13–16] for the involved actors and stakeholders [17,18]. Thus, RIS3 is an important instrument to support investments and funding for the blue economy [19] and its actors—small and medium-sized ports.

In this context, SMSPs can contribute to regional development [20], being a regional capacity and main actor of RIS3 with high potential to enhance regional growth through strong and sustainable connections with the hinterland [21]. However, SMSPs tend to suffer from lower trade volumes and freight turnovers compared to bigger seaports, but also face economic, geographic and environmental disadvantages [22,23]. Despite the fact that there is no common definition of a small port [24], three main functionalities can be deviated for SMSPs: (i) enhancing blue economy competitiveness, (ii) being an actor in regionalisation processes and/or (iii) acting as key capacity to set up multiport gateway regions [25–27].

Especially, the logistic role of a port as a gateway can accelerate regional innovation, since multimodal transport nodes are highlighted in literatures as opener for economic and social welfare in countries [28–30]. Recent research have elaborated the consideration of Blue Growth-related priorities in RIS3 [12,31,32], but did not incorporate ports and especially SMSPs as regional infrastructure and capability, nor the transport and logistic related function as crucial driver for regional development as well as the synergy effects from RIS3 approach on port performances. Furthermore, a gap in legitimizing so called blue actors in coastal regions can be identified in the context of blue growth under RIS3 [33] (pp. 88,89). Therefore, this paper in hands addresses this research gap by proposing two research questions:

⇒ *How are small and medium-sized ports reflected as driver for regional innovation and development in RIS3 in the Baltic Sea Area?*

⇒ *How does a consideration of Baltic small and medium-sized ports in RIS3 affect their port performances?*

Accordingly, this research aims to provide an overview of the selected priorities in RIS3 of Baltic coastal areas with regard to the availability of SMSPs in the region to elaborate the utilisation of potentials in line with regional development based on port capabilities. In addition, the impact of priority setting will be analysed vice versa on the port performances using available data from Eurostat at the beginning and end of the funding period 2014–2020 on waterborne trades (cargo and ferry). As European regions are revising their strategies through performance evaluation and monitoring, knowledge generation on potentials for facilitating sustainable development from past funding period is now crucial for new strategy designing [34,35].

The paper is structured as follows: the next chapter presents a theoretical background of necessary key insights in the particular research field. The third chapter illustrates the applied research methods for data gathering and explains the philosophical assumptions of the author for this paper. Afterwards, the main results of implemented research are presented including the yielded result theorems. Consequently, the gained results are discussed and put into context with other research in the particular field in the fifth chapter before concluding the paper in last chapter.

2. Theoretical Background

The concepts of Smart Specialisation as policy innovation have been analysed and exploited well in existing research [4,36–42], including its literature reviews [43–46]. However, researchers also emphasised still missing scientific theoretical conceptualisation for this innovation policy [34,43,47]. In context of such research on the Smart Specialisation paradigm, articles highlight the importance of stakeholder involvement on several levels including vertical and horizontal perspectives [48–50]. Smart Specialisation and RIS3 were used to serve for implementation of the Europe 2020 strategy and its goals, among them to

harness the potential for Smart Growth from targeted support to areas with investments, thus prioritizing direction and contribution for achieving Smart growth in Europe [6]. The future concept of Smart Specialisation for the next programming period 2021–2027 highlights the sustainability, which is regarded as a key driver in achieving sustaining European competitive edge, also in line with the European Green Deal [7]. The concept enjoyed a growing interest on the European agenda, especially in order to ensure sustainable and efficient use of EU Structural Funds, improve an outdated perception of regional innovation policies [40] and introducing a more structured and legitimised option of distributing EU funds [13].

In line with RIS3 analysis for NUTS-2 regions, cluster conceptualisations for elaboration of innovation systems are a sufficient theoretical concept [51] using the definition of Porter [52] for clusters being an interconnection of companies and institutions in a particular field with a certain geographic concentration. NUTS-2 regions can be classified as clusters under the implementation of RIS3 [53,54] as well. Thus, maritime clusters are the conceptual connection between RIS3 and SMSPs, bearing in mind that cluster can be seen as tools for regional development as a reduced scales innovation system [55]. Such maritime cluster can be defined and build up on three conceptions: as industrial complex, agglomeration of interlinked industries, or community-based network [56]. SMSPs may contribute to each of the three conceptions, based on their nature—being ferry, cargo, or mixed port. However, the linkage between maritime cluster and the existence of (small and medium-sized) ports is strong, bearing in mind similar objectives to improve competitiveness [57,58] and hinterland connections [59] for all affected actors. Therefore, maritime clusters contribute as important institutions to regional development and thus to RIS3 as well [60].

