Conclusions on increasing smart competitiveness in the Central Baltic region

Final SmartComp Research Report, December 2013

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SMARTCOMP
SMART COMPETITIVENESS FOR THE CENTRAL BALTIC REGION

CENTRAL BALTIC
INTERREG IV A
PROGRAMME
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EUROPEAN UNION
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CONCLUSIONS ON INCREASING SMART COMPETITIVENESS IN THE CENTRAL BALTIC REGION -FINAL SMARTCOMP RESEARCH REPORT

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00 CONTENTS

01 SUMMARY

Based on comprehensive research on the Central Baltic region (CBR) maritime clusters, the SmartComp project provides useful general as well as specific, case-based information for the use of the maritime sector stakeholders and policy-makers in the region. Although the maritime clusters in the CBR, i.e. Estonia, Finland, Latvia and Sweden, have somewhat different expertise areas in the maritime sector and are also relatively different in terms of structure, their complementary strengths should be combined for the whole region to benefit from the expertise possessed in the region.

Currently cooperation activities between the CBR maritime clusters are strongly tied to the activities of individual large corporations as well as public organisations, and avenues for large-scale cooperation are limited. Cooperation within the region could be beneficial in terms of educational arrangements and political lobbying, for instance. Cooperative activities are required also concerning the creation of LNG infrastructure and the development of cleantech solutions to meet the tightening environmental regulations. Simultaneously, the maritime sector developments in the neighbouring Russia create both challenges and opportunities for the CBR maritime clusters, which could thus be approached through joint cooperation initiatives. Together the CBR clusters could promote the region for cargo transshipments while providing various service packages and even green conversions for shipping companies. Moreover, even though the countries compete in the East-West axis of Russian transshipments, in the North-South axis the Rail Baltica combined with the Finnish corridor to the Arctic could turn the region into a considerable logistical ensemble.

It seems that the future competitiveness of the CBR actors lies in specific areas of expertise and that they can respond to global competition only by maintaining their position in the forefront of global innovation development. However, this is not an easy task, particularly when the local environment is also facing significant changes, such as the rising cost levels and the tightening environmental regulations, to mention some examples. Moreover, continuous innovation activities as well as international marketing efforts are of crucial importance for the CBR maritime companies as global rivals are also investing heavily on R&D. In fact, it is clearly worth noting that competing clusters have been smarter in some dimensions of developing the maritime sector, such as in defining a clear vision of the cluster's future, investing heavily in the clusters' development accordingly, and developing strong triple helix cooperation between companies, state authorities, and local research institutions. Ultimately some of the most dynamic clusters have emerged as global hubs of maritime business and expertise, Denmark, Norway and Singapore presenting very interesting examples.

The CBR clusters should thus closely follow not only the market developments but also technological, infrastructural and business-related advancements in other regions. Even the smaller companies must do this, as the maritime business is global and international developments have a direct impact also on the activities in the Central Baltic region – no region is an island, but a part of endless business networks. Likewise, policy-makers should continuously seek international cooperation as well as benchmarking opportunities.

On this basis, SmartComp project provides managerial suggestions as well as policy recommendations for international, CBR-level and national decision-makers. While this project has produced a comprehensive overview on the developments of the maritime sector from the perspective of the Central Baltic region, further studies should proceed on analysing specific problems, such as emission restrictions and cost level issues, and future development areas, such as cleantech advancements and Arctic expertise.

02 INTRODUCTION

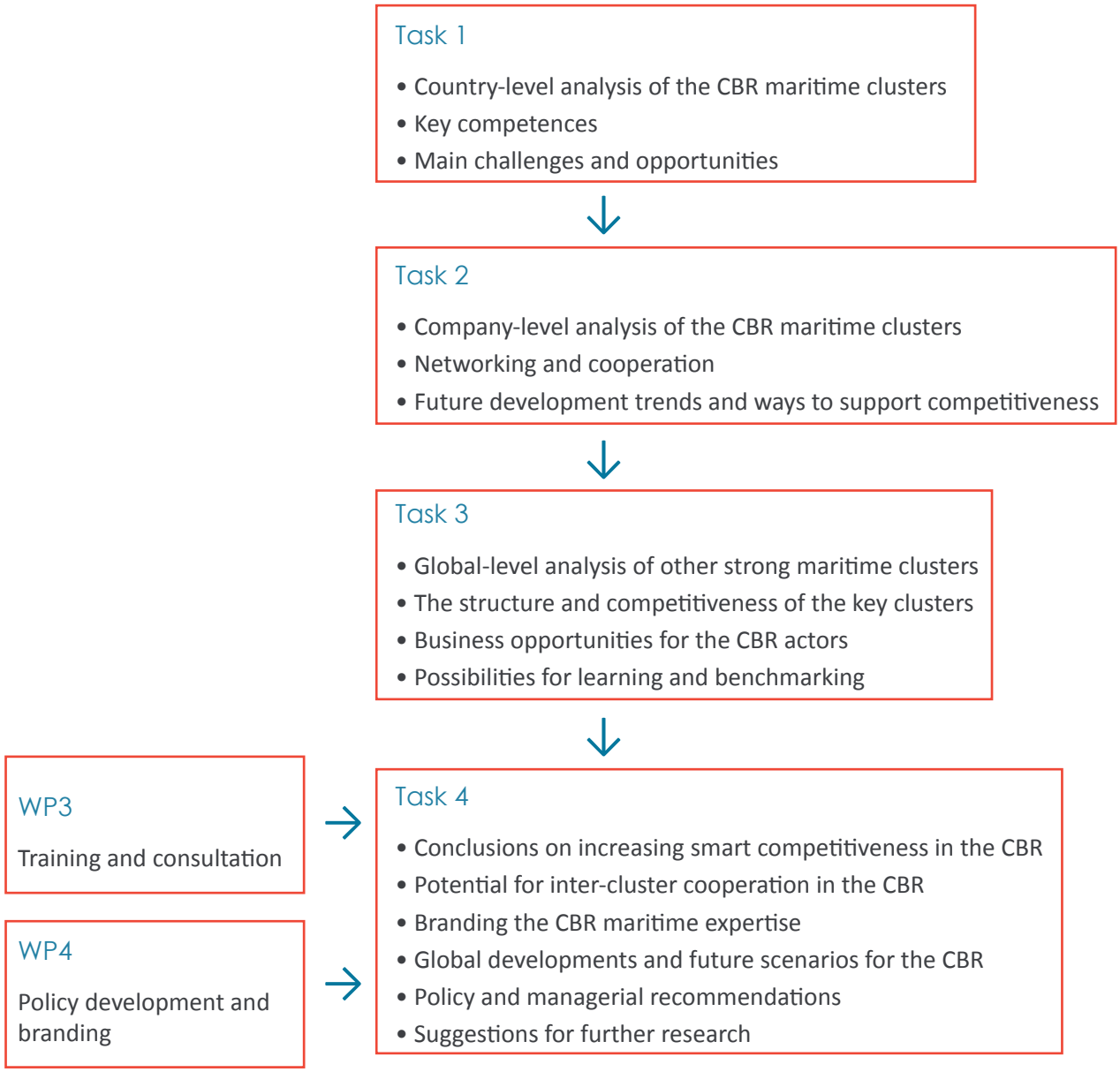
SmartComp – Smart Competitiveness for the Central Baltic region is a Central Baltic INTERREG IV A Programme 2007–2013 financed project which aims to support smart, environmentally sustainable development, growth, competition and cooperation between maritime clusters, cities and universities in the Central Baltic region (CBR), i.e. in Estonia, Finland, Latvia and Sweden. The partners involved in the project include Union of the Baltic Cities, Commission on Environment Secretariat (Lead Partner, Finland), University of Turku/Centre for Maritime Studies (Finland), University of Turku/Turku School of Economics (Finland), Centrum Balticum Foundation (Finland), Åbo Akademi University (Finland), Tallinn University of Technology (Estonia), University of Tallinn (Estonia), Riga International School of Economics and Business Administration (Latvia), and Latvian Maritime Academy (Latvia). Through triple helix cooperation, this consortium seeks new opportunities for the maritime clusters in the Central Baltic region. The project is divided into four Work Packages: (WP1) Management, (WP2) Research and analysis, (WP3) Training and consultation, and (WP4) Policy development and branding.

