

SPECIAL ISSUE ON THE COMPETITIVENESS OF THE MARITIME CLUSTERS IN THE BALTIC SEA REGION ISSUE NO. 4, 13 JUNE 2013

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Developing the competitiveness of Finnish maritime cluster

By Merja Kyllönen

Developing competitiveness of maritime cluster in the Baltic Sea area is an extremely topical theme for Finland now. Shipping on the Baltic Sea is currently facing new challenges due to constantly increasing environmental requirements deriving from international and EU law. In addition to this, the focus in economy is shifting towards Asia. In the course of the next couple of decades, Africa and South America are also likely to join the competition for the economic dominance of the world. This will change the global transport flows. At the same time new shipping routes are opening up.

In this rapidly changing operating environment, we must react and take bold strategic decisions in order to find new ways to improve the ability of Finnish maritime cluster to compete in the area of maritime transport.

Finland identified the need for a national maritime strategy last year, and we are currently drafting this strategy as a joint effort of the Government – it has representatives from nearly all Ministries. The Finnish Transport Agency and Transport Safety Agency, for their part, provide a strong contribution to this work through their extensive transport expertise. The importance of maintaining and improving the competitiveness and vitality of Finnish maritime cluster has strongly come up in the drafting process of the Maritime Strategy, and this is also the purpose of this strategy work.

The Maritime Strategy is being drafted in the spirit of the new transport policy. What we aim to do is to achieve increased effectiveness and cost-efficiency. We are ready for change and reform, and eager to discover new ways of doing things.

Strategy work allows us, among others, to discuss possible future trends together and to exchange ideas on whether we see Finland as a forward-looking and highly valued expert in maritime affairs, or as a timid and isolated country fading into the background. I personally believe, that despite the huge challenges that shipping and the industries which rely on it have had to confront lately, we can face the future with confidence. The Finnish government has acknowledged these challenges at its midterm review session in the end of February. For the remaining part of the Government's term of office, steps are to be taken to avoid any increase in costs or regulatory burden on the industry. In addition, the existing regulatory burden will also be reviewed.

As we all know, Finland is very much dependent on shipping. Without maritime transport, we would, among many other things, not have coffee or oranges. Industrial activities and export to major markets would be almost impossible, and there would be very little raw material available to us. This is why the Government underlines how important it is that the conditions for maritime transport are ensured.

In Finland, the world of business and industry is changing radically: our traditional industries are seeking new products and markets; information and electronic engineering industries are struggling for survival; and mining industry is expanding. The service sector is getting stronger, which is reflected in the volume of transported goods.

The global nature of shipping means that the necessary regulatory decisions are made at international forums: in the EU and IMO. Finland participates in this work, and it is clear that the decisions made at these forums are relevant for us, too, as members of the EU and IMO. One important task for Finland is to pursue more systematic exercise of influence and send a common message at international and EU level. It is essential that we speak with a common voice. Our future lines of actions must be based on joint strategic deliberation.

There are also a number of considerations which we need to address at national level. These include the service level of foreign trade transport, and steps to ensure reliable transport around the year. In addition, we have to discuss how to arrange port facilities, pilotage and inland connections to the ports. It is also clear that ensuring smooth and reliable winter navigation is among the key areas that we need to focus our resources on. I have full confidence in our expertise in this regard.

An additional challenge in maritime transport is how to ensure that there is skilled personnel available. The numbers of people applying for maritime jobs have declined globally. The entire shipping branch should make efforts to develop the branch further and to increase its competitiveness as an employer.

A good example of what action has been taken is the tonnage tax reform which came into force approximately a year ago. It seems that the reform is bringing new ships under the Finnish flag. At the same time, it is creating hundreds of new jobs in our country.

In this year's Budget, funding has been allocated to basic waterway maintenance, adaptation to the new sulphur requirements, and procurement of a new ice-breaker. The state has also reserved appropriations for the so-called retrofitting investment aid which is aimed at alleviating the economic impact of the new sulphur requirements.

In addition to collaboration between government bodies, it is also equally important to engage in dialogue and cooperation with the stakeholders. It is our wish that this work is done in a transparent way, sharing ideas and experiences with each other.

Indeed, we have already joined our forces in creating a vision for the future. It seems that in the shipping of the 2020s, it is particularly important to utilise information as part of the transport chain, launch strong Arctic and safety expertise into the market, and keep one step ahead in the development of environmental technology. This will mark out the road to success.

Merja Kyllönen

Minister for Transport

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Maritime industry in the North

By Michael Prehn

Shipbuilding and maritime manufacturing have long been a specialty of the Scandinavian countries. Maritime activity and innovation has historically been high in Europe, particularly in Northern Europe. Modern shipbuilding can with some justification be seen as having begun a hundred years ago with the delivery of the *Selandia* from the Burmeister & Wain shipyard in Copenhagen in 1912, the first ship propelled by a diesel marine engine. The historical examples of the Vikings and the Hanseatic League are still followed by entrepreneurs in the region. Shipping continuously has a high profile, and the maritime manufacturers in the region are successful, innovative and many.

Until recently, most shipbuilding work was carried out at the shipyards. An increasing trend towards outsourcing and subcontracting of activities to suppliers, accounting up to 70-80% of the value added of the ship, means that, as the shipyards have become more and more a final assembly facility the displacement of the large shipyards to Asia has not meant that the "outfitting" of the ships has similarly been contracted out. The scope for adding value in shipbuilding in Europe is very much in the hands of the component/equipment supplier.

Our region is a coherent maritime area with a long seafaring tradition. The common cultural background and international orientation have led to similar dependence on the global market. Parallel challenges for the maritime manufacturing industries in each of the Nordic countries, arising from many commonalities such as the common location and similar labour markets, have for some time encouraged manufacturers to outsource a proportion of the production to low cost areas. Recently, automation and the need for rapid market adaptation tend to make insourcing back to the area attractive again.

Despite the financial crisis, new businesses in the maritime industry are being created in the area. Against a background of many years of focus on green research and technologies, Nordic businesses have a solid starting point when new environmental requirements are imposed on a large number of vessels. Economic pressure to reduce fuel cost also gives opportunities for manufacturers who have long concentrated on energy efficiency. In some cases replacing the ship will be cost effective, in others redesign or retrofitting of more energy efficient systems will be preferable.

The need for transport is still increasing. There is no doubt that there is a market for more services and better energy optimization. The economic crisis that is limiting consumer spending and public budgets in Europe is not so severe that it reduces the expected continued growth in international trade. Global trade will probably increase by 3.3% in 2013 which means more ship capacity will be necessary. These ships must be economically and environmentally acceptable. Many existing ships are not.

The Scandinavian countries have common positions and interests in environmental protection. In this context international bodies are of great importance to the maritime industry, and regional and international cooperation has proved essential to the businesses in the area.

In the Baltic and North Sea area specific environmental requirements have been introduced because of the special vulnerability of our seas. These rules have been introduced mainly through the International Maritime Organization, often on proposals from the HELCOM countries that play a prominent role in that organization. Many measures which are important to maritime industries in the area have their origin in the EU, where regional cooperation is gaining importance.

In the countries around the Baltic, the maritime manufacturers on land are subject to similar regulations and restrictions and the industries are therefore focused on sustainable and environmentally friendly production. Many of these specific environmental initiatives from land are later introduced in maritime contexts.

Regulations adopted specifically for our area have given rise to concrete innovation. The MARPOL Annex VI fuel sulfur limits adopted to reduce emissions of sulfur (SO_x) to 0.1% levels in 2015 mean that shipping must either use cleaner fuel or install equipment to remove sulfur from the exhaust. This technology has been successfully transferred from land to sea and is offered by manufacturers in Scandinavia, allowing ship operators the choice of changing fuel or investing in retrofitting.

The region is also particularly strong in technology adapted for the polar regions and the harsh offshore sector. The Baltic ice classes are universally recognised and many innovations in the North Sea offshore oil and wind sectors are introduced in other parts of the world.

The industry's opportunity for development and marketing of environmentally friendly products follows from the focus on environmental protection, and high safety levels forms the basis for sustainable manufacturing in the maritime industries in the area. By pooling the efforts of the technology providers and legislators ahead of the coming environmental requirements, future developments in regulation could go hand in hand with technological development, thus avoiding outdated and insufficient environmental protection as well as overly optimistic requirements that are technologically infeasible. Synergies can be achieved by jointly building on the existing technological basis in the Nordic countries. This will save resources, protect the people and the environment and allow technological advances to be introduced in a timely manner. It will not only benefit the local environment but will give producers a platform from which environmentally friendly solutions can be supplied also outside the area, thus benefitting other regions, also in the longer term.