Subsequently, maritime clusters are key drivers to enhance Blue Growth and Blue Economy [12,61,62]. The concept of Blue Economy was defined within the Blue Growth Strategy of the European Union, covering the following sub-sectors [63]: Aquaculture, Biotechnology, Coastal and maritime tourism, Fishery, Mineral resources, Offshore oil and gas, Renewable energy, Shipbuilding and ship repair, Transport (cargo and ferry).

One key pillar of the Blue Economy is the on-going support of transnational cooperation [11]. For the maritime sector, seaports are the connecting points to other countries increasing their interconnection between different countries [64] and therefore playing a key role for cross-border connectivity of the region. Consequently, consideration of SMSPs in RIS3 potentially increases the cross-border character, which is still one key challenge for RIS3 implementation [50,65].

When analysing place-based specialisation knowledge, technology and innovation capabilities are key resources to initiate sustainable development [66,67]. Hence, an institutional perspective view is crucial [68] since established regional institutions are key actors in support learning, knowledge creation and spill-overs as well as place-based specialisation itself. Thus, innovation policy governance concepts as multilevel approaches need to be considered affecting several actors of the respective innovation system governance following the quadruple-helix approach [48], which adds the public dimension to politics, economy and research in an innovation ecosystem [69]. More precisely, regional stakeholders and institutions on vertical and horizontal network perspectives need to be involved into RIS3 [49] as well as in Blue Growth [70] development and implementation. Moreover, new challenges arise when introducing a cross-border approach in stakeholder involvement to innovation governance policies, which is still lacking on sufficient application for RIS3 [68,71]. In the same vein, blue growth lacks on common or holistic goals [72], but on the other hand actively supports cross-border cooperation approaches [73,74]. Hence, SMSPs as cross-border connection and established regional institution are the subsequently logical cases of (research) interest to elaborate innovation governance concepts under RIS3 and Blue Growth approaches.

As shortly mentioned in the paper introduction, a common definition of SMSPs does not exist. From the statistical perspective of the EU, port authorities handling up to

10 million tons annual volume of goods are referred to as small ports, while ports handling more than 10 and up to 50 million tons of good are classified as medium ports [75]. Additionally, this research follows classification of the European Commission following the TEN-T concept [76]. Moreover, seaports' classification of being small and medium-sized can be defined by their limited position in existing port clusters [27] as well as due to their lowermost position in port hierarchy when it comes to costs and efficiency [77]. Nevertheless, empirical statistics have proven positive correlation between SMSPs and regional economies [78]. However, in topical research the broader view of SMSP definition has been enforced based on SMSPs' functionalities, being (i) enhancer for Blue Economy, (ii) actors in regionalisation processes and/or (iii) capacity units for multiport gateways [25–27]. Thus, the conducted research exploits the functional perspective to deduce RIS3 "port priorities", which are not only maritime focused but also include economical and logistic perspectives to be analysed in the result chapter flanked by the listed sub-sectors of the Blue Economy.

3. Data and Methodology

In total, 37 European NUTS-2 regions located at the coast of the Baltic Sea have been analysed regarding their Smart Specialisation Strategies for the funding period 2014–2020 with focus on the individual selection of priorities. In addition, the Smart Specialisation Strategies on national level (if applicable) have been taken into account for all eight EU countries located at the Baltic Sea. In line with the analysis of SMSPs being reflected in the chosen priorities, keywords according to the definition and function of ports as described in the theoretical part were considered, covering mainly maritime development and logistics–so called "port priorities".

Furthermore, the analysis included the consideration of ports for each of the 37 reviewed NUTS-2 region, using the classification and list of the TEN-T network [76] as well as the database provided by World Port Source [79]. Additionally, for dedicated regions based on first research results, further data were gained using Eurostat database on cargo and ferry volumes being available on regional and national level.