The focus of WP2 has been to study how the maritime clusters of the Central Baltic region could increase their future competitiveness through smart business models[1] and solutions. The structure of the research has followed the SmartComp Work Plan for WP2. WP2 has been analysing the current state and future of the maritime clusters in the CBR[2] from country and company-level perspectives, as well as in comparison with other globally strong maritime clusters. The research in WP2 has been divided into four tasks: 1) Country-level analysis of the CBR maritime clusters, 2) Company-level analysis of the CBR maritime clusters, 3) Global-level analysis of other strong maritime clusters, and 4) Conclusions on increasing smart competitiveness in the Central Baltic region. The overall research structure of WP2 is presented in the following figure.

[1] Regarding business models, the research focused on the strategic level understanding and decision elements of a business model, particularly emphasizing the issue of networks and alliances, which can be the source of joint competitiveness in the CBR. (For further discussion concerning the concept of a business model, please see the SmartComp Research Report No 2.)

[2] Although discussed in the SmartComp Research Report No 1, Sweden was not included in the focus countries of other tasks, which was taken into account already in the Work Plan for WP2. Conducting research there, with the same level of intensity but without a local partner, was considered unmanageable among the Estonian, Finnish and Latvian project partners within the given time frame.

Figure 1. Structure of the research in WP2



During the first task, the research focused on analysing the key competences, challenges and opportunities of the CBR maritime clusters, creating a synthesis on how the maritime clusters could jointly contribute to their competitiveness and giving recommendations on what kind of actions should be taken. The research was based on a vast desk study and expert interviews. In addition, the research group mapped the maritime clusters' construct (companies and associations) in Estonia, Finland, and Latvia.

During the second task, the research focused on the cooperation relationships and networks of the maritime companies in the CBR. The main objective was to explore the business networks within and between the CBR maritime clusters and analyse how networking could be further supported. The research was based on a survey for maritime cluster companies and case company interviews, which were conducted simultaneously in Estonia, Finland and Latvia. The main topics covered through the survey included the current state and future of the maritime clusters, the national and international networks, and innovation activities. Regarding the interviews, the focus was set on the companies' business networks in order to identify new ways to support the competitiveness and interaction of the maritime companies.

The aim of the third task was to discuss and analyse the global developments in the maritime sector and hence provide new perspectives for visioning the future of the maritime clusters in the CBR. Based on a vast desk study and expert interviews, the recent developments and future prospects in the most important maritime clusters around the world were presented. In addition, business opportunities for the CBR actors in global markets, as well as possibilities for learning and benchmarking from other countries and regions, were identified.

The fourth task comprises a concluding analysis of the research findings in WP2 by combining previous results of WP2 and results achieved in other SmartComp work packages. This publication is the final research report of WP2 and was produced in November–December 2013 by the project research group comprising Kari Liuhto, Eini Laaksonen, Hanna Mäkinen, Akseli Jouttenus and Minghui Gao from the Pan-European Institute at Turku School of Economics at the University of Turku (Finland); Esta Kaal, Tiina Niin and Kaja Tampere from Tallinn University (Estonia); Alari Purju and Eva Branten from Tallinn University of Technology (Estonia); Maris Katranzi from the Latvian Maritime Academy (Latvia); Valters Bolevics and Veiko Spolitis from Riga International School of Economics and Business Administration (Latvia); and Annemari Andrésen and Jenni Junnelius from Åbo Akademi University (Finland).

For more information about the publications and activities of the SmartComp project, please visit www.cb-smartcomp.eu.

03 POTENTIAL FOR INTER-CLUSTER COOPERATION IN THE CENTRAL BALTIC REGION

3.1 MARITIME CLUSTERS AND THEIR NETWORKS

Although the maritime clusters of the Central Baltic region (CBR) have several factors in common, they are still separate and compete against each other in various dimensions. However, in the future they should find ways to combine their strengths in order to increase the general competitiveness of the region's maritime sector. The risk of accidents, such as oil catastrophes, concerns all coastal states around the Baltic Sea, and boosts investments in technologies and processes aimed at increasing the safety of navigation. The legal framework for vessel traffic in the Baltic Sea is also tightening, the sulphur emission regulations giving the most topical example. The maritime clusters in the CBR have to make remarkable investments in developing and implementing new solutions to meet the regulations. However, if managed well, the tightening environmental regulations could even emerge as an opportunity for the region, making the CBR clusters forerunners in environmental-friendly technologies, life-cycle solutions and fuel efficiency.

The development of the Russian ports (particularly Ust-Luga) can increase the material flows in the region while also reducing needs for transshipments. Russia plays an important role in the CBR economies and maritime sectors, and these clusters should consider developing common solutions regarding the port infrastructure and specialisation. Simultaneously, Russia provides plenty of opportunities in the shipbuilding sector, and therefore involvement in the neighbour's growth activities should be one of the priorities for the CBR maritime clusters and key actors.

However, the rising cost levels significantly threaten the profitability of the CBR maritime clusters, and the global competition is tightening as particularly Asian clusters are competing with considerably lower production costs. Instead of prices, the CBR maritime clusters compete with quality and specialization, which, however, requires maintaining sufficient financial and scientific resources for innovation as well as marketing activities. Availability of qualified workforce is also a common problem in the maritime sector, both due to aging population and shifting of experts to other industries. This challenge has to be met by guaranteeing the sufficiency and quality of education and creating an appealing image for the maritime sector. Common branding and communication activities could improve the image of the maritime sector and increase awareness of its importance for the CBR countries.

Regarding the competitive advantages of the Central Baltic region maritime clusters, they have some factors in common but there are also country-specific strengths. In general, the CBR countries have relatively long experience in shipbuilding and shipping activities on the Baltic Sea and have developed special expertise for instance in IT solutions, design and engineering.

Taking the focus to country-level, in Estonia tourism, transport and logistics are important elements of the maritime cluster as the majority of foreign trade as well as international traveling are seaborne. The Tallink Group dominates the shipping business, particularly regarding passenger traffic but provides also ro-ro cargo services. Transit trade, particularly from and to Russia, is important for Estonia and its ports. The majority of goods handled in Estonian ports are petroleum products which are transported from East to West through Estonia. In the shipbuilding sector ship repair and maintenance is well developed and the Baltic Ship Repair Company (BLRT) dominates the industry even throughout the Baltic States. Fishing industry is also well-developed in Estonia.