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Russian shipbuilding industry – inside the WTO

By Elena G. Efimova

Russian shipbuilding industry has been in the deep crisis for last two decades. Shipyards had a deficit of orders for ships, notably from home customers. It has led to a slowdown in industrial growth, inability of carrying out modernization and upgrading facilities. Inefficient organization of shipbuilding caused the loss of some key technologies; slacken the pace of competitive researches. Depreciation of Russian shipyards' equipment, casting and complex dock facilities are about 70%, 75% and 65% respectively.

Capital and operational costs of Russian shipbuilding companies exceed the same expenditures of shipyards in Japan, Republics of Korea and other leading countries due to geographical and climatic factors. These costs are associated with the necessity to create covered slipways and docks with heating and lighting as well as the seasonality of delivering materials, marine equipment and components. Despite of low labor costs shipbuilding prices increase.

Industrial organization in shipbuilding industry is not complete. A number of negative phenomena affects the timing and cost of construction of ships and vessels such as the unreasonable increasing prices for materials and equipment, failure of delivering terms. The absence of any possibilities of suppliers' choice has a negative impact on the company's commercial indexes. Companies predominantly using the centralized form of procurement occupy the leading position in the industry. Therefore CEO of JSC "United Shipbuilding Corporation" established a Specialized Purchasing Organization (SPO). SPO will guarantee the maximum level of transparency in procurement, competition, minimizing risks, reducing the cost of the final product due to economies of scale.

Some legal acts and government support programs for supporting the competitiveness of the domestic shipbuilding industry were adopted before Russia's entry to WTO. The industry's restructuring scheme "Strategy of shipbuilding industry's development on the period up to 2020 and further prospects" has been developed in 2007. According the strategy JSC "United Shipbuilding Corporation" was established. Russian Government has passed the Federal goal-oriented program "Development of the civil shipping for the period 2009-2016" as the first practical tool for implementing the Strategy in March 2008. In addition, a number of protectionist measures, including cuts in tax and customs duties for Russian shipbuilding companies, were provided by the Federal Law №305 "On Amending Separate Legislative Acts of the Russian Federation for the implementation of the state support's measures for shipbuilding and navigation" adopted in November 2011.

Despite the legal state support in pre-accession period the home shipbuilding industry falls behind world standards. First of all, an implementation of innovative technologies has to be provided. It is impossible without large investments in research and development projects. The total investments in R & D departments of public enterprises and private business in the United States, Germany, Japan, Republic of Korea, are more than a few times the Russian investment in similar projects. Nevertheless federal programs are the single way for funding innovative technologies in shipbuilding industry.

Russia's accession to WTO doesn't guarantee an industrial growth. WTO's rules significantly limit supporting the domestic

shipbuilding and shipping. In some cases the support's measures can be classified by WTO as unauthorized subsidy. Organization for Economic Co-operation and Development (OECD) developed uniform lending standards for vessels producers. Thus, the loan covers 80% of the contract price. A shipbuilder pays back 8% per annum for 10 years. State support covering 9% of cost construction is allowed by WTO. However, the most countries don't follow the rule under the pressure of the international competition. US government's loans cover 87% of vessel production costs. German and Japanese governments provide 30% subsidy for national shipyards to compensate the difference between the cost of the shipyard and vessels' market prices.

In order to avoid WTO's sanctions, subsidies should be granted to the entire industry extended for all contracts. The state has to subsidize loans interest and lease payments not for shipping companies, but shipbuilders. In this case subsidies will be eligible and WTO's penalties are impossible. This approach is recommended by Russian Ministry of Economic Development and Russian Union of Machinery Producers. However, the measure does not provide a completely leveling the playing field "fair" competition. Domestic shipbuilding companies and ship owners are at a disadvantage position because of the conditions for obtaining Russian capital resources. The problem can be resolved by the adoption of additional measures. First of all, it is R & D subsidies that are not subject of WTO's restrictions.

There are some positive consequences of WTO's accession for Russian shipbuilding companies. Some of them will be able entry into foreign markets with the least losses due to reducing tariff barriers and, therefore, decreasing prices of Russian ships and vessels. In addition, WTO's accession will lead to decreasing tariffs on imported vessels' components forming approximately half of the ships' cost. To use the advantage received in frame of WTO's membership Russian shipyards need a special program for compensating its' high costs. However the budgetary compensating support has to satisfy the WTO's requirements on state subsidies of export products.

After Russia's entry into the WTO rapid changes in the national shipbuilding industry are not expected. WTO membership will have an impact on the Russian economy in general and in the shipbuilding industry in particular after 5-7 years period. Reducing tariff protection is the main risk factor for the development of the national shipbuilding industry. Direct competition with the leading shipbuilding companies compels to take serious action. Nevertheless Russia's accession to WTO in the long-run prospect can be considered as the factor of strategic development of the domestic shipbuilding.

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Baltic Sea 2030 – trends and scenarios

By Heikki Liimatainen

Preparation of the maritime transport strategy for Finland commenced in autumn 2012 under the direction of the Ministry of Transport and Communications. The strategy is due to be completed by the end of 2013. The maritime transport strategy can support desirable development. Thus it is important to identify various future development alternatives and actively influence the realisation of the hoped-for future. The research performed by Transport Research Centre Verne at Tampere University of Technology identified various trends and scenarios affecting the future of maritime transport in Baltic Sea up to year 2030.

Maritime transport in the Baltic Sea is a part of a global transport system which is constantly changing. Long term global directions of development, i.e. megatrends, have an effect on the development of maritime transport in the Baltic Sea. Globalization and shift of economic balance can be seen in moving industrial production from Europe to Asia and from Western Europe to Eastern Europe. In the Baltic Sea this increases the freight flows from Russia, Baltic States and Poland which may cause imbalance of traffic flows. This megatrend also affects the trade policies, which can be seen to be changing from free trade development to increasingly protectionist trade policy. The financial crisis in Europe and United States has increased the emphasis of national interest although the global challenges such as climate change and security threats require global collaboration.

Sustainable development and climate change related actions with the increasing price of fossil oil will affect the maritime transport through increasing the importance of energy efficiency. Slow steaming is increasingly used in current vessels and energy efficiency becomes primary design criterion for new vessels. In the Baltic Sea the most significant short term change is the implementation of strict sulphur oxides emission controls in 2015. SOx control increases the cost of fuel further increasing the importance of energy efficiency and making alternative energy sources, such as LNG, more feasible. In the long term the mitigation of climate change may lead to expansion of emission trading system into maritime transport. Sustainability and climate change also open new opportunities for maritime business as melting polar ice creates opportunities to use arctic natural resources and opens the Northeast Passage for commercial shipping. Strong investments in renewable energy also increase the need for maintenance vessels for offshore wind and wave power plants.

To support forming the Finnish maritime transport strategy four different scenarios were formed to depict the future possibilities: Age of growth, Age of regulation, Age of locality and Age of transformation. The characteristics of the Age of growth scenario are fairly rapid economic growth, growth of value added, increase of services, as well as retaining the significance of Russia and Europe as the most important trading partners. The Age of regulation scenario is particularly defined by globally binding and strict environmental restrictions, weak economic growth, diminution of basic industry as well as the increased significance of distant countries as trading partners. The central elements in the Age of locality are the rapid change of climate, binding emission quotas and the high price of energy

and the resulting return from global to local economy. In turn, the Age of transformation is represented by an economic boom due to several growth industries, the affordable price of energy resulting from breakthroughs in energy technology, and Russia's strong integration into Europe.

The external characteristics in the four scenarios cause the following changes to the maritime transport system. In the Age of growth the transport volumes remain close to current level, but containers are increasingly used. The port network is wide but ports have specialised and cooperate more than today. In the Age of regulation transport volumes decrease, larger vessels are used and slow steaming is increasingly used. Ports compete against each other to win long term contracts with industries and uncompetitive ports are forced to close. In the Age of locality scenario transport volumes are even smaller than in the previous scenario and transport flows are highly centralised through major ports. Different cargo types are increasingly transported in same vessel to improve utilisation rate. In the Age of transformation transport volumes increase moderately. The ports specialise but diverse industries provide business for wide port network and wide network is supported by increasing coastal shipping.

External and internal factors in the operational environment of maritime transport were examined and their significance for the development of maritime transport were analysed. The factors are closely connected by causal relationships. For the development of maritime transport, the entire operational environment and all significant factors have to be considered regardless of the extent to which they can be influenced by policy making. Only some of the factors can be influenced by government actions. The most significant factors that can be influenced are Finnish industrial policy, port-related infrastructure and route solutions, subsidies, payments and taxation of maritime transport as well as national cooperation.

Scenarios are used to support decision-making and allow for preparation in advance for changes in the operational environment. A good scenario influences the future by expressing the existing alternatives on the whole. In this case the scenario can become impossible in itself by simply having been formed. The aim of the scenarios is not to define the most likely future, but open up possible directions of development. In the strategy work, scenarios assist in identifying threats to be prevented, whilst identifying opportunities with the help of which the prerequisites for success are created for maritime transport industry.