In a first step, existing RIS3 priorities have been analysed to be included in the conducted research scope. As introduced, the subsectors of Blue Growth have been considered as priorities, flanked by deduced "port priorities" following the defined functions and understanding of SMSPs. Therefore, content analysis of the existing priority database have been implemented, using S3 Platform [80] as well as the Metadata of Eurostat for statistical classification of economic activities [81] retrieving more detailed information on the RIS3 priorities as several regions offer only short descriptions of their chosen priorities. For the scope of this research, the existence of "port priorities" might contribute to higher importance than the nine Blue Economy subsectors, since the priorities were chosen according to port functions. Thus, an incorporation of ports to the RIS3 implementation can be accepted, while the subsectors do not necessarily include port operations but do enhance the interpretation and discourse on the port reflection in the regions.

As argued in the previous chapters, Blue Growth and Smart Specialisation offer synergies in their implementation, hence the analysis was enlarged with the defined sub-sectors for Blue Economy [63]. However, the sectors have been considered only if references to the maritime sector have been made within the detailed description of the RIS3 documents and database–e.g., Marine/Ocean Renewable Energy [82–84].

Consequently, all published RIS3 documents of the 37 coastal Baltic Sea regions have been reviewed with focus on the chosen priorities of each affected region. By doing so, the analysis offers hints on the integration of SMSPs in RIS3, enabling further interpretation and analysis towards policy recommendation and research contribution in the particular field of interest.

Following the analysis of SMSP reflection within RIS3 documents, only the indicated regions supporting existing ports will be exploited regarding their marine turnover in cargo and ferry using data from Eurostat for 2014 as well as 2019 (data codes: TGS00076, TTR00009, TGS00075, MAR_MP_AA_CPH). The comparison to national and European

data allows an interpretation whether the impact of being fostered within the Smart Specialisation approach can be proven for ports. Thus, recommendations for future priority setting can be formulated considering regional development and the role of ports as blue actors within this policies.

Hence, SMSPs are considered as case studies for this inductive research using qualitative data in the first step [85] applying highly exploratory research especially in the documents analysis, being applicable for undiscovered or new aspects [86–88]. In this vein, the research builds up on the understanding of cases studies as an investigation by addressing "how" questions in the field of interest—as stipulated in the introduction, by following the Yin's definition of a case being a phenomenon in real life context with unknown relationship and little control by the researcher [89,90], which also recommends to combine qualitative and quantitative evidences as this research in hands does. The quantitative research path is based on open accessible data, thus, the criteria on the data to be valid, reliable, replicable and generalisable [91] are fulfilled from the author's perspective.

Though, the conducted research paper uses mixed methods approach with qualitative priority analysis and quantitative performance data. As mentioned, the qualitative analysis followed the Statistical Classification of Economic Activities in the European Community [81], which is used to classify the RIS3 priorities of European NUT-2 regions as well. The analysis included the review of logistical and/or maritime priorities of each region accordingly to this classification system.

The conducted research methodology can be summarised in five dimensions:

- Research approach: mixed-methods (qualitative and quantitative);
- Research tool: RIS3 documents of 37 coastal Baltic Sea regions;
- Research scope: 11/2020–04/2021; data of funding period 2014–2020;
- Research types: analytical, exploratory, qualitative, quantitative and practice-based;
- Research methods: qualitative–case studies, desk research, document analysis; quantitative–data of regional maritime performances.

Hence, the inductive research and its results are based on positivism, interpretivism and constructivism of the researcher [92,93]. The research was undertaken to the best of the researcher's knowledge with attention to research ethics and habits. As the used data is available in open access form, it is accessible to any person of interest.

In sum, the implemented research followed a comprehensive journey, by addressing different aspects and combining two European growth policies with focus on potential key actors in RIS3–small and medium-sized ports.

4. Interdependencies between Baltic Small and Medium-Sized Ports and RIS3

Following the proposed research questions, the document analysis of the chosen RIS3 priorities for coastal Baltic Sea regions will embrace insights on the interdependences. First, an overview for all affected regions and their selection of priorities is presented to elaborate the significance of SMSPs in their RIS3 development and implementation. Second, logistical data will be used to examine the add-value and impact of the port sector being part of a RIS3 priority.

4.1. RIS3 Priority Analysis of Baltic Sea Regions on Blue Economy and "Port Priorities"

Following the presented research pathway, "port priorities" have been identified from the available dataset on RIS3 documents and supporting database. Together with the nine sub-sectors of the Blue Economy, chosen priorities are illustrated in Table 1 below, being the main objects for document investigation.