Common challenges of the CBR maritime clusters

- Tightening environmental regulations, e.g. sulphur directive
- Increasingly fierce global competition
- Rising cost levels
- Lack of qualified workforce
- Lack of cooperation within and between the maritime clusters

In Finland, the shipbuilding competence is extensive and shipbuilding is an important sector of the country's maritime cluster. Shipbuilding, together with a wide network of related and supporting industries specialized particularly in the needs of the Finnish maritime industry, can be said to form a cluster of its own. Finland has a long tradition in cruise vessel construction but in the midst of a structural change, new development directions must be found. There is a growing demand for excellent quality as well as special niche know-how and technology, for instance related to the Arctic conditions and environmental requirements. In addition, as around 85 per cent of the Finnish foreign trade is seaborne, shipping industry and ports are an important part of the Finnish maritime cluster. Furthermore, Russian transshipments are of great significance for Finnish ports, of which they are also competing with ports in the Baltic States.

In Latvia, transports and logistics play an important role in national economy and ports are an important element of the country's logistic cluster, as well as the maritime cluster. The competitiveness of ports is largely affected by railway and road accessibility, port infrastructure and various services offered in the vicinity of the ports. Transshipments from Russia and other CIS countries constitute the majority of the cargo transported through Latvian ports. Latvia's shipbuilding industry is mainly specialized in ship repair and maintenance activities. There is also a wide and competitive network of suppliers of marine industry, whose products range from ship hulls and machinery to ship design, interior and various electronic devices.

The CBR clusters thus have somewhat different areas of expertise. Moreover, they are also structured rather differently. In Estonia and Latvia, maritime logistics and their networks play an important role, whereas the Finnish maritime cluster is characterized particularly by the well-developed networks of the shipbuilding industry. Thus, also the content and level of cooperation vary among the clusters. Naturally, vertical cooperation within value chains is common for the Estonian, Finnish and Latvian maritime cluster companies, for instance in R&D. Companies also have horizontal-level cooperative relationships, for example within various projects, in which the different competencies of companies are seen as complementary. However, there is significant potential for increasing such relationships. The level of internationalization is also one of the key issues – particularly large companies are active in international networks, but also SMEs should increasingly engage in these networks in order to find learning opportunities and new markets for their expertise.

In all the three clusters, companies highlight the role of various associations as platforms for cooperation. In addition, triple helix cooperation is characteristic for all these clusters. Companies are involved in R&D, innovation and educational cooperation with universities and research institutions, contributing to product development and training of competent employees, for instance. Governments and municipalities, in turn, are involved in the clusters' development through shaping their business environments and implementing cluster-related policies. Consequently, triple helix

cooperation between companies, research institutions and the public sector is rather active in the maritime sector, although increased coordination could contribute to better functioning of such cooperation.

Regarding the international business and cooperation networks between the CBR maritime clusters, various connections do exist but the clusters today do not constitute a particular unity or an international cluster. For companies it is difficult to identify natural ways for inter-cluster cooperation in this region, largely due to the different structures between the clusters and more attractive business potential available elsewhere. However, most companies still think that cooperation within the area could be beneficial in terms of educational cooperation and political lobbying, for instance. In addition, complementary strengths should be pooled for the whole region to benefit from the expertise possessed in the region. Furthermore, getting more familiar with the developments of the other clusters could spur the generation of new cooperation ideas.

3.2 POTENTIAL FOR CLUSTER INTERNATIONALISATION

Based on the shared challenges and opportunities, the Estonian, Finnish, and Latvian maritime clusters engaging in cooperation might definitely make sense in the long run. Increased cooperation between national clusters has been in earlier literature approached with a concept of cluster internationalisation. According to Filippov and Yurkovsky (2007) , it refers to two clusters starting to build mutual cooperation with their own sets of competitive strengths and needs, eventually leading to a consolidation of their value systems. Such consolidation may result in higher competition between the systems in both clusters while simultaneously filling each other's gaps and missing links.

Filippov & Yurkovsky (2007)[3] studied this concept in the context of energy sector, and analysed the potential for cluster internationalisation between the Finnish and Russian energy clusters based on the cluster characteristics. While it has been acknowledged that the maritime actors in the Central Baltic region do not constitute a cluster, the idea of cluster internationalisation can be applied to the region, thus representing a more organized, long-lasting and deeper form of inter-cluster cooperation than mere occasional business exchanges. On this basis, the following table summarises the potential for maritime cluster internationalisation in the Central Baltic region, the colours illustrating each character's influence on the potential as follows:

Contributes to increased inter-cluster cooperation = ☐

Does not have clear effect on inter-cluster cooperation = ☐

Hinders inter-cluster cooperation = ☐

[3] Filippov, P. – Yurkovsky, V. (2007) Essay on internationalisation potential of Northwest Russian and Finnish energy clusters. ETLA Discussion papers, The Research Institute of the Finnish Economy.

Table 1. Potential for inter-cluster cooperation in the Central Baltic region

	ESTONIA	FINLAND	LATVIA
STRUCTURE AND ACTIVITY BASE	Active port operations, but maritime industry activities largely limited to ship repair and maintenance. There is also a group of SMEs in the boat construction sector. Limited advantages from clusterisation due to the low number of elements of the cluster.	A wide range of industries and sub-industries, producing a variety of goods and services, but particularly smaller companies are often rather specialised. Companies concentrated in the upper stages of value chain, limited involvement in production of e.g. raw materials and ship blocks. Well-developed networks due to the common roots of companies.	All fields of the maritime cluster are represented but port operations form the central part of the cluster. Shipbuilding and ship repair and maintenance companies are small and networking among them is rather limited whereas their customers are mainly international.
GROWTH POTENTIAL	Companies are mainly focused on the national and regional markets and have relatively solid market shares in their own segments. Their internationalisation is mainly concentrated to the Baltic and Nordic markets which limits their growth potential. Growth potential is also limited by the lack of investments and qualified workforce. In the port sector growth potential is higher due to technological advancements and initiatives such as PORTNET and Rail Baltica.	Economic downturn has affected the cluster, particularly shipyards and shipping companies, negatively, but the potential for SMEs remains good. Growth is driven mainly by active innovations, development of new technologies and specialisation	Economic downturn has had a negative effect on the cluster, particularly shipping. Shipbuilding and ship repair is likely to stay relatively stable. Ports hold the largest growth potential with developing infrastructure and increasing investments but are largely dependent on the Russian transit flows.
INNOVATIVE CAPACITY	Positive factors, such as business-friendly environment and well-developed IT and communication sectors contribute to innovative capacity. Companies, such as Tallink, also actively adjust their activities to the new shipping conditions with green CSR principles. However, in general, a clear need to increase R&D and innovation activities remains.	High innovative capacity, supported by the well-developed national innovation system. Established research cooperation between companies and research institutions, relatively high investments in R&D.	Innovative capacity remains rather low and inadequately supported. There is a lack of practical maritime research and related facilities, e.g. laboratories. On the other hand, Latvian educated workforce contributes to innovative capacity and some companies, such as Riga Shipyard, are involved e.g. in maritime design. Still, there is a clear need to increase R&D and innovation activities in the maritime sector.