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North-European marine industries – lifecycle business with local shipping, infrastructure and natural resource operators

By Vesa Marttinen

The global marine industry has the growth potential in China, Korea, Singapore and Brazil. That probably expands into Vietnam, Indonesia, India, Russia, with following wave on Latin America and Africa. These are geographical areas for large and medium size product & service companies as well as digitalized smaller companies. For more local and labor intensive marine industry businesses the alternative is regional expansion from the roots. In this article we touch local market niches, business approach and give an example how this could be organized.

Markets

When talking about markets the marine industry is opening its eyes, takes learning's also from other businesses and starts to treat different niches according to market needs. Thus we need to be more market and business model oriented instead of strong product and/or service orientation. Additionally as the impact of globalization is, and has always been, strong on floating assets business one should be wise to select niches where strengths of local actor give clear competitive edge. We start with the market where it all started for local shipyards.

The origin of transporting people and goods across Northern-Europe was with vessels. Today the cost and public support of aviation, railways and highways have taken their part of the transport, but Short Sea Shipping still remains cheapest, most effective and environmentally friendly mean of transportation also in this region. As the cross-regional shipping is only 25%-40% of North-European transportation, the future potential is with local operations. Intra-regional transport for industrial and consumer goods is a life line for current Northern wellbeing. Thus being competitive on serving it, continues to carry the local marine industry businesses.

Especially the Baltic Sea region has shallow waters and several archipelagos. It's fantastic for leisure, but requires more from national infrastructure. At the same time these waters generate special requirements for Naval and Coast Guard fleets. As the demand is anyhow quite limited compared to multi-billion investments and annual OPEX's of main maritime countries, it forms a win-win situation between local public and specialized private sector. This market is for local marine industries to win, with market intelligence, purpose trained talents and operational flexibility.

Natural Resources have been a big thing in the past decades for example to Norway and Russia. Bearing this in mind let's also remember that the forest, minerals and shale oil have been key elements of many North-European industries and shipping & marine alike. With the continuous improvement of technology and innovative operation models it should be expected that also these and other traditional natural resources will come with new business potential. A good example form across the Atlantic is gas. Shale gas is now providing cheap energy, environmentally friendly marine solutions and insourcing of labor intensive works. All this is thanks to RDI and business approach investments in past decade. The renewable energy with bio-oil, wind etc. gives also opportunities to organizations with self-driven people having collaborative approach.

Arctic region begins from North-Europe. No other business region in this scale has this particular potential. So let's face the fact that on the border line the value can be generated by shifting learning's and practices from one side to the other and vice-versa. Other interesting dimension of European Arctic is the richness of several nations with similarities and differences in cultures. We can imagine what could Estonian workers, Lithuanian designers, Finnish managers, Swedish advisers, Norwegian investors and Russian scientists achieve together on this border.

Business approach

How to get best payback of invested time and money? By keeping eye on the ball of our strengths!

In practice this means for actor with strengths in regional market; need to be humble and not run after all worldwide business opportunities. Instead close co-operation and collaboration in North-Europe combined with active development of market place will crystallize opportunities also regionally. In this co-operation the shared activities are important to ensure most effective vertical collaboration and business model with end-users, investors, project/service integrators, technology companies, designers, operators and service providers. In addition to the businesses the closeness with research and academy as well as regulator and governments is essential to lift the business eco-system into winners' level.

Recently the understanding of lifecycle approach with revenues, capital costs, operational cost and business risks have been taken to decision table. This is a clear benefit to value added solutions whether integrated by end-user, investor or service provider. If the capital cost only is the decisive factor, the long term revenue potential and business risk might be worst not to mention easily estimated long term operational costs. It seems to be so self-evident and clear but still we see asset acquisitions with first cost only as decision criteria. Why is that?

There seems to be two answers. First is the natural asset play behavior with ships as floating assets. Wisely the cash rich shipping companies buy when inexpensive and sell when market value is high – this is the traditional way to be a billionaire in ocean going shipping.

The second reason is closer to markets described above and there is a lot to do for local academy, public and private side. That is the financing of short sea, infrastructure and natural resource support fleets. It seems that traditional equity topped with bank loan is currently only financing vehicles around in North-Europe (excl. Norway). In this model the lifetime revenue/cost has no guarantees and is words only. With limited research on the topic it seems that only equivalent we can compare this region is North-America. There the fiscal tools are a lot further developed with Title XI, Marad vessels, Maritime Sealift etc. and true public private partnership is utilized to serve both sectors. In order for North-Europe to reach similar and even better tools and economic impact the lifecycle approach should be a lot more utilized.

The ROE for the investor, transport cost per unit for end-user, and NPV for service provider gives an opportunity to build win-win cases. Additionally the project based horizontal consortiums will make the case competitive and stronger for financing. For it to be strong the promises need to grow from value arguments into daily performance. Then the money should be there for healthy projects and company consortiums. Having said that, there is currently hesitation on first capital projects for post 2015 vessels. That could be assisted by local society in form of guarantees and junior notes for vessels in connection with local wellbeing. Is that then new building or second hand ship with conversion into environmentally friendly and fuel efficient asset.

Vesa Marttinen

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Port of Turku as part of the development of the maritime cluster in the Baltic Sea region

By Kimmo Iljin

The transitions in the operating environment of the maritime cluster in the Baltic Sea region in the last few years have been significant in scale, and further shifts are expected to take place in the near future. The changes are brought on by both requirements from the European Union and the financial situation of the Baltic Sea nations.

Finnish foreign trade depends on functional infrastructure, the functional capacity of operators in ports, the logistics servicing port operations, a functional maritime cluster, the maintenance of port structures and the condition of navigable routes maintained by the state.

Turku Stevedoring Oy (hereinafter TurkuSteve) is a stevedoring and logistics company established in 1972. The development of production methods and the equipment used has been vast in the past 40 years, and it looks as if the future will bring even more challenges. The development of technology from the manual performance of workers to automated stevedoring has enabled efficient logistics in the management of the flow of goods.

In the past two decades or so, also the operating environment of Turku harbour has been significantly altered. The change in types of vessels and the development of logistics has provided direction for innovation that has enabled TurkuSteve, together with its clients, to develop new, value-added services. As a result, we have been able to improve our position in the value chain and are capable of providing a comprehensive service to our customer base.

The value-added services include the unloading of products, quality checks, responsibility for storage records, and the collection, dispatching and transportation of products on behalf of the customer. When a customer outsources the entire logistics of the flow of goods to a subcontractor, this enables a situation where the customer's warehouse management system is located with the subcontractor, who will then function as an integral part of the value chain. Naturally, this will deepen the business relationship and increase the volume of co-development activities.

One of the factors in the operations of a maritime cluster is functional port structures. In cooperation with port operators, such as TurkuSteve, the Port of Turku has systematically developed the functionality of port structures through the basic maintenance of wharfs and port cranes and investments in new container and mobile cranes and in the construction and renovation of storage facilities.

Among the strengths of Turku harbour are excellent connections to various parts of Finland also by rail. Unfortunately, VR (Finnish Railway Company) in its operating policies has made it more difficult to serve customers in this region by imposing artificial restrictions on the transfer of carriages and by shutting down a local service point.

The significance of marketing is crucial, and the Port of Turku, in cooperation with the port operators, has been very active in this respect.

In the future, a number of challenges seem to be generated also by external factors. A reform of the Sulphur Directive will no doubt be a positive thing for the Baltic Sea. Unfortunately, the knowledge of policy makers regarding the impact of their decisions on national economies is less than comprehensive and even erroneous. Transition periods provide a good opportunity for effectively influencing matters – without being forced to act in a tight schedule.

A central goal and challenge of employers is to increase the flexibility of collective agreements in the sector. In Finland, diversity between companies in the stevedoring and logistics is great, and local agreements should be introduced in the sector.

In the near future, Turku harbour will be affected by the reduction in the volume of industry in Southwest Finland and the negative

implications of this for large industry and the SME sector, which will have direct impact on flows of transport via Turku. The importance of Turku harbour is highlighted by its central position in unit traffic to Scandinavia, a position attained due to a good frequency of ships, which provides the right support for passenger traffic. Conversely, the cost level resulting from long pilotage has a negative impact on the marketing carried out by Port of Turku, and is a significant factor in the opportunities of operators in the harbour to route cargo via Turku.

A second significant challenge in routing cargo via Turku is the long sea journey. The crossing from Utö to Turku is almost 52 sea miles, which incurs costs to shipping companies and significantly lengthens the duration of the sea journey.