Table 1. Overview of priorities for document analysis.

RIS3 "Port Priorities"	Blue Economy Sub-Sectors
(1) Blue Growth	(10) Aquaculture
(2) Maritime Sector	(11) Biotechnology
(3) Maritime Economy	(12) Coastal & maritime tourism
(4) Water Economy	(13) Fishery
(5) (Multimodal) Transport and Logistics	(14) Mineral Resources
(6) Mobility	(15) Offshore oil & gas
(7) Off-shore and port technologies	(16) Renewable Energies
(8) Logistics of goods and services	(17) Shipbuilding & -repair
(9) Boat design and construction	(18) Transport (cargo/ferry)

Source: compiled by author.

In total, 18 potential priorities can be identified to be claimed to have a direct relationship to port operations as well as meet their previously introduced definition through their functionalities. Accordingly, the RIS3 documents of all 37 affected NUTS-2 regions with seaports have been deeply analysed on the existence of shown priorities. Table 2 provides an overview of the yielded results from the research analysis. It consists of three main parts which need to be reviewed in more detail:

1. The first two columns list all coastal NUTS-2 regions and the eight EU countries located in the Baltic Sea in alphabetical order. The Baltic States Estonia, Latvia and Lithuania are listed as countries only, since they are implementing National Strategies on Smart Specialisation [94–96]. Regions written in cursive are following the national strategies as well and did not develop nor implement an individual regional strategy, which is applicable to Sjaelland in Denmark and nine Swedish regions. For those regions the respective national strategy of Denmark and Sweden was considered to be valid. Additionally, two Swedish regions without direct access to the Baltic Sea are incorporated to the analysis, due to the fact that their ports have been identified as seaports [76].
2. As second part, port priorities and Blue Economy sub-sectors follow as individual columns. The indicated enumeration in these columns follows the allocation to the introduced priorities shown in Table 1. If no numbers are listed in the respective cells for a region, no priority could be aligned to the published RIS3 documents of the region.
3. The third part integrates the existence of small, comprehensive (middle-sized) and core ports aligned to the geographical positioning in the NUTS-2 regions. The classification and listed ports follow the TEN-T framework as published by the European Commission [76]. For the group of small ports, only a number of known ports in the regions are listed. It is because of the variety regarding the definition of small ports, thus, the used database [79] might not be able to ensure full completeness when exploiting different definitions on what a small port actually is. Eventually, the illustrated numbers provide useful insights of the approximate amount to initiate a sufficient analysis to deduce key assertions for the research problem and questions.

In total, 12 regions can be indicated covering RIS3 priorities corresponding to their available ports. Fourteen regions incorporated priorities in line with the Blue Economy subsectors. Except a few, namely Lithuania, Estonia, Helsinki Uusimaa, Ostrobothnia, Östergötland and Västra Götaland, analysed regions reflect both priority categories in their RIS3 documents. Furthermore, it stands out that regions with Blue Growth/Blue Economy as priority in RIS3 also cover the majority of the subsectors.

Table 2. RIS3 priority and port presence analysis in 37 Baltic NUTS-2 regions.