	ESTONIA	FINLAND	LATVIA
COMPETITIVE ADVANTAGES AND POSITION	Advanced port logistic technology. Shipbuilding companies have a good quality-cost ratio and are competitive in their own niches. The cluster could gain significantly in terms of competitiveness by strengthening its international networks.	Long experience in shipbuilding combined with modern technology solutions and efficient project management. Particularly labour costs, however, decrease competitiveness.	Advanced logistics due to Latvia's favourable geographic position and tradition as a transit country between East and West. Well-developed energy infrastructure, such as the pipeline connections with Russia and gas storage facilities, contributes to competitiveness.
GOVERNANCE AND OWNERSHIP STRUCTURE	Large individual companies dominate the cluster (Tallink in shipping, BLRT in ship repair), others are private SMEs. Ports are landlord-type entities which are owned by state (Port of Tallinn with several harbours) or are in private hands (Port of Sillamäe).	Comprises private SMEs and a few larger companies, some in foreign ownership. Ports are mainly in public ownership but the incorporation process is under way. Strong associations promote the interests of the cluster, e.g. contributing to the working conditions but raising the labour costs.	Comprises private SMEs and a few larger private companies (e.g. Riga Shipyard in shipbuilding and Latvian Shipping Company in shipping). Ports are non-profit organisations, governed by the port authorities. Several associations, such as the Latvian Logistics Association, protect the interests of the companies and offer an arena for networking.
GOVERNMENT POLICY TOWARDS CLUSTERING	Government plays an important role in developing the cluster's operational environment and has adopted a development plan for the maritime sector. Public support for companies is provided through e.g. financial assistance and training, but support for e.g. innovation activities should be increased considerably.	Government plays a significant role in developing the cluster's operational environment and has adopted special policies for supporting the cluster's development. SME internationalisation is supported through various projects and funding mechanisms.	Clustering in general is promoted by the government, but not in the maritime sector in particular. The government also aims to strengthen joint marketing activities of the Latvian transportation sector through the Latvian Logistics Association. However, clustering activities in the maritime sector are progressing rather slowly due to a lack of a long-term vision and strategy, as well as strong leadership.

It can be concluded that there are issues both contributing and hindering increased inter-cluster cooperation. Potential for increasing shared operations thus exists, although concrete cooperation areas are not that evident and the objectives for that differ per country. Although the clusters can be seen as complementary in terms of expertise areas, the main hindrance is the relatively small number of maritime companies in Estonia and Latvia, thus limiting opportunities for business cooperation.

From the Estonian perspective, Finland is seen as exemplary in many ways, and best practices could be taken concerning for instance support provided for R&D and innovation activities. Ports of Helsinki and Tallinn could also increasingly cooperate regarding waste treatment systems. Latvia, in turn, is exemplary in terms of shipping system as many ships have recently moved under the Latvian flag.

From the Finnish perspective, the cooperation potential lies for instance in continuing shared shipbuilding operations with Estonia and Latvia and oil accident prevention and rescue systems with Estonia. Further cooperation could take place in developing harmonized port systems, and also concerning various IT applications in maritime sec-

tor as well as in education for instance, which are currently highly advanced in Estonia. International multi-sector R&D projects as well as international student programs could lead the way for future business cooperation.

From the Latvian perspective, both Finland and Estonia are seen as good examples for developing the maritime cluster, and of recent interest have been for instance the port governance structures as well as innovation incubators in Finland. Related to the sulphur directive, Latvia would be interested in participating in the development of solutions, for instance by starting the manufacturing and installations of scrubbers designed in Finland. The related international waste treatment system could also be developed in cooperation between the three countries, Latvia for instance focusing on recycling the waste. Latvia could also benefit from the Estonian connections to Russia, as well as to Finland – of these three countries, Estonia is in the middle, although Finland is seen as being the one to lead the cooperation and provide most learnings for the other clusters.

From a more general perspective, the presence of Russia's developing maritime cluster in the neighbourhood is both a challenge and an opportunity for the Central Baltic region countries. Together they could promote the region for cargo transshipments while providing various service packages and even green conversions for shipping companies. Even though the countries compete in the East-West axis of Russian transshipments, in the North-South axis the Rail Baltica combined with the Finnish corridor to the Arctic could be a considerable logistical ensemble. Moreover, including North-West Russia into these activities would add great potential and substance to such international cooperation initiatives. Likewise, the inclusion of Lithuania and Poland into the group of clusters could also be worth consideration. Creating a multinational pool of complementary resources and expertise, both in terms of logistics and shipbuilding, could turn out to be a trigger for increased competitiveness for the region's maritime clusters.

Cooperation activities between the Central Baltic region maritime clusters are thus strongly tied to the activities of individual large corporations as well as public organisations, and avenues for large-scale cooperation are limited. Nevertheless, the role of public project financing as an accelerator of international cooperation activities and as a provider of R&D resources is highly important and could promote inter-cluster cooperation in the future. While larger companies lead the way, also smaller ones benefit from the projects' spillovers, which may contribute to the creation of further cooperation ideas and initiatives in the region.

04 BRANDING THE CENTRAL BALTIC REGION MARITIME EXPERTISE

4.1 BRANDING A CLUSTER

As concluded in the earlier SmartComp reports, the Central Baltic region (CBR) maritime clusters seem to lack a clear vision and strategy for developing the maritime sector, and the public actors should rapidly decide on the direction in which the development efforts should be aimed. Without a clear vision and strong commitment, the triple helix cooperation cannot solve the significant problems these clusters are facing. Consequently, there is a great need to increase the public recognition on the existence and possibilities of the Central Baltic region as a unity and strongly interrelated group of clusters. In fact, according to the recently published global study of cluster initiatives[4], the two objectives related to generally promoting collaboration in the cluster have the highest priority ratings among the ten objectives of a cluster – namely identity and brand, and strategy and vision – followed by innovation and R&D, and business environment improvement. Due to global competition, strategic management and clustering are increasingly needed also at regional level.

Clusters are complex systems with multiple stakeholders. Large regional clusters – such as the CBR maritime cluster – are even more complex systems, since they require transnational cooperation, while at the same time there are noticeable differences in the conditions of business environments, cultural issues (values and customs), and established relationship models. Rosenfeld (2005) outlines that successful clusters have the following characteristics: 1) they must have conceptual integrity; 2) the workforce is imperative; 3) their success requires some form of differentiation, or brand; 4) the clusters rely heavily on attracting and keeping talent; and 5) their competitive advantages are changing as result of globalisation and technology.[5] The cluster brand should hereby be understood as a promise to different stakeholders about what the cluster offers, where its uniqueness lies and what its values and identity are like. The cluster brand does not necessarily have to be realised on the level of a trademark, name, logotype or a so-called brand book, but these are definitely important attributes if there is a wish to use the brand concept in communication.

The cluster branding is a tool for cluster reputation management that might provide different kinds of benefits for cluster members, such as recognition, and a direction for cluster development. It also helps to create civic pride, attract talents, investments and new cluster members, support export and sales promotion, and express companies' corporate social responsibility. There is clear evidence that not only SMEs can benefit from cluster reputation, but also regional subsidiaries of global corporations (R&D and product units) may strengthen their position in the internal competition for resources within multinational corporations. Branding and marketing goals of a cluster

[4] Sölvell, Ö. – Lindqvist, G. – Ketels, C. (2013) The Cluster Initiative Greenbook. Second edition. Http://www.clusterobservatory.eu/system/modules/com.gridnine.opencms.modules.eco/providers/getpdf.jsp?uid=c57a2f9f-aa59-4af8-a8f9-4fa99e95b355, retrieved 24.10.2013.