The development of value-added services assumes a significant role in the development of Turku harbour. In the future, a port area of the current size will no longer be necessary, but the division of the area should be planned more with the aim of accommodating functions that complement port operations (stevedoring), for example by increasing the size of the logistics area.

The logistics area enables flexible transportation to companies operating outside of the port area. Short transfer distances after the unloading of a ship allow for increasing the volume of industrial activities and further processing functions. For example, TurkuSteve, has created a value-added service for its current stevedoring clients in the forest industry by investing in a sawing line for the processing of engineered wood products in the logistics area.

Through active cooperation with different actors in industry, we would be able to offer functional combinations of services in everyone's area of expertise. Turku harbour could function as a pioneer in its field providing a wide range of value-added services in its logistics area. Short journey to shipping reduces the cost level, the same time improving the starting point for marketing.

Further challenges may also be introduced through the activities of the City of Turku. The amount of land available for the development of housing is limited, meaning that the city planners will easily direct their gaze towards the port area, covering a significant portion of land.

Policy makers should consider the significance of port structures as a generator net income for the City of Turku, particularly when it comes to passenger traffic and the transport of cargo. Housing built too close to production plants immediately generating pressures for transferring the operations from the original, functional location is a phenomenon that has been observed too many times.

In spite of all these future challenges, I continue to view future of the Port of Turku and the companies operating in Turku harbour as bright: through cooperation with various actors, we will be able to develop port services and also continue as efficient service providers.

Kimmo Iljin

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Port of Helsinki foresees growth in traffic to Tallinn

By Kimmo Mäki

The passenger traffic between Helsinki and Tallinn has been growing steadily for some years now. In recent years, need-based travel, commuting, work trips, visiting friends and relatives has increased. The growth is expected to continue in the future as well. The freight traffic has also developed, much keeping in development of the Finnish GDP. The popularity of the route is estimated to continue due to the constant development of the Baltic transport route, development in Eastern European countries and even the sulphur directive.

As a hinder to this development may be the significant difference in the standard of living between Finland and Estonia. This may affect permanent transfer of the labour force to Finland. On the other hand, Finland constantly needs added labour force in the service industry. Economic development and raised standard of living in the Baltic countries may also act as a threat as they will then need themselves the labour force. Harmonisation of alcohol taxation within EU would decrease the passenger traffic but so would insufficient port and transport route capacity hinder the growth. To overcome these threats, the use of Via Baltica, construction of the Rail Baltica together with the increase of living standards in the Baltic countries would affect tourism in Finland.

Lately the figures of commuting and passenger cars and vans by ferries have been significant. Shipping companies have offered excellent connections. This development is expected to continue.

Currently 7,6 million passengers and one million passenger cars travel between port of Helsinki and Tallinn annually. According to a report commissioned by the Port of Helsinki, passenger traffic is estimated to increase to approximately 8,3 million passengers by 2022. Passenger car traffic is estimated to grow up to 1,5 million cars by the same time.

The traffic between Helsinki and St Petersburg has grown steadily since its beginning in 2010. If the discussed bilateral visa exemption between EU and Russia comes into force, it will accelerate the increase of the passenger traffic. It is now estimated that by 2022 there will be 1 million travelers between the two cities but not a significant increase in van and car traffic.

The sulphur directive is estimated to increase traffic between Helsinki and Tallinn

For the past years also the cargo traffic between Helsinki and Tallinn has grown steadily. EU membership, growth of Baltic countries, economic integration between Estonia and Finland, rapid growth of foreign trade, as well as the affordable cargo prices of the transport companies in the Baltic and Eastern European countries have made this happen. Shipping companies have been able to increase their capacity. Fast passenger ferries have proven to be the most competitive with the possibility to carry both passengers and cargo. Their advantages include speed, frequency, cost and environmental efficiency.

The sulphur directive is believed, according to various sources, to increase the costs of sea transport through the ports of Finland by 20 to 50 %. This could improve the competitiveness of land transport routes momentarily. The routes between Finland and Baltic countries or Sweden would be winners in this case and the direct sea route from Finland to Central Europe would be losing. This would of course benefit the port of Helsinki in terms of cargo traffic to Estonia which in particular is expected to increase in this situation.

In 2012 the traffic between Helsinki and Tallinn was 3 million tonnes. By 2022 the estimated increase is 4 tonnes due to the sulphur directive.

The Roro ferry traffic competitiveness between Finland and German ports is at an excellent level and will also in the future

remain at a good level. Some traffic may be diverted to Baltic routes.

The development of traffic connections is important in terms of the welfare of the Helsinki region and its economy. Port of Helsinki strives to promote this development by offering its customers an opportunity to develop traffic connections from their own starting points. The Port does not plan any measures to restrict its customers' operational preconditions.

In terms of passenger traffic, West Harbour is the best option for increasing capacity and the amount of traffic. The traffic in West harbor comprises passenger, passenger cars and cargo traffic. Growth is expected to continue for passengers and passenger cars significantly. The Port of Helsinki has made a development programme, to develop the activities and services in harbours. The main focus is on West Harbour. One of the ideas is to develop activities together with customers to increase the capacity of West Harbour. There will be new terminal docks, parking and field areas, good transport connections to the city and beyond. Improving the draught is also necessary. After investments, the capacity of 10 million passengers – double to the amount today - 300 000 cargo items is attained.

Cargo traffic is expected to continue increasing in the West Harbour for a few years. The increase in Tallinn cargo traffic is believed to focus on the Vuosaari–Muuga and Vuosaari–Vanhasatama routes.

LNG bunkering in Helsinki

In 2015 the sulphur directive comes into force. Port of Helsinki has made a feasibility study to investigate the possibilities of LNG bunkering in Helsinki. At the moment there is no LNG distribution network in the Baltic Sea region. Also, based on the current price level it may become an alternative for heavy fuels. According to the study the ship-to ship bunkering of LNG is considered the most suitable solution for Helsinki. This is because the port areas are quite wide spread, three entirely separate harbour areas with a range of vessels so the service needs to be easy to use and flexible. One LNG vessel could bunker vessels at all harbor areas and could get the LNG both in Finland and Estonia, depending where the terminal will be constructed.

Other solutions, like building of a fixed intermediate LNG bunkering tank with the pipework within the limited space available would be extremely challenging. In the Vuosaari harbour the large area would require long pipelines which would increase the investment and operating costs. The fixed structure would limit the freight and passenger traffic operations in the harbour. Safety issues also limit the construction of an LNG system in the harbour area. Another alternative, to transport LNG to the harbour by container trucks would also be limited as LNG is considered as dangerous goods.

At the moment there is no one using LNG in Helsinki, the experiences of Viking Grace are expected to give further knowledge on the issue to the whole industry.

Kimmo Mäki

Managing Director

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Finnish logistics cluster

By Annemari Andrésen

The research project “The future of shipping in Finland 2015 and beyond” carried out by PBI Research Institute revealed that the current competitiveness of the Finnish shipping companies leaves room for improvement. Finnish shipping companies suffer from too low usability ratios of their vessels, high bunker costs and low freight rates after the drop from the all-time high level in 2008. The upcoming changes in environmental legislation, such as the sulphur directive, also present a major challenge, as they call for changes in the current fleet.

Moreover, a major finding from the research was that there is at present too little cooperation between the shipowners on the one hand and with the industrial customers and other stakeholders on the other hand. The market is characterized by many small companies, who are competing against each other rather than cooperating. Simultaneously, the trend for the customer industry has been towards shorter agreements with logistics suppliers, for example 1-3 years. This in connection with the fact that financing has become harder to come by has resulted in a reluctance among shipowners to take the risk of investing in new vessels. The current logic needs to be changed. A more long-term perspective is needed, as well as taking on an ecosystem perspective considering all actors and stakeholders involved, and their influence on each other. A dedicated Logistics Cluster needs to be formed in order to secure the competitiveness of the exporting industry and ensure national security of supply.

As a result from the research project, the visions of a) making shipping an enabler for the Finnish industry, as well as b) making Finnish shipping the leading shipping service provider in the Baltic Sea based on sustainable logistics concepts were formulated. The recommendations presented in the report include optimization of freights and ship traffic, which means combining freights in a way that the ship usability ratio can be improved by 10-15%, to the benefit of both the shipping companies and the customers. Another recommendation concerns coordination of activities needed regarding the present fleet. The present fleet needs to be carefully reviewed and calculations have to be made in order to determine which actions are needed; upgrading the vessels through conversions or retrofits such as scrubber installations, scrapping or selling vessels, as well as ordering new vessels. Decisions are needed regarding which fuels are to be used after 2015, when the sulphur directive takes effect in the Baltic. Our anticipation is that different fuels will be applied, as some vessels will switch to diesel, while others will install scrubbers and continue with heavy fuel oil. LNG, biofuels and methanol are complementary possibilities. LNG appears to be the most viable alternative at present, however, gas conversions in vessels are very costly and difficult to carry out, leaving LNG as more a fuel for newbuildings. Another issue which has frequently been brought up as a problem regarding LNG usage is the missing infrastructure. However, in general supply follows demand,

and in order to create demand, all parties using LNG need to be mobilized, which means engaging also other users besides the shipping industry. There are already several projects on-going to remedy the missing infrastructure. Biofuels and methanol are also being developed and tested as potential future ship fuel.