	Region	Port Priorities	Blue Economy Sub-Sectors	Core Ports	Comprehensive Ports	Small Ports
DENMARK	Hovedstaden			Copenhagen	Helsingor, Ronne	>25
	Midtylland			Aarhus	Ebeltoft, Fur	>20
	Nordtylland	(2)	(10), (13), (17), (18)		Aalborg, Branden, Frederikshavn, Hirtshals	>20
	Sjaelland				Gedser, Kalundborg, Koege, Rodby, Sjaellands Odde	>35
	Syddanmark				Esbjerg, Fredericia, Odense, Nordby (Fanoe), Spodsbjer, Tars (Naksov), Velje	>30
	Estonia		(11)	Tallinn	Heltermaa, Kuivastu, Pärnu, Paldiski South Harbour, Rohuküla, Sillamäe, Virtsu	>20
FINLAND	Central Ostrobothnia	(9)	(17)		Kokkola	0
	Helsinki Uusimaa		(16)	Helsinki	Hanko, Kilpilahti	>10
	Kymenlaakso			Kotka, Hamina		0
	Lapland				Kemi	4
	North. Ostrobothnia				Rautaruukki/Rahe, Oulu	5
	Ostrobothnia		(13)		Kaskinen, Pietarsaari	4
	Satakunta	(1)	(10), (12), (13), (16), (17), (18)		Pori, Rauma	5
	Varsinais-Suomi	(1)	(10), (11), (15), (16), (17), (18)	Naantali, Turku	Eckerö, Maarianhamina	5
GERMANY	Mecklenburg-Vorpommern	(6)	(13)	Rostock	Sassnitz/Mukran, Wismar	5
	Schleswig-Holstein	(3)	(11), (12), (14), (15), (16), (17), (18)	Lübeck	Brunsbüttel, Kiel	>20
	Latvia			Riga, Ventspils	Liepaja	5
	Lithuania	(5)		Klaipeda		0
POLAND	Pomorskie	(7)	(10), (13), (15), (16), (18)	Gdansk, Gdynia		4
	Warminnsko-Mazurskie	(4)	(12), (13), (17), (18)			1
	Zachodniopomorskie	(5)	(18)	Szczecin, Swinousjscie	Police	2
SWEDEN	Gävleborg				Gävle	7
	Östergötland	(8)			Norrköping	1
	Skane			Malmö, Trelleborg	Helsingborg, Ystad	8
	Södermanland				Oxelösund	1
	Värmland (inland region)					4
	Västerbotten				Ulmea	4
	Västra Götaland	(2)		Göteborg	Stenungsund, Strömstad	10
	Blekinge				Karlshamn, Karlskrona	4
	Gotland				Visby	5
	Halland				Halmstad, Varberg	2
	Kalmar				Oskarshamn	6
	Norrbetten			Lulea		4
	Stockholm			Stockholm	Grisslehamn, Kapellskär, Nynäshman	0
	Uppsala					3
	Västermorrland				Sundsvall	3
	Västmanland (inland region)				Köping, Västeras	3

Source: Compiled by author (database: World Port Source).

Seven regions with "port priorities" do have a Core port available in their region, being out of the main scope of this research. Thus, only Nordjylland (DK), Central Ostrobothnia (FI), Satakunta (FI), Warminnsko-Mazurskie (PL) and Östergötland (SE) consider port-related priorities within their RIS3 documents, having no core but small and/or comprehensive (middle-sized) ports in the European TEN-T network.

Nevertheless, besides the identified regions fostering ports and/or Blue Economy, those without any relation to the maritime sector or logistics become important as well. Or in other words, the burst of empty cells is offering a clear statement towards the research questions proposed.

Only one region can be identified choosing at least one "port priority" for RIS3 having no core and no comprehensive (middle-sized) but small port–Warminnsko-Mazurskie (PL). Additionally, the majority of regions with core ports (nine) are not considering any prioritisation of the port sector in their RIS3 compared to those who selected such "port

priorities" (seven regions). The same applies for comprehensive ports with an even higher difference (21 against nine).

One special case needs to be reviewed—Denmark. The Danish government included a specific priority called "The maritime sector–the blue Denmark" to the national RIS3 document [97]. Nevertheless, the regions missed any specification of this approach within their RIS3, thus a concrete support on regional level for SMSPs or Blue Economy cannot be justified with the available and published information on priority setting for Danish regions.

Having the first research question in mind, the analysis exposed a very low contribution of SMSPs to RIS3 in the Baltic Sea Region. As illustrated in Table 2, the majority does not include any "port priorities" nor subsectors of the Blue Economy for the regional development in line with Smart Specialisation as innovation policy governance. This applies for small, comprehensive (middle-sized) as well as core ports. Thus, an early statement can be made: ports' regional innovation potentials as introduced in this paper were not considered in the funding period 2014–2020 for the analysed Baltic regions. This clearly offers that ports are not seen as driver for regional innovation worth to be strengthen under the umbrella of RIS3 by the regional decision-makers.

4.2. Effects of RIS3 Policies on Small and Medium-Sized Ports' Performances

It is worth to further analyse only those regions considering port as important blue actors for RIS3 as well as to create inferences from Smart Specialisation policies to port performances. For this purpose, data on cargo turnover and ferry passengers for all regions covering "port priorities" or Blue Economy sectors were collected for the years 2014 and 2019 (latest available). To enable an interpretation whether Smart Specialisation affects the performances, national and European data as mean value are added to allow a short benchmarking. The data are provided in Table 3.

Table 3. Regional development on cargo and ferry for selected NUTS-2 regions and countries.