[5] Rosenfeld, S. (2005) Industry Clusters: Business Choice, Policy Outcome or Branding Strategy? Journal of New Business Ideas and Trends 2005 3 (2), p. 10¬–12.

involve creating visibility, attractiveness, differentiation and identification. A solid and clear cluster brand image reduces complexity and can make a cluster more comprehensible to the outside world, and also create the context and direction for stakeholders within a cluster.[6] Thus, the cluster branding and communication strategy plays an important role also in forming a cluster, shaping its identity and developing its value system, so that the cluster's reputation, both in the eyes of its internal and external stakeholders, could be managed efficiently.

In fact, in case of common interests or challenges, internal cooperation within a cluster may take place without the cluster branding – branding is not the basis of or the reason for cooperation. Branding creates an opportunity for better coordinated communication of a broad-based triple helix cooperation network and may thereby stimulate cooperation in finding more efficient and faster solutions to the challenges the cluster is facing. To achieve the positive effects of the cluster branding it is vital to establish an organisation to manage the brand, involving actors from different countries and fields. However, it should be taken into account that the branding of regional clusters is a very complex and time-consuming process. For instance, the branding and identity building of the Baltic Sea region has been on a high-level political agenda for over a decade. "Actions that would generate more 'we-feeling' in the region are very much needed. The image of the region and the way it is perceived by outsiders may affect the way it is seen by the locals and vice versa".[7]

4.2 BRAND STRATEGY FOR THE CENTRAL BALTIC REGION

The aim of the cluster and brand strategy is to motivate the network to act together both in the context of internal cooperation possibilities and on joint competition against global rivals. The strategy is neither binding nor definitive, but based on SmartComp findings might serve as a basis for promoting and planning joint maritime sector activities in the CBR – even for creating an international maritime cluster in the future.

The purpose of the CBR maritime cluster would be to take the role of a facilitator in cooperation and integration of the regional maritime sector to the sustainable, competitive and environmentally friendly growth. The cluster would operate as an agenda-setting hub that provides new data and information, paying particular attention to cross-border and public-private cooperation that is essential in making better use of the region's potential and improving the region's economic growth, competitiveness and innovation capacity in clean maritime technologies.

Hence, the vision of the CBR is to become the green forerunner and a global provider of high value added and environmentally friendly solutions and models for the maritime business. Simultaneously, the mission of the CBR is to become a knowledge hub strongly linking the region's maritime business sector, state and education institutions, and to mount the basis for sustainable triple helix cooperation fostering smart, innovative and environmentally sustainable growth as a way to improve the region's competitiveness. This can be accomplished by

- involving the top experts and competence centers of the region in the initiative;
- initializing and developing the integrated added value chain;
- initializing and carrying out applied research that involves academic competence;
- bringing in innovative ideas and supporting their commencement/implementation; and
- building up a strong international brand that has a good reputation among internal and external stakeholders.

The values of the CBR maritime cluster would be based on the current characteristics of individual clusters:

- Willingness to contribute the organizational resources and ideas in gaining the common aims, irrespective of the area, state or organization.
- Openness between cluster members as well as the openness for the new ideas and solutions.
- Reliability that relies on openness, honesty and keeping promises – both internally and in external encounters.

[6] Andersson, M. –– Solitander, A. – Ekman, P. (2012) Cluster branding and marketing – a Handbook on Cluster Brand Management. Http://www.tendensor.com/wp/wp-content/uploads/2013/01/TENDESOR_CMB_HANDBOOK-090113-sheets.pdf, retrieved 24.10.2013.

[7] An Action Plan concerning the European Union Strategy for the Baltic Sea Region 2013, p. 165–167. Http://files.groupspaces.com/EUSBSR/files/676806/KugXDoo1Q_LQr51Kl7tL/Action+Plan+2013.doc, retrieved 24.10.2013.

- Innovativeness – the ability to think out of the box and keep eyes on the future (being a forerunner).
- Dynamism and flexibility, which are essential in coping with the continuous changes in the network – the partners, focuses of activities, clients and the environment all keep changing.
- Sustainability and responsibility – the actions of the cluster are environmentally friendly and continuously aim at the develop ment of increasingly advanced solutions, not only for meeting the regulations but even for keeping one step ahead of them.

Implementing the vision and mission and ensuring the values of the CBR maritime cluster are based on the following principles: the common interests, broad-based cooperation, voluntary participation and self-management. From brand strategy point of view, the most important question is the strategic positioning: it should formulate a distinctive brand offer and cover the most important benefits from the customer perspective and also from the cluster strength perspective. Taking into account the cluster vision statement, the most suitable ideas might be the global positioning (a global forerunner) or development-driven positioning (green maritime technologies).

In addition, however, the cluster brand needs

- Attractiveness – a reason for it to be liked. The reasons should be rational (e.g. more effective way of solving common problems, or availability of joint resources for innovation), but include also emotional appeal, referring to the importance of people and environment as the most valuable assets for the cluster.
- Identification – meaning internal linkages as well as recognition and shared values regarding (responsibility for) the Sea, the partners and the community, and membership in the EU in the Russian neighbourhood.
- Visibility – showing the presence and importance internally and externally, which can be achieved through proactive communication activities (so-called push marketing). Internal communications should focus on cluster identity communication, value communication, networking communication, pro - cess (activities) management communication, decision and policy communication, and promoting corporate social responsibility. External communication, in turn, should focus on environmental promotion, the members' communication with other clusters, business-to-business communication, regional market - ing communication, and lobbying (e.g. towards the EU and Russia).

Largely due to the internal and external promotion, a strong and shared international brand could be highly beneficial when the CBR maritime clusters are trying to survive in global competition. Branding is important also in building and managing a cluster cooperation network, and in the cooperation with the partners outside the cluster (other maritime clusters in the EU, civil and sea protection associations, legislative bodies, etc.). These brand strategy ideas should thus be carefully considered among the CBR policy-makers and other organisations as a cluster brand could provide a way for wider recognition of mutual cooperation possibilities, improve the region's external image, and as a result, support the maritime sector's competitiveness in the CBR.

05 GLOBAL DEVELOPMENTS AND FUTURE SCENARIOS

5.1 GLOBAL TRENDS IN THE MARITIME SECTOR

The global maritime sector is facing great changes. The shipbuilding industry worldwide is suffering from significant excess capacity, particularly due to the large improvements in the productivity of the shipyards and the over-investments in the industry. The production capacity, particularly in several Asian countries, was expanded forcefully before the economic crisis – for instance, in only a few years, China rose to the largest shipbuilding nation in the world. Europe, on the other hand, has lost its market share for the booming maritime industries in the Far Eastern countries, mainly China and South Korea, which are producing series of standardized vessels at low costs. However, as the competitive advantage of the European clusters lies in high quality and specialization, they have been able to maintain their market share particularly in some special types of vessels, such as cruise ships. The imbalance between supply and demand in shipbuilding has also affected shipping markets because so much new tonnage is entering the market. Although the demand for shipping services has been growing after the economic downturn, the fleet oversupply is still overrunning the cargo growth and the future demand for cargo ships remains uncertain.[8]

Besides the changes in the shipbuilding industry worldwide, there are other trends shaping the development of the global maritime sector. The rise of emerging countries, such as China and India, is to have large effects on seaborne trade, driving supply and demand of goods and services, resources and technologies. Consequently, Asia is expected to take a central position in the global seaborne trade in the future.[9] Concentration of trade flows to certain locations and increasing urbanization can lead to infrastructural bottlenecks, necessitating the development of more efficient logistical solutions.[10] The growing energy demand, on the other hand, is leading to the shifting of energy production to new areas and to drilling of oil and gas into even greater depth, particularly in the Arctic region. Energy production in challenging conditions together with opening of new shipping routes, such as the Northeast Passage, create a growing demand for specialized maritime and offshore solutions, as well as new icebreaking and shipping services. Environmental-friendly solutions are of increasing importance as well, as there is both a growing need and awareness to prevent environmental pollution and to mitigate the climate change.