The third recommendation in the report concerns the initiation of new design concepts for newbuildings. This work should be done together with design and engineering companies, as well as suppliers specialized in cargo handling and ship equipment. The idea is that the collected competence of the Finnish maritime cluster could be brought together to design and construct a series of competitive vessels for Finnish shipowners. In this area, some work has been done already in connection with another project (Laiva 2025), which has looked at a new, environmental-friendly ship concept, the results of which are to be published in May 2013. However, as mentioned the lack of financing is one major obstacle in the newbuilding discussion, which needs to be solved through introducing new financing instruments. Naturally it also needs to be secured that there is demand for the new ships, as the investments are highly capital intensive.

In order to enhance the cooperation between the parties, it is also recommended that consolidation of activities between Finnish shipowners take place, be it in the form of pooling of activities within the boundaries set by legislation or through mergers etc. There are a number of activities that could be done in a more centralized way, saving costs for shipowners but also benefitting the customers in that they would have access to a larger amount of vessels and receive a more comprehensive offering from the pool, including door-to-door solution. These should be created together with a network of partners, saving the customers from doing it themselves and having own organizations for it, as is often the case at present. Also regarding newbuildings and modernizations, the shipowners would benefit from coordination as this would help them to gain purchasing power. The main obstacle for this development appears to be mistrust and a reluctance to share information with others. This needs to be overcome as the project continues with the implementation of the recommendations above and creating the Finnish logistics cluster, in order to fulfill the visions and open the fairway to the future for Finnish shipping.

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Baltic short sea shipping – a strategy for survival

By Jussi Mälkiä

Sea transportation as a sector of the Finnish maritime cluster is facing vast challenges during this decade, with around ten new environmental regulations coming into force within the next 5 years. The most well-known, infamous directive regarding sulphur emission levels will take effect in the beginning of 2015 - only 1.5 years away. However, the sulphur directive is just the tip of the iceberg, and the existing solutions to comply with the changing regulatory framework are still insufficient.

Furthermore, greenhouse gases (GHGs) will have a considerably larger impact on the future transportation market in comparison to sulphur emission levels. Monitoring, reporting and verifying of the GHGs in the shipping industry within the EU have been in practice since the beginning of 2013. Monitoring of CO₂ emissions will most certainly contribute to the growing activities of emissions trading or bunker levy in the future. Regardless of what will be the final methodology, the main future challenge for the maritime industry will be to decrease the entire scope of energy consumption dramatically. Existing technological competence can provide two principal alternatives in order to achieve this goal: slow steaming and energy efficiency. In addition to these two, a very relevant question is: do we have possibilities to develop sustainable energy sources like bio energy, and new inventions like fuel cells?

Slow steaming is technically the simplest way to proceed, and is already commonly used within the industry. However this slows down the whole supply chain and will probably cause rush hours in the handling of cargo in the ports. Therefore, the efficiency of the stevedoring operations takes on a whole new meaning. In the future, ships cannot burn expensive fuels to reach the destination port in the least amount of time just for guaranteeing a place in the queue. Time must be saved in the port instead of proceeding full speed at the sea. This can be seen as a major issue of importance in the case of the conventional bulk- and general cargo short sea shipping.

Energy efficiency is a very interesting branch of research and implementation for countries like Finland with highly technological maritime clusters. It is necessary to cut down energy consumption by at least 50%, which is most definitely a remarkable challenge. A retrospective assessment of current operational practices, as well as technical details, is needed in order to achieve this goal. Technical possibilities, e.g. propulsion systems, hull forms, heat recovery and new

kinds of solutions to fulfill the ice class demands, are the most important factors to take into consideration for the future wintertime operations in the Northern Baltic Sea.

The main question regarding maritime energy issues is related to the potential substitutes for heavy fuel oil in the long run. The Baltic Sea countries are in a significant position in terms of guiding and acting as forerunners while developing and implementing new solutions. There are several alternatives to be considered, e.g. marine gas oil (containing less than 0,1% of SO_x), LNG, methanol, bio-oils etc. The latter could act as a key element in the future fueling, especially in the Baltic Sea countries. Biomass-based fuel sources, together with the side products generated from the forest industry, are beneficial because of their self-sufficiency and renewability. A major challenge for the utilization of bio-oils in the shipping industry is the increasing competitive pressure from other forms of traffic.

Decisions about the taxation of the bio components in bio oils exploited in land transport are crucial for the availability of biomass raw materials for the shipping industry as well. In marine use, the fuels need not be as highly refined as those used for land transportation. From that point of view, it would be easier and more reasonable to generate fuel out of the raw materials based on the higher-volume industries with excessive by-products, than using these highly refined and expensive land transport fuels. The advantage in marine use is mainly based on logistics, easier refining processes and on better aptitude of marine engines for using bio components.

Comprehensive and versatile thinking is needed, as the tax incentives in different modes of transportation versus the possible emissions trading scheme operate within a different time frame. In this case, the competition for the limited raw materials will turn unequal and therefore will not benefit national economy, nor the solutions for sustainable development.

Jussi Mälkiä

President

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Shipping is the greenest transportation mode but is faced to be even greener

By Eija Kanto

Shipping is the cornerstone of global trade and the life blood of the world's economy. More than 80 % of the world's trade is carried waterborne by ships and due to that fact the international shipping needs a great deal of fuel. The international shipping is by far the most energy efficient and environmentally friendly mode of commercial transport, but it needs to find new, innovative ways of reducing its emissions. It is vital for the environment that shipping remains at the forefront of freight transportation.

Shipping is a global industry operating under global rules. In the worst case more stringent regional regulations for maritime transport cause distortion of competition, resulting modal back-shift of transported goods to roads. Even modal shift of industrial investments could be seen and at the end the environmental impact could be negative and cause carbon leakage. A level-playing field and global regulations are essential. Shipping industry needs to work closer with international partners, in industry as well as governments, to ensure that industry's own vision for greener international shipping becomes reality via a globally agreed developed in the UN's International Maritime Organization, IMO.

The renewed IMO's MARPOL (International Convention for the Prevention of Pollution from Ships) Annexes IV, V and VI are setting new requirements regarding discharge of sewage into sea, disposal of garbage from ships and limits on NOx and SOx emissions from ship exhausts. All three annexes have more stringent requirements for operations in the special areas. IMO has adopted the International Convention for the Control and Management of Ships' Ballast Water and Sediments and the convention is close to the final ratification. It will apply to all ships and gradually requiring ballast water treatment systems on board. Greenhouse gas (GHG) emissions from ships are already controlled by technical and operational measures of energy efficiency set by IMO. According to policymakers the technical and operational measures will not be sufficient to reduce the amount of greenhouse gas emissions from international shipping, although shipping is only a modest contributor to overall CO2 emissions. Therefore, market-based mechanisms have also been considered at IMO level and also EU level. European Commission will propose in 2013 legislation for monitoring, reporting and verification of CO2 emissions of maritime transport as the necessary starting point for any possible measure on GHG reduction. Additional to these environmental regulations mentioned above there are several new rules in preparation at IMO, EU and HELCOM levels.

Special features of the Baltic Sea hinder the competitiveness of shipowners. In the Baltic Sea ships are operating already in the most regulated sea area. The shipowners are facing the historical costs of complying with a numerous new more stringent environmental regulations within next five years. There is increased demand for new environmental investments and new buildings. At the same time the shipowners try to maintain their competitiveness in the European and global markets, and beat recession. The abatement technologies and new cleaner fuels for shipping are a partly answer to meet the new requirements. Massive investments to the bunkering infrastructure, long-term research and development need to be accomplished before new solutions are in daily utilization.

Effective year-round navigation is essential for the Finnish foreign trade, society and economy; about 90 % of the Finnish export and about 70 % of the import is transported by sea. Finland is located far from the European main market areas, having thin flow of goods and there are no alternative modes for shipping. All ports in Finland are ice-bound during an average winter from January to March. The Baltic Sea is one of the most heavily sailed sea areas in the world. Severe winter conditions require ships sailing in the Baltic Sea in winter months to be ice-strengthened and the states to provide icebreaker assistance. Ice-strengthening of cargo ships increases their investment costs and fuel consumption. All these costs accumulate to the freight rates industry has to pay for their cargoes to be transported by sea. It is very important that the special requirements and costs due to winter navigation are taken into account when developing regulations e.g. for energy efficiency of shipping.