	Cargo Turnover in Thousand Tones			Ferry Passengers in Thousand		
Countries & Regions	**2014**	**2019**	**Changes**	**2014**	**2019**	**Changes**
European Union	3.790.381	4.073.351	6.95%	398.127	436.888	8.87%
Denmark	92.244	93.727	1.58%	41.353	43.774	5.53%
Nordjylland	8.264	9.893	16.47%	5.470	5.409	−1.13%
Estonia	43.578	37.760	−15.41%	11.353	12.332	7.94%
Finland	105.537	120.488	12.41%	18.471	19.218	3.89%
Helsinki Uusimaa	39.433	48.002	17.85%	11.456	11.615	1.37%
C. Ostrobothnia, Ostrobothnia, Satakunta	13.294	12.979	−2.43%	161	209	22.97%
Varsinais-Suomi	25.481	31.097	18.06%	3.382	3.331	−1.53%
Germany	303.742	294.553	−3.13%	30.780	30.687	−0.30%
Mecklenburg-Vorpommern	25.564	26.298	2.79%	2.842	2.788	−1.94%
Schleswig-Holstein	36.216	37.922	4.50%	11.020	11.361	3.00%
Lithuania	41.105	52.244	21.32%	280	343	18.37%
Poland	68.744	93.864	26.76%	2.224	2.720 [1]	18.24%
Pomorskie	45.715	64.940	30.67%	870	1.073 [1]	18.92%
Warminnsko-Mazurskie		No data available			No data available	
Zachodnoppomorskie	22.286	26.621	16.28%	971	1.157 [1]	16.08%
Sweden	167.530	170.557	1.77%	29.244	30.055	2.70%
Östergötland	12.527	13.003	3.66%		No data available	
Vastra Götaland	46.526	49.231	5.49%	3.035	3.464	12.38%

[1] Data taken from 2018 due to no availability of data for 2019. Source: Compiled by author (database: Eurostat, codes: TGS00076, TTR00009, TGS00075, MAR_MP_AA_CPH).

Due to the availability of data, three Finish regions had to be subsumed together, while data indicated for Varsinais-Suomi covers two further Finish regions as well. Therefore, the respective values should be interpreted more carefully not to deduce false or biased conclusions. Additionally, the ferry passenger data on national level as well as Polish regional level was taken from 2018 as latest available data.

As the illustrated data in Table 3 shows, all regions with "port priorities" were able to increase their cargo handling between 2014 and 2020, except the consolidated three Finish regions. The highest growth can be allocated in Pomorskie (PL) with 30.67%. Furthermore, all regions were able to outgo the values on national level. Again, one exception has to

be highlighted, since the national data for Poland has to be seen as the sum of the two regions Pomorskie and Zachopodniopomorskie leading to the logical consequence, that the percental change on national level is the average of the two listed regions. However, the fact that majority of regions with "port priorities" outperform the respective national changes in increasing values of cargo turnover and partly the European average as well should stay as main conclusion and result from this analysis.

Reviewing the data for ferry passenger changes between 2014 and 2020 reveals the subsumed Finish regions as best performing (22.97%), while having the lowest score in cargo handling on sub-national level, indicating a specialisation process in Finish ports [98]. This contrast between high performances in one category and low ones in the other can be figured out for all Finish regions as well as for Nordjylland (DK). Polish regions exhibit high performances for changes in ferry passenger appearances, outperforming European average in both categories. Analysed German regions are not able to catch up the European benchmark, but Schleswig-Holstein achieves well performances compared to the National level.

On the national level, Poland and Lithuania have to be highlighted. Both countries feature high performance increases in both the analysed categories. Besides the lead to European average, no other country can offer comparable values on the increased changes.

In a sum, two main insights can be deduced from Table 3. First, all regions have been able to outperform their national level in cargo turnover and ferry passenger in the funding period 2014–2020, the special case of Poland has been described. Except Estonia and Germany, national performances have been positive for both categories. Second, large slopes can be figured out for several regions between increases of cargo and ferry passengers, underlining the basic idea of specialisation on a certain field in maritime sector [99].