The Central Baltic region (CBR) maritime clusters are also affected by the changes taking place in the maritime sector worldwide. The region's actors have special expertise particularly in cleantech solutions, design and engineering services, ship repair and conversion services, offshore and Arctic solutions, for which there is growing global demand. However, in the growing markets there are also more and more competing actors and the constantly increasing global competition creates challenges for the CBR's actors. Although knowhow in various niche technologies forms the

[8] CESA (2011) Annual Report 2010-2011.
[9] QinetiQ – Lloyd's Register – University of Strathclyde (2013) Global Marine trends 2030.
[10] PricewaterhouseCoopers (2009) Transportation & Logistics 2030. Volume 1: How will supply chains evolve in an energy-constrained, low-carbon world?

current competitive advantage of the CBR maritime clusters, there are also other actors providing state-of-the-art expertise in the same fields. For instance, although the offshore markets are extensive, several countries worldwide plan to focus on the related activities and expertise, and there is eventually room only for the best of the best. It seems that the future competitiveness of the CBR actors lies in highly specific niches and they can only respond to global competition by maintaining their position in the forefront of the global innovation development. However, that is not an easy task, particularly when the local environment is also facing significant changes, such as the rising cost levels and the tightening environmental regulations, to mention some examples. Moreover, even when holding the world-leading technologies and expertise, continuous R&D and marketing efforts are of crucial importance for the CBR maritime companies. It is also clearly worth noting that competing clusters have been smarter in some dimensions of developing the maritime sector. The CBR clusters should thus closely follow not only the market developments but also technological, infrastructural and business-related advancements in other regions, Denmark, Norway and Singapore presenting very interesting examples.

5.2 FUTURE SCENARIOS FOR THE CENTRAL BALTIC REGION

When it comes to the future of the Central Baltic region maritime clusters, three alternative scenarios for 2030 can be identified – devolution, evolution and revolution. Based on the previous findings of SmartComp and other research projects, these scenarios are described below.[11] Although being purely fictive, they provide food for thought for businesses as well as political decision-makers.

1. Devolution – industry decline

In the devolution scenario, construction of new ships disappears from the CBR altogether, following the path set by Sweden, the United Kingdom and Denmark. Only some small repair yards persist in the area. This also has consequences for education, as less people apply for education in naval architecture due to the lack of domestic shipbuilding, ultimately resulting in a loss of know-how regarding ship design and construction. The smaller-sized suppliers go out of business or shift to other industries, such as land-based construction, while the bigger ones locate their business increasingly to the areas where the market is and decrease their activities in the home country respectively. As a consequence of the environmental regulations and poor profitability, most domestic shipowners exit the shipping business altogether through scrapping or selling their vessels. Shipping of goods to and from the CBR countries is taken care of by foreign shipowners, who can offer a large, modern and flexible fleet. The remaining shipping companies are bought by their competitors abroad. Overall, foreign ownership increases, moving decision making further away from the area. The material flows out of Finland are significantly reduced, as production is increasingly located outside of Finland. The remaining material flows are increasingly containerized. Shipping and ports lose to railways and road transport due to high shipping costs and port inefficiency. Russia increasingly utilizes its own ports thus reducing transit, which influences the whole CBR negatively. As the material flows are reduced, the number of ports decreases significantly and the remaining flows are directed to a few hubs. The new tunnel between Finland and Estonia decreases the ferry traffic. Opening up of the Northeast Passage also reduces shipping through the Baltic Sea. Overall, the size and importance of the cluster diminishes and a number of jobs are lost.

2. Evolution – adaptive survival

In the evolution scenario, the uncertainty regarding the future of the maritime business continues and investments are kept to a minimum. The government supports the shipbuilding and shipping industries with subsidies in some areas and some new financing models are developed. However, the importance of the maritime industries in terms of GDP and employment decrease successively. The overall focus is on survival and adapting to the changes in the environment and the prevailing fierce competition through small steps. The shipowners who stay in the business merge with other shipowners and pool their activities such as marketing and procurement of certain items to achieve economies of scale. The local indus-

[11] The framework used in this chapter is taken from a presentation from the FIMECC PROBE (Performance Monitoring of and Industry Foresight for the Finnish Maritime Industry, a research project between 2009–2011 involving the University of Turku, Turku School of Economics and Åbo Akademi University), titled "Perspectives on the Finnish Marine Industry – Devolution, Evolution or Revolution?" by Aki Koponen, Antti Saurama and Thomas Westerholm in June 2010. The aim of the presentation was to discuss possible scenarios for the marine industry in Finland referring mainly to shipbuilding, but the same framework can be applied to the whole maritime cluster.

tries close down some plants but other material flows emerge in the field of biofuels and mining products, resulting in relatively stable export and import volumes. Scrubber technology is being used to meet the sulphur regulations, providing some business for the repair yards. Although orders for cruise vessels are scarce, the shipyard in Turku manages to stay afloat and diversify its offering to the offshore segment and special vessels using green technology, but continues to struggle with maintaining full employment and profitability. A new owner for the Turku shipyard is found from Russia. The local shipyards remain important customers to the marine suppliers, but they also increasingly look outside and strive to find new customers in other shipyards and industries. However, some go bankrupt and there are mergers between others. The remaining companies become more international and have offices and/or networks in countries outside of the CBR. The Russian market becomes increasingly important. The suppliers have a competitive edge in niche markets related to intelligent and energy saving solutions. The number of ports decreases some. There are more mergers between them resulting in larger units and the concentration of certain material flows to certain ports. The remaining ports invest in developing their efficiency, e.g. through automation, and extend their service offerings in terms of environmental services, assembly of products and land transport through a partner network.

3. Revolution – industry renewal and reshaping

In the revolution scenario, the CBR clusters prosper due to a common vision and actions enabling them to become world leading in certain niche areas, such as cleantech and IT solutions, as well as operating in Arctic conditions. Besides some large, global players there are a number of small and medium-sized, entrepreneurial companies who are widely networked with each other and also outside the CBR. Risk-taking increases both at a company level and in the form of the development of new, creative financing models enabling the companies to invest. As a result, some fail but a number of companies benefit from this and manage to grow and diversify their businesses, as well as to operate on a more global scale. Organisational forms become more flexible and companies can take different roles in the networks depending on the specific project. Investments in R&D&I increase significantly in order to maintain a front-runner position. Governmental actions are mainly directed towards supporting these investments for growth companies, developing new technologies and providing attractive conditions for businesses in order to keep their headquarters and R&D&I activities in the home country. The amount of foreign investment also increases significantly. The labor unions and employer organizations become closer to each other and start to collaborate more to ensure the competitiveness of the local industries against outside competition. The formerly widespread maritime education is well coordinated between the CBR countries, resulting in a competent workforce moving freely within the area. Overall, the importance of the maritime industries grows and new jobs are created.