Shipowners have widely taken responsibility for the sustainable future of the marine environment. The overall aim in the long run is to minimize air pollution, improve energy efficiency and to reach zero discharges to the sea. The shipping industry has to face these challenges and at the same time to ensure the vitality of the sector. This could be done being proactive and having good co-operation with other stakeholders of the whole transport chain and regulators. It is also important to continuously increase the environmental awareness and training of the crew and shore personnel and to improve the safety culture on board.

Shipping industry is committed to do its share but is calling for a consistent environmental policy, not one item issues, and global and flag neutral regulations to prevent a distortion of competition. Practical implementation and a strong enforcement of the rules allow equal area of operation. There have to be foreseeable global regulations and time to adapt and develop technologies. It is important to recognize the actual share of shipping in the various emissions and set clear responsibilities of the different actors. The ports are playing important role in the environmentally friendly transport chain while having a requirement to provide adequate reception facilities. The ports are also facing the huge investment pressure due to the more stringent environmental regulations of shipping. The whole logistic chain has to co-operate to overcome these challenges if we like to be forerunners and take them as business opportunities.

We have accepted this challenge and the Finnish shipowners will provide to their customers safe, economically sustainable and environmentally friendly transport services also in the future.

Eija Kanto

Executive Adviser

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Innovation and competitiveness – the future of the maritime companies

By Teemu Makkonen

The maritime cluster is an important sector of the economy in many countries of the Baltic Sea Region. As the economic performance of industrial sectors is, at least to a moderate extent, tied to their ability to innovate, one might expect a high level of innovativeness inside the maritime cluster. However, recent evidence with Finnish firm-level data on maritime industry has indicated unexpectedly low radical innovation related-activity and attitudes towards it. Research on maritime clusters in other countries, for example in Norway, the Netherlands and Canada, has concluded in similar statements of the dominance of small incremental improvements and low research and development spending inside the sector. This is rather surprising considering the significance and past technological achievements of the sector: innovations have played an important role in the development of the whole sector. This development has included technological product, but also service, process and organizational innovations. For example, technological development and automation have had a major impact on management and operational processes in ports and in shipping. Accordingly, shipbuilding has been reshaped by growing role of turnkey deliveries, making the shipyards into more assembly-focused operator. Therefore, at present and in the future maritime companies (and the cluster as a whole) should pay close attention to innovation activities, especially in the interfaces between other industries, for enhancing their competitiveness.

In the Baltic Sea Region, the recent discussion on shipping and other maritime industries has been concentrated on the significant costs and possible modal shifts of transportation, imposed by the environmental regulation introduced by the International Maritime Organization (IMO). These changes will have wide-ranging impacts on the economy as a whole. Therefore, the economic impacts of environmental regulations by IMO have been estimated for the countries of the Baltic Sea Region. The estimations have concluded in bleak descriptions of rising transportation costs and loss of competitiveness. Still, the understanding that there are also possibilities for gaining something from the environmental regulations is largely missing. After all, the stringent exhaust control will induce a need for finding new ways of doing things, that is, to innovate. This proposition (befittingly named as the 'Porter Hypothesis' according to its original presenter business economist Michael Porter) states that "by stimulating innovation, strict environmental regulations can actually enhance competitiveness".

Accordingly, the future prospects of tapping into the resources in the arctic region and the potential of year-round

shipping via the Northeast Passage have been in the fore of various strategies and development plans. According to these strategies and plans the importance of arctic shipping and the utilization of resources found beneath the Arctic Sea are more than likely to increase in the future. Therefore, building up of what can be termed as 'arctic know-how' is essential in maritime and many other related industries.

Two pathways for innovation creation are highlighted here as having huge future potential. First, considering the forthcoming IMO sulphur and nitrogen emission control areas to be enforced in the Baltic Sea region, innovations related to clean shipping, such as scrubber systems and ships equipped to use bio-diesel, are an important future competitiveness factor for the maritime cluster. Second, the future prospects of year-round utilization of the Northeast Passage and the Arctic Sea are definitely worth close consideration. As the importance of arctic shipping and arctic off-shore industries are likely to grow in the future, maritime industries in the Baltic Sea Region should already plan ahead to tap into this area of future growth, when allocating their resources into research and development and other innovation activities. Relatedly, close collaboration with other industry branches is also highly recommendable, as past evidence has shown that the truly new-to-the-world radical innovations are in many cases developed at the interfaces of two or several industries. This combination of knowledge from various different industrial branches (named as the creation of 'Jacobian clusters', after the author Jane Jacobs) is essential, in particular, when considering green innovations and the sheer amount of different types of information and sector specific know-how related to their development and creation.

In short, innovations and collaboration will play an important role in the future competitiveness of maritime companies in the Baltic Sea Region.

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Open innovation between firms and universities

By Kari Laine

The most common source for innovations in firms is practice, and research knowledge and technology are often necessary additions to the technology based firm's innovation process. The innovation chain can be integrated by connecting research knowledge and emerging technologies to real, latent and potential needs of firms and their customers. Effective processes need knowledge management, fast ability to learn and developing expertise. The knowledge and skills of actors must be accumulated. This also requires the development of the role of teachers and researchers in the university, innovative organizing of actions, failure-tolerant atmosphere, and incentives for development.

University roles in innovation creation

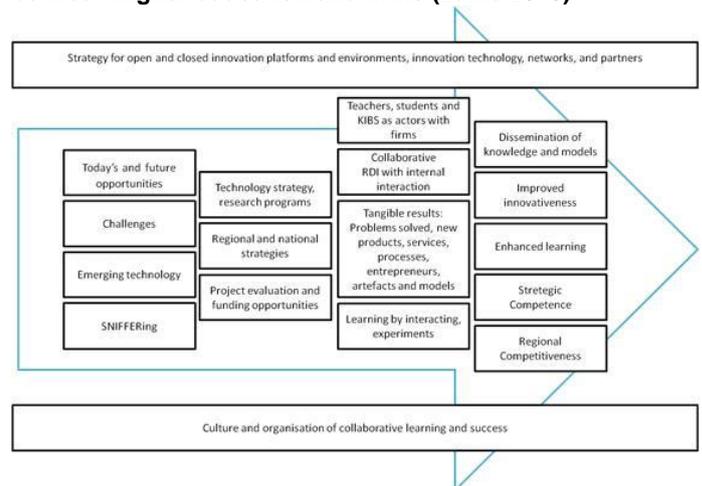
Universities have several roles in innovation creation. These can be the creation and introduction of new methods, theories, and models for industries and partners. The process should be proactive and the detection of weak signals and emerging technologies is needed. Solutions are not created by researchers and their networks alone. New technology knowledge must also be adopted and transferred based on the firms' acute needs. Problems and opportunities of partners are combined to theory based methods. This kind of pre-solution finding is often crucial for the proceeding of the innovation process. A university can facilitate development processes and interaction between actors to detect their needs and to combine parts of the solutions. Often innovation partners need to be activated and the firms introduced to networks. The modeling of these processes and interaction is crucial for the creation of generic processes and for sharing the created knowledge. New concepts and models can be created by combining parts of functional, already existing models. Universities should pass forward innovation stories, experiences, knowledge, developed tools and technologies by publishing and also by using interactive approaches. When doing this universities can combine their strategic goals to those of the region and the firms, as well as find new pedagogic and professional development levers to bring their teaching into new levels.

The universities should take a proactive role in their region. This means being active in the regional strategic developing processes and act as an innovation activist that fosters innovation processes by enhancing knowledge creation and combination. Qualified regional partners, innovation technology and dynamic national and international networks are most useful in this process.

Open innovation process begins with understanding the partners' challenges and seeing changes in environment as opportunities. Emerging technologies are studied and experimented in the core areas of research in Satakunta UAS. The SNIFFering sub-process is used to understand the development potential of regional partners and to combine new research knowledge and technology with the needs. The technology strategy, content of research programs, the regional and national strategies affect which projects can be executed. Project pre-evaluations are a practical way for making this selection. External funding opportunities also affect which projects can be selected. In project execution the participation of teachers and students is essential. The results must be tangible. Problems must be solved, new products, services and processes created. New entrepreneurs, firms must be created. Artefacts and models

enhance diffusion. Learning is enhanced by interacting and experimenting. In the value capture phase models and knowledge are disseminated. Active work leads to improved innovativeness. It enhances learning and strategic competence. Altogether the regional competitiveness is improved.