As mentioned earlier, to deviate conclusions on SMSPs for RIS3, only five regions of all coastal Baltic Sea regions can be used as direct case studies. Due to the missing data for Östergötland (SE) and Warminnsko-Mazurskie (PL), three regions serve as source to gain insights. Interestingly, Nordjylland (DK) as well as Central Ostrobothnia/Satakunta (FI) offer remarkable value in Table 3. On the one hand, Nordjylland (DK) achieves the highest lead compared to its national level on cargo handling. As mentioned earlier, Denmark included the maritime sector as key priority for Smart Specialisation on national level, thus, all Danish regions experience support in their maritime development. However, Nordjylland (DK) outmatches the national performances underlining the necessity to include "port priorities" and transfer the view from national to the regional RIS3 to benefit from maritime capabilities–small and medium-sized ports. On the other hand, the Finish regions reached the best values of all analysed cases for increasing their ferry passengers in the funding period according to the available data.

As mentioned, all regions covering "port priorities" were able to outperform the national values. Thus, successful implementation of this RIS3 priorities in the funding period 2014–2020 can be emphasised. On the national level Lithuania and Poland offer the highest performance rates of all Baltic countries. However, consideration of "port priorities" for National Innovation Strategies on Smart Specialisation cannot be supported as a result of this research, since the case of Denmark reveals low growth performances for the port sector on national level, while the only Danish region considering "port priorities" in RIS3 is outperforming.

Through the conducted research and gained knowledge through data analysis, the following theorems can be reasoned with reference to the proposed research questions:

- The majority of Baltic coastal NUTS-2 regions does neither consider "port priorities" nor Blue Economy subsectors as priorities for their RIS3. This applies independently from the existence of core, comprehensive and/or small ports in the regions, leading to the conclusion of missed potentials through ports as location and competitive advantages and thus for regional development. Regions with selected "port priorities" mainly cover the subsectors of the Blue Economy as well.

- NUTS-2 regions considering "port priorities" of Blue Economy subsector within their RIS3 documents outperform the national and European benchmark in development of cargo turnover and ferry passengers between 2014 and 2020.
- Considering the availability of SMSPs in Smart Specialisation Strategies for priority selection can lead to higher port performance increases on maritime cargo and ferry handling in a funding period compared to other comparable regions.

Thus, the conducted research and analysis underlines the role of SMSPs in regional development and demonstrates the add-value of Smart Specialisation approaches for the Blue Economy.

5. Discussion

The two regions of Nordjylland (DK) and Central Ostrobothnia/Ostrobothnia/Satakunta (FI) serve as the ideal case studies for this research scope—having SMSPs only and selected "port priorities" in their RIS3. They achieved remarkable performance growth values, revealing a successful specialisation to either cargo or ferry passengers, supporting the idea of competitive advantages through RIS3 [100].

In general, the conducted research identified high growth in port performances for Baltic coastal regions considering SMSPs in their RIS3 priorities. Even though key port performance indicators are discussed in related literature [101], cargo and ferry passenger values are reflected as key indicators in the discourse [99,102–104]. Hence, drawing inferences from the presented data in Table 3 about port performances in the region can be deduced. Nevertheless, the research does not allow to draw back conclusions for an individual SMSP—only conclusions for the regions on NUTS-2 level can be made accordingly to the research design. Thus, the conducted research allows to formulate the following policy recommendations:

- Utilisation of natural resources and capabilities in RIS3: The research has exposed the low consideration of Blue Economy in RIS3 for Baltic coastal areas. Thus, the existing capabilities (SMSPs) and natural resources (marine resources) as well as the potential for regional development through competitive advantages are not utilised and are focused on more intensive for the next funding period.
- Using RIS3 as tool to support SMSPs: The analysis revealed positive effects on cargo and ferry for regions with SMSPs only when reflecting their capability in RIS3. Thus, RIS3 can be a successful tool to sustainably specialise available SMSPs in a region and overcome competitive disadvantages in comparison to core port regions.

The first recommendation is in line with other research when analysing improvements on the development and implementation of RIS3 policy [105,106]. Additionally, the research offered the low recognition of seaports, being small, medium or large, in RIS3 as innovation governance policy. Thus, seaports cannot be identified as so called blue actors in the Blue Growth paradigm for the Baltic Sea Region. Hence, future research on blue actor identification is required when it comes to innovation and growth policies and especially RIS3. Thus, the conducted research confirms the current gaps in this particular research area [33].