The shipyards find new customers and markets and manage to increase their productivity through investments in facilities, automation and modularization as well as through tighter collaboration with their partner network, based on the idea of trust and mutual benefit. The suppliers prosper through becoming more integrated with their customers. Their offering focuses on providing functional solutions to their customers' problems throughout the lifecycle, enabling the customers to increase earnings, reduce costs and cut investment payback times. New players emerge and the traditional roles will change, as the shipyards will become more of assembly yards, while the suppliers take on larger roles in co-creating solutions and developing products together with the customers. The traditional industries suffer a structural change and many factories are closed down, but large investments are directed to mines and plants producing new types of emission-free fuels. Biofuels made of local raw materials, such as wood and waste, are increasingly used and also form an important export product together with products from the mines, such as Sokli in North-Eastern Finland.

Logistics clusters are formed on the national levels, ensuring that logistical chains are optimized. Although the port network diminishes, a number of both large and small ports persist and the collaboration between them increases, both on the national and CBR levels, ensuring that the transit traffic to Russia persists and is handled optimally. They are operating 24-hours a day, and collaborate closely with the industry and shipowners in combining freights of different customers to ensure maximal utilization rate of the vessels. The shipowners collaborate much more with each other and form pools to be able to better serve their customers. They invest in renewing their fleets together with the industry customers, based on long-term contracts including risk sharing. Simultaneously, the dependency on the local industry decreases as the shipowners find customers also outside the Baltic Sea. New ship concepts are created together with the customers, local suppliers and design and engineering companies.

Based on these three different scenarios, the following questions remain: How can we in the CBR clusters influence our future which is highly dependent on outer factors in the global economy? How do we manage to stay ahead of the competition breathing down our necks? And finally; which of the above scenarios do we consider most likely, which one would we like to see and with which actions can we work towards it? We believe that through strong triple-helix collaboration within as well as between the CBR countries many of the aspects in the presented revolution scenario are achievable, but without taking proper action and introducing new business models and cooperation forms, the devolution scenario is unfortunately also possible.

06 IMPLICATIONS OF THE SMARTCOMP PROJECT

6.1 POLICY RECOMMENDATIONS FOR THE CENTRAL BALTIC REGION

Based on the three research reports, SmartComp project provides plenty of recommendations for future policy making. The results of the SmartComp Policy Recommendations are briefly summarized below and are structured into four groups: (1) international, (2) the EU-level, (3) the CBR-level, and (4) national recommendations.

International level

The activities of the maritime clusters are influenced by international organizations such as the International Maritime Organization (IMO) in maritime issues, the International Labour Organisation (ILO) in working conditions and social safety nets related areas, and the World Trade Organization (WTO) in promoting free trade of goods and services.

- The joint efforts and harmonization of positions in these organisations should be one important area of cooperation between the CBR countries. That requires the organisation of international forums, meetings of political representatives of different countries, and active cooperation in the framework of already existing organisations such as the Nor dic Council, the Council of the Baltic Sea States, Baltic Sea Forum, Baltic Development Forum, and Baltic Sea States Sub regional Cooperation.
- The formulation of joint platforms concerning critical issues for the CBR competitiveness should be promoted by closer cooperation between the states and different stakeholders of the CBR maritime sector. This would improve the CBR countries' ability to influence for instance the regulatory frameworks designed in the IMO.

EU-level

The opportunity for blue growth represents the maritime dimension of the Europe 2020 strategy and offers new and innovative ways to contribute to the EU´s international competitiveness, resource efficiency, job creation and new sources of growth whilst safeguarding biodiversity and protecting maritime environment. The EU Strategy for the BSR, in turn, addresses the key challenges of sustainable environment, prosperity, accessibility, safety and security, but also the opportunities to make this an integrated, forward looking world-class region.

- Development of clean technologies, partly initiated by the stricter environmental regula tions, should be supported by the EU funds and national governments. The R&D tools provided by the EU Horizon 2020 program should be considered here as one source of finances.
- Coordinated actions are needed in building a wider LNG infrastructure to the Baltic Sea region in order to support the use of LNG as low-emission fuel for ships.

Central Baltic region level

First and foremost, national policy-makers should agree on a clear and shared future vision for the maritime sector's future development, supported by strong triple helix commitment. Only after that the CBR clusters can create policies concerning the region. It can be concluded that the most topical policy-level cooperation opportunities between the CBR clusters are related to international networking, infrastructure and technologies, and education and training.

International networking

- It is highly important to organize targeted problem solving networking events with participation of representatives of maritime associations, government agencies, research institutions and enterprises. This provides stakeholders also opportunities for matchmaking, pooling of resources, and sharing of best practices.
- State delegations and embassies should increasingly promote domestic expertise abroad and build connections with policy makers and business circles in foreign countries.
- Incentives should be created for large companies to share their international connections and experience with smaller companies.

Infrastructure and technologies

- Ports in the CBR should cooperate and there should be distribution of responsibilities in making investments in infrastructure for bunkering of new fuels and for reception and treatment of waste (sulphur, nitrogen). These pro jects should have high priority in public pro-

curement of respective countries. The joint use of financial resources provided by the EU should have high priority in these projects.

- The ports should work together with fuel suppliers to examine the need for new investments in infrastructure to make new fuels available for shipping companies (LNG). The coordination of policies between the countries is needed for developing a proper fuel infra structure for the CBR.
- The development of standardized IT platforms has been considered as an important step forward by companies. The future EU Maritime Common Information Sharing Environment is one such innovative system.
- CBR countries could compete of the East-West traffic but the North-South transportation corridor could offer great potential for cooperation. Through the Arctic corridor initiative and connecting the national logistics and transportation clusters, the CBR should be strongly integrated into the global freight network as a provider of comprehensive, energy efficient and environmentally friendly services and technical solutions.

Education and training

- Universities need to build a contact point for companies to approach them with their problems. Good examples are business incubators at Latvian business schools, innovation and business centre MEKTORY (Modern Estonian Knowledge Transfer Centre for You) at Tallinn University of Technology, and Factories (Work shops for Novel Expertise) at Aalto University in Helsinki.
- Wider cooperation between the higher educational institutions in the CBR is necessary, for instance through increased student exchange and joint double diploma programs as well as harmonized and joint training programs.
- The R&D and higher education needs to be coordinated and university studies are too specialized and narrow. The wider approach to maritime systems should be considered, particularly in Estonia and Latvia.
- The popularity of maritime education is firstly related to the employment perspectives, but it is also connected to youth education in form of free time events. For instance, boating clubs, clubs of young seamen, and natural sciences summer schools have an important role in increasing maritime education popularity in all the CBR countries.

National level

Finland

Finland is about to publish its new maritime strategy by the end of 2013. Different working groups have also been established to consider the future outlook of Finnish the maritime sector. Moreover, various research reports are continuously prepared by R&D organisations, government institutions and business associations.