Figure 1 Open innovation process in collaboration between higher education and firms (Laine 2010)



Technology is used to support innovation processes. This innovation technology defines capability to execute distributed innovation processes and capability to share knowledge effectively. Innovation technology can be social media, mobile solutions, fast prototyping, simulation and modeling or similar solutions that enable and accelerate knowledge combination and collaboration in the innovation process. There must be conscious decisions about connections to networks and strategic partnerships so that they support innovation goals. All connections can't be based on decisions. In research, connections are more based on personal networks. Teachers and researchers must be empowered to innovate. There is plenty of work for the management to create enabling conditions for innovation processes like funding and removal of bureaucracy.

New roles for students and teachers

Students are recognized as central actors in this model and especially in the creation of entrepreneurship. Entrepreneurial skills are seen as important basic skills. It is also understood that entrepreneurial skills can be taught. In addition to entrepreneurial skills, higher education can offer contacts to regional business life. Small growth firms are more important than before in innovation creation and new business creation. In the future the agility of universities to response these needs will be crucial. Entrepreneurship support and research in SUAS are strongly based on the incubator Enterprise Accelerator (EA), its development and the follow-up of its processes. In average, two enterprises are started by students every month nowadays. One of the detected success factors is the strong connection to program studies, research projects and business life in the region. Students have also been strongly committed to their businesses as part of the studies. The university has boldly brought these new processes into practice. Potential

entrepreneurs are detected in student projects, practical training and thesis process. The EA process has created over 250 innovative enterprises since 1997. Students can gain as many as 60 credit points from entrepreneurship related studies and activities.

There is a need for the development of pedagogic practices, teachers' role, and competences to support parallel RDI processes, student entrepreneurship and their integration to study processes. At the same time there is a need to embed researchers with teaching. Pedagogic development needs are related especially to combining the learning processes to the RDI processes. Although there are several models presented in the Finnish context, there is still room for development. Actors can learn from others and

develop specific models for their own contexts. Students and teachers can see interaction with industries as an opportunity if they have the support of the university.

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The dilemma of vessel noise

By Maria Mustonen

Noise emissions from the maritime transport have not been a big issue for the industry so far. At the moment, vessel noise is not regulated internationally. For seaports, on the contrary, noise is a top environmental priority. The tightening noise regulations in ports are going to impact the whole maritime industry in the future.

Vessels sailing the fairways are allowed to make as much noise as they like, as there is no international regulation of the noise emissions from ships. To protect the marine fauna, International Maritime Organization, IMO, is now working on recommendations for noise emissions to the water from new vessels.

When it comes to noise emissions to the air, they are only regulated through the environmental permits of the ports. These regulations are issued to protect the public health. As soon as a vessel enters the premises of a port, noise from it becomes a concern for the port authority. The regulations of this kind vary from country to country and from port to port, but it is common that port noise is classified as industrial noise. The practical implication is that quite strict decibel limits are applied to the berthed vessels.

The challenges

Vessels are often the most significant and in many ways the most challenging noise source in ports. Firstly, the acoustical features of vessel noise make it problematic as such. Vessels are, as a rule, running their auxiliary engines to produce electricity they need during the time they are berthed. The sound from the engines is low-frequent, which makes it annoying to hear. Muffling it requires big, space-consuming silencers on the vessel. If the noise is not muffled on the vessel, standard noise walls, sound-proof windows and like are insufficient to mitigate it from penetrating the nearby buildings.

Moreover, the engines are not the only noise source on a vessel. Ventilation systems of the car decks and hydraulics equipment include fans and compressors which generate noise. Car ramps are another noise source on RoRo vessels. On passenger vessels, ventilation and air conditioning systems are also a significant noise source.

In the Baltic Sea Region, the upcoming sulphur regulations are the number one environmental priority for the maritime business. It is understandable that the noise question, which is not even sanctioned in any way, does not end up on the top of ship owners' environmental agenda.

Noise reducing improvements on existing vessels are relatively expensive, and they do not pay back in direct revenues. Therefore, they are hard to motivate. Noise reducing solutions on-board require space, which could be used to revenue-producing functions as cargo or passengers instead. Moreover, they increase the weight of the vessel.

Finding solutions

The dilemma of vessel noise is in many ways out of the hands of the port authorities, who however are held responsible for it. That is why ports have to find ways to handle the question together with the ship owners. In liner-traffic, long-term customer relationships between the ports and the ship owners are created, which makes it rather uncomplicated to find solutions together.

The situation is more challenging with irregular customers such as cruising and cargo vessels using the port occasionally. Fortunately, passenger vessels with low external noise emissions have higher customer comfort as well. Therefore, there are incentives to find silent solutions. In ports, one of the ways to reduce vessel noise is onshore power supply which eliminates the noise from the auxiliary engines.

Even though it is technically more challenging to do improvements on existing vessels, it is possible to install silencers to the exhaust funnels, on machine room ventilation and air vents. This is costly, but sometimes it is necessary to find this kind of solutions to make it possible for a vessel to use a port.

The situation is quite different when completely new vessels are being constructed and built. If the noise question is taken into account already on the drawing board, a good sound level can be obtained. An example of this is M/S Viking Grace which operates the Turku – Stockholm route since January 2013. The vessel has a high environmental profile. When the ship was ordered from the STX shipyard in Turku, a maximum noise level of 50 dB on a distance of 100 metres was specified. Wärtsilä, the supplier of the engines, was also involved in the noise question. For instance, the exhaust pipes of M/S Viking Grace are equipped with resonators which eliminate the low-frequent noise, and her ventilation systems are also equipped with noise reducing solutions. The engines are mounted elastically to minimize the vibrations conducted by the hull, and this lowers also the noise levels. M/S Viking Grace is a best practice example showing that building silent vessels is fully possible.

Altogether, it is likely that the environmental authorities will require more noise-reducing measures from the ports in the future. They have, in their turn, to find solutions together with the ship owners. In this way, the environmental regulation of ports will impact the whole maritime industry. Especially the ports located in inner-city areas, which at the same time are the most attractive for passenger vessels, will see a tightening regulation in the future.

It requires investments to make vessels more silent. On the other hand, being among the first building and operating silent vessels gives a competitive advantage to the ship building and shipping industry. The know-how exists already, and many future problems can be avoided with proactive thinking.

This article is based on the results from the European Union Central Baltic Interreg IV A Programme 2007-2013 project PENTATHLON – Ports of Stockholm, Helsinki, Tallinn, Turku and Naantali – together. More information about the project can be found on www.pentaproject.info.

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Dynamic capabilities in Finnish maritime industry during the years of weak demand and uncertainty from 2009 to 2012

By Jouni Saarni

Maritime activities are one of the most direct testing grounds for industrial competitiveness as their markets are fully global. A ship as a product can be easily transferred to anywhere in the world and shipping companies constantly optimize their operations and fleet according to freight demand and competition. At the Turku School of Economics industry dynamics and innovation behavior in the maritime industry¹ have been researched covering the whole supplier network (see e.g. Saarni et al. 2013). Based on related projects here is an overview on what building blocks lay in the foundation of maritime industry's competitiveness.

Considering the Finnish maritime industry, many vast changes have shaped its evolution during the last decades. The Finnish shipyards grew starting from the 1940s to 1980s from the orders received steadily from the Soviet Union. In the turn of the 1960s and 1970s the production diversified to more complex products also for western markets. Gradually the production specialized into the segment of cruise ships and ferries. When even larger cruise ships were built the former vertically integrated production system was abandoned and the network of suppliers emerged around yards into a strong cluster.

Cruise ship production in Finland was at a peak between 2005–2009 with high workloads. Since 2008 the industry has struggled time after time due to lack of orders. This was triggered by the financial crisis when shipping companies became more cautious with ordering new vessels and shipbuilding nearly halted globally. Especially freight ships had been built speculatively in so large numbers that many new ships still lie around without use. In Germany for example the building of container ships has stopped and many shipyards have had to struggle for their survival. Even so, competing cruise ship clusters, e.g. German Meyer Werft, have received new orders steadily. In Finland it has raised a question whether the maritime industry here is competitive enough.

In a national economic level competitiveness often refers to cost levels. But in an industry scale the constant goal is to improve the firms' real competitiveness. Firms' capability to create innovations in products, services and processes is the core for long-term success. The following theories on firm competitiveness have been pointed out:

- Porterian management thinking explains firms to aim for competitive advantage through differentiation or cost leadership
- Blue ocean strategies encourage firms to stop staring at the products and competitors and instead aim for creating entirely new uncontested markets
- Resource-based view tells that superior, poorly imitable or substitutable resources create the edge on the market
- Dynamic capabilities concept extends to successful firms to have skills to modify their resource base as well to adapt to changes in their environment

Firms in the maritime industry often meet rapid and steep business cycles, which emphasizes the need for dynamism and adaptation in their strategic management. Recent paper by Makkonen et al. (2013) compiles six elements of dynamic

capabilities that firms need when adapting to changes and re-shaping their resources:

- Reconfiguration means the firms' capability to reorganize its resource base.
- Leveraging is understood as exploiting the existing resources in other uses.
- Learning refers to firm's actions to increase its staff's competences.
- Sensing and seizing is the firm's ability to explore new business opportunities.
- Knowledge creation takes place in R&D functions to create new knowledge that helps their product or service development
- Knowledge integration helps the firm to extend its innovation activities to use also external information sources through their partners.