The second recommendation is coherent with other researches and confirms the potentials of RIS3 to be used as a tool for regional politics [50,107], but can also be considered as a helpful tool for SMSPs themselves putting RIS3 into business strategies for maritime institutions [108]. Hence, this needs further elaboration and research, taking into account the low access for SMSPs to funding opportunities [3] which can be mitigated by utilising RIS3 [13,14,16,109].

Table 2 revealed a huge potential for improvement in the integration of ports as structural units in a region to the respective RIS3 priorities. Even though, a lot of regions can utilise from a strong maritime sector and the existence of ports as logistical hubs, these blue actors are not represented in their respective regional innovation strategy. Further research is necessary to elaborate the reasons why critical blue infrastructure is not represented in regional innovation policies.

Despite the research was implemented and prepared to the best of knowledge and belief, some limitations need to be described as well. In general, the Smart Specialisation strategy design and actual implementation are two separate steps. The transfer of the strategy to actual actions in the regions is a challenging process offering individual obstacles on regional level [14,48,110,111]. Thus, other theoretical concepts or growth strategies might contribute to the data received from the analysis as well, such as the theory of higher growth potentials for countries with lower GDP values [112,113].

Hence, further research on this particular topic of the paper in hands should be addressed as well. As a first recommendation the extension of the sample is necessary to identify further regions with RIS3 "port priorities" and SMSPs only. Thus, the recommendations of this research would receive further arguments and (possibly) justifications. Furthermore, the recently mounted term of "sustainable blue de-growth" [114] as contractual idea to the economic growth domination focusing on environmental and social sustainability [115–117] could be taken into account in further research on RIS3 and Blue Economy.

The analysis of SMSPs as institutions and actors in the frame of innovation growth policies is also underlining the current research discourse on framing a deeper view on seaports as ecosystems [101]. Through their functional role of gateways and regional economic centres [118] SMSPs as well as bigger seaports are becoming nodes of social, environmental and economic actions, including entrepreneurial, operational, technological and legal dimensions integrated as ecosystems [119–123]. Under this view, SMSPs as ecosystems might enable new interactions with existing innovation policies and open new pathways for sustainable development of SMSPs on ecosystem perspective rather than a single entity.

6. Conclusions

The purpose of this research paper was to examine the SMSPs integration into RIS3 policies of coastal Baltic NUTS-2 regions as well as an elaboration of regional port performances when SMSPs are integrated to this innovation governance policy (research questions). Through a deep analysis of the priority selection for 37 affected regions, the results illustrated in Table 2 have exposed a very low recognition of SMSPs as driver for regional innovation in the Baltic Sea Area under the RIS3 policy. Only 12 regions covered one of the introduced "port priorities" deduced from the main functionalities of SMSPs being maritime accelerator and logistical nodes. Furthermore, the analysis revealed that non-consideration of "port priorities" is an issue for any kind of port classification in the regions, even though one or two core ports are existing.

As a next step, the analysis examined the performances dedicated to port operations using available cargo and ferry data for the funding period 2014–2020 on NUTS-2 level. As introduced in the first two chapters, RIS3 and Blue Growth as innovation policy concepts offer synergy opportunities and affect each other. Thus, the effect of incorporation of "port priorities" to RIS3 on actual performance indicators was elaborated and illustrated in Table 3 for the affected regions. Besides the general growth in cargo and ferry as well as outperforming the European averages, the analysed regions revealed outperforming regions against the national and European averages.

Following yielded results from presented datasets, two main recommendations were highlighted by the author. At first, future RIS3 development and implementation should consider available regional resources and capabilities—in this case SMSPs and access to marine resources, which was exposed by analysing introduced "port priorities" on the one hand and Blue Economy sub-sectors on the other hand in the frame of RIS3. Second, RIS3 should be used as a tool by regional policy-makers, but also by the SMSPs management level, to foster regional innovation and sustainable development.

Bearing in mind the presented relations between RIS3 and Blue Economy, this paper in hands theoretically contributes to the elaboration of SMSPs' significance in coastal Baltic Sea regions' Smart Specialisation Strategies as well as the regional utilisation of available mar-

itime capacities, but also on proofing the positive effects of RIS3 as innovation governance policy on regional blue actors' (SMSPs) performances. Furthermore, through conducted analysis, this research practically contributes by underpinning policy recommendations for the Baltic Sea Region such as establishment of regional innovation ecosystems, identification of key actors and cross-border collaboration [124,125] by highlighting the potentials of SMSPs in this discourse and practical pathway to regional sustainable development.

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