- Finland has great potential to build a status as a leading country in Arctic related maritime ac-

tivities. However, the state should hurry in taking actions in developing Arctic expertise in Finland as the demand for such knowhow is growing and competitors are running fast.

- In public procurement, it is important to consider the value produced during the product´s life cycle for the region and appreciate innovative offers instead of the lowest price.
- R&D and internationalisation support programmes continue to be very important for the Finnish businesses, but the procedures should be developed for instance by reducing bureaucracy in the application and reporting processes.

Estonia

Estonia has a Maritime Sector Development Strategy for the period up to 2018 which has been created in cooperation of government agencies, business associations and higher educational institutions.

- The national maritime governance is dispersed to several ministries – more integrated maritime policy is needed.
- Estonia should be more active in transit trade and respective goals should be considered also in the planning of national economic policy.
- The maritime education should be more coordinated, the integration of Estonian maritime Academy with the Tallinn University of Technology providing an example. That should be accompanied with additional targeted funding for maritime education. Also support for R&D of maritime studies is necessary.
- The approach of creating and supporting cluster and competence centres has been an important program supported by financial means of the EU and realized through the Enterprise Estonia. The Small Craft Compe tence Centre in Saaremaa has been a successful example of an initiative which bases on triple helix concept and brings together business companies, academic institutions (Kures saare College of Tallinn University of Technology) and local government. More such initiatives should be established, combining eco nomic and regional policy tools.

Latvia

Latvia has a development plan for the transportation sector. The integration of transportation and logistics companies into national and regional clusters has been the main aim of Latvia's respective policy. The business plans of large infrastructure companies, such as the Port of Riga, also have a strong influence on the maritime sector's development, while there is no explicit maritime policy in Latvia.

- It is recommended to set up maritime cluster organisation which would provide a platform for communication and cooperation between the stakeholders in the sector.
- The maritime policy should be written down explicitly. As the maritime cluster is a complex business environment, an integrated approach should be applied, accompanied with respective regulations and should be subject of periodical review.
- There are specialists in Latvia with Russian language skills and with experience on working in the CIS. These assets should be better used.
- Maritime companies in Latvia are interested in developing triple helix partnerships with the other CBR maritime clusters. Sharing best practices, improving training institutions, and establishing common research studies and pilot projects should be important steps in this process.

6.2 MANAGERIAL RECOMMENDATIONS

Based on the SmartComp project, all maritime companies in the Central Baltic region must increasingly follow the global developments in the sector. Even the smaller ones must do this, as the maritime business is global and international developments have a direct impact also on the activities in the Central Baltic region – no company is an island, but a part of endless business networks. As a result, defining such thing as the home market is today quite difficult in this sector.

On this basis, to increase smart competitiveness of the maritime companies in the Central Baltic region, the SmartComp project encourages company decision-makers as well as association representatives to carefully consider the following managerial recommendations:

- Look for new market niches and project tenders also in international markets, even if your business was currently successful at domestic market. Various organisations are there to help you in internationalisation activities and because of the existing industry contacts not everything needs to be done from scratch.
- Seek for opportunities to pool resources with other companies, creating a strong network for joint project offers as well as knowledge exchange.

- Participate actively in various networking events. Even though it might be time consuming, such events usually provide latest information on the market developments and technical advancements while introducing you to different kinds of actors operating in the same field – and even in other fields, possibly resulting in completely new and innovative coopera tion avenues.
- Be present in various sales and marketing channels, the Finnish SHIPSU providing an example of such a business match-maker service.
- Make sure you have an easily accessible international website providing key information on your operations, references and contact details. You never know when someone is looking for a partner like you, and decides not to contact because of difficulties in reaching you.
- The values of sustainability and environmental friendliness should be more visible in the companies' communication practices, for instance clearly presented in the company website, in order to brand the region as a green forerunner.
- Invest in motivating personnel. In the region of high cost levels, each employee should know one's importance and responsibility for a company's success.
- Continuously review your offerings to meet your customers' current as well as emerging needs in order to maintain superiority to your competitors. Invest also in R&D and develop the life-cycle and ecological aspects of your products and services – such developments might turn out to be your future competitive advantage.
- Take in students to solve your problems through their thesis work – these people can bring in fresh out-of-the-box ideas and while being the future business leaders they can emerge as great assets for your company in the future.
- When encountering bigger problems, for instance in business management or technical development, bravely approach universities and other research institutions – they are eager to solve concrete problems and are also experts in applying funding for joint research projects.
- The associations should more actively engage in marketing the expertise of its members to external stakeholders instead of solely fighting for their interests. Simultaneously associations should be more involved in education-related policy-making, thus highlighting the future labour needs of the industry. Particularly worth promoting would be the increase of student exchange to the most important mari time clusters abroad, such as Norway, Russia and Far East, as the current students are in a few years' time business people and would then have existing connections to their classmates around the world.
- If you are a large company already actively operating in global markets, consider boosting home expertise and other firms when meeting important people abroad. Increasing business activities back home improve the local economic situation, and through spill over effects as well as thankful colleagues such aid may eventually contribute to your business as well.

6.3 SUGGESTIONS FOR FURTHER RESEARCH

Future research regarding smart competitiveness in the Central Baltic region is clearly needed, combining both applied and academic research. While this project has provided a comprehensive overview on the developments of the maritime sector from the perspective of the Central Baltic region, further studies should proceed on analysing specific problems such as emission restrictions and cost level issues, or development areas such as cleantech advancements or Arctic expertise. The project has also concluded that in the future it would be highly useful to include other surrounding countries into the consortium, particularly

Russia due to its central role in the development of the Eastern Baltic Sea region.

Business representatives should be also tied to the projects more intensively, starting from the project's planning phase, continuing all the way to evaluating and disseminating the results. If a project seeks to have concrete relevance, the starting point should be the problems experienced by the target group. It was clearly expressed by the company representatives during the project that although wide research projects may open up new perspectives to the phenomena in question, companies consider more specific and deeper projects as more productive.

Nevertheless, the businesses should not be the only starting point for planning future projects – as was concluded regarding learning possibilities from other successful maritime clusters, efficient triple helix cooperation can play a crucial role in a cluster's competitiveness. Thus also these structures and dynamics require further attention, seeking for applicable examples from other regions or other sectors. The starting point for such projects is a consortium of companies, research institutions and various public organisations, and their perspectives and problems regarding cooperation.

Benchmarking in general would also be highly useful for the competitiveness of the Central Baltic region, both internally and externally. Internally R&D cooperation should be increased between different sectors, and for instance ICT sector and eco-technology could increasingly provide new solutions for the traditional maritime industry. Regarding benchmarking from other regions, worth looking into are innovation systems, funding structures, and business network dynamics.

All in all, research funding provided by the European Union and other international organisations continues to be crucial for initiating cooperation between companies and organisations which do not have natural exchange relationships or connections. Such international and even cross-cutting projects often result in further cooperation avenues within the participants and more specific problem solution activities within the stakeholders, thus providing concrete outcomes for the region and its economy. The SmartComp project has provided useful general as well as specific case-based information for the use of the maritime sector stakeholders in the Central Baltic region, and further cooperation initiatives between the partners are already in process while companies and policy-makers have been given recommendations on how to be smart in their future actions.

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SMARTCOMP
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