These dynamic capabilities actualize the circumstances in a firm for innovations to arise. Schumpeterian concept of creative destruction comprehends that firms must from time to time abandon their old areas to give room to new businesses. During an economic upturn, process innovations receive relatively more attention in firms aiming at improving profitability. In a downturn, as the demand weakens, product innovations are pursued to keep the sales going.

Centre for Collaborative Research at Turku School of Economics has carried out phone surveys for maritime industry's firms both in 2009 and 2012. They addressed innovation activities and attitudes, and a total of 85 CEOs (out of 474) answered to both. The timing is interesting, as the year 2009 was the turning point in shipbuilding orders even globally. Years 2010–2012 were quiet as the downturn continued. As expected, the answers from the 2012 survey reflect a more adaptive behavior.

Considering dynamic capabilities, almost every firm tries to utilize learning and leveraging and two thirds of the firms say they did reconfiguration and knowledge creation in 2012. Lesser attention is given to sensing and seizing and knowledge integration as only half of the firms picked them out.

Longitudinal comparison shows the changes that have happened when the downtrend has dragged on. All dynamic capability dimensions have increased at least slightly. The dimensions that have increased the most are reconfiguration, leveraging and knowledge creation (in 15–20 % of the firms). This means that during the troublesome years 2010–2012 more firms have shifted their focus on developing new products and invested in their R&D. More firms have tried to leverage their existing resources by letting their employees bring out ideas and pursue their own goal to find something new to the firm's products or processes. Also the share of maritime firms that have invested in developing radical product innovations has increased from 33 % in 2009 to 43 % in 2012. Meanwhile the share of firms developing their processes has decreased from 49 % to 44 %.

This brief glimpse shows how maritime firms have reacted to weak demand and uncertainty. Perhaps half of the firms have reflected dynamic capabilities already in 2009 and their share has increased by 2012. Many firms have shaped up and become more agile in their operations. But that still leaves around 30 % of the firms in the sample with a passive attitude to renewal. Is this share of firms with poor dynamism perhaps too high to keep up with the global competition? Findings also suggest that observation and detection of business opportunities and co-operation in R&D are the actions that are most commonly missing from the maritime firms.

¹ In the Finnish context during the recent years the term maritime cluster has been used broadly to refer to shipbuilding, shipping and ports. More specifically maritime industry is understood to include shipbuilding actors like shipyards as well as their heterogeneous supplier network.

Most recently shipyards and their suppliers have been in turmoil since the end of 2012 and some sort of restructuring will be evident. More and more former shipyard subcontractors and system providers do their business now directly to shipping companies or to foreign shipyards. Firms' roles in value networks are much more versatile now as they used to be.

References

Makkonen, Hannu – Pohjola, Mikko – Olkkonen, Rami – Koponen, Aki (Forthcoming) Dynamic capabilities and firm performance in a financial crisis. *Journal of Business Research*. Available at: <http://dx.doi.org/10.1016/j.jbusres.2013.03.020>

Saarni, Jouni – Saurama, Antti – Karvonen, Tapio – Heikkilä, Annamari – Holma, Elisa (2013) Meriteollisuuden talouden ja suhdanteiden kehitys 2006–2020 – FIMECC Probe –hankkeen toimialakatsaus 2012. *CRE Tutkimus- ja koulutuskeskus, CCR Tutkimuspalvelut, sähköiset julkaisut E1/2013*. Available at: <http://urn.fi/URN:NBN:fi-fe201303272644>

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Shipbuilding industry needs a sustainable orderbook to survive

By Teijo Niemelä

A small number of leading shipyards in Europe have pursued a strategy of building high-class and expensive passenger ships – a niche that cheaper Asian yards have been unable to compete in. The crown jewel of passenger shipbuilding is constructing cruise ships, which have become not only bigger but more expensive with price tags of close to a billion euros for some.

During the past two decades, four countries in Europe have dominated the worldwide market for cruise ship construction. In Finland, there have been three different shipyards, of which now only Turku is constructing cruise vessels; the other yards include Helsinki and Rauma, which along with Turku have over last 20 years experienced several changes in ownership. Today, all three belong to South Korean conglomerate STX (the Helsinki yard is a joint-venture with a Russian partner specializing in Arctic vessels). In Germany, Papenburg-based Meyer Werft is the sole German player in the cruise ship market, although the country has successful yards specializing in other segments. In France, STX owns 66.6% of the shipyard in St. Nazaire, while the French government holds the minority stake. And in Italy, state-owned Fincantieri runs several shipyards, four of which have cruise ships in their portfolios. Still other yards in Europe have built smaller cruise ships, but the four major players have mainly had the market to themselves, with the Finnish and French STX yards competing against each other.

However, the longstanding European dominance in this most demanding shipbuilding segment may soon be over. Less than two years ago, German cruise line AIDA Cruises contracted with Japan's Mitsubishi Heavy Industries to build two new cruise ships. The company was incentivized by a heavy discount, and AIDA's parent, Carnival Corporation & plc (the world's largest cruise operator with over 100 vessels) couldn't resist the offer. Previous attempts by Mitsubishi to enter the cruise ship market have been less than successful, with reported heavy losses from the completed projects. Next in line could be a Chinese shipyard, where Australian billionaire Clive Palmer would like to build a replica of the Titanic.

So what has kept previous cruise ship orders from being awarded to Asian yards? European shipyards have developed unrivalled expertise in the know-how needed to design a cruise ship from the technical and passenger points of view. A cruise shipowner may require many changes to the original blueprints as construction advances – a practice not always understood and accepted in Asian yards. Also, cruise ship construction can take from 18 months to 22 months to complete, which would seriously affect the production line of an Asian yard more accustomed to building cheaper bulk products such as gas carriers, tankers, bulkers, container vessels and so forth. In an Asian yard, building a cruise ship would be like assembling a Ferrari in a Fiat assembly line.

However, perhaps the most important factor is that a European shipyard is more of a place of assembly, where most of the value of the project goes to the suppliers and subcontractors; the shipyard may weld the hull and superstructure, but the high value of the interior outfitting work

comes from smaller, highly-specialized subcontractors. This kind of maritime cluster is difficult to export, and for Asian shipbuilders, it might take a decade or more to develop their own domestic supply chain.

During the last five years, another important factor has come into the picture, namely financing. This is where governments have needed to play a significant role. In shipbuilding, the shipowner pays approximately 20% up front when ordering a new vessel, with the remaining 80% to be handed over at the time of delivery. This leaves financing for construction in the hands of the shipyard, which has to pay its own workforce and suppliers in a timely manner. This is why we have read so much lately about the challenges confronting the Turku shipyard in Finland, which is building two new cruise ships for a German customer. Cruise shipowners are typically assisted by state-owned export credit agencies that guarantee their loans up to 80% of the price tag of the vessel.

Since 2008, the cruise industry has witnessed a steady decline of new cruise ship orders. The cruise market has expanded tremendously during the last 20 years and continues to do so during hard economic times in both its main markets, North America and Europe. However, the growth rate has been slowed, and with slower growth there is less demand for new cruise ships, but at the same time the average size of each newbuilding has increased. Today, there are 18 new cruise ships under construction with an average size of over 100,000 gross tons and more than 3,100 passengers (double occupancy) and a combined price tag of over \$12 billion.

What does this mean for the future? Even with the diminishing cruise ship orderbook we can expect new yards, especially from Asia, to enter this segment; in response, we can expect European governments, especially those in France and Italy, to defend their shipbuilding interests in every legal way possible; we can also expect cruise operators to require favorable financing terms assisted by export credit agencies; and we should anticipate that the average size of each new cruise ship project will continue to increase, but the number of new ships built annually will decrease. The challenge will be to keep the know-how of naval architecture in European hands and support its maritime clusters with a sustainable and steady orderbook. Currently, there are not enough new cruise ships under construction to keep all the players in the market viable for the long-term.

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The USA and Finland



Finnish maritime industry – observations from the IFCO project

By Kimmo Juurmaa

Background

OTC is a company owned by 13 companies connected to offshore business in Finland. During years 2010 – 2012 OTC was coordinating the project IFCO (Innovative Finnish Product and Business concepts for Offshore). This article is mainly based on results of the project.

History

Finnish maritime industry was created in companies like Wärtsilä, Rauma Repola and Valmet. These companies created their business originally for the Russian market. All major innovations as well as most of the competence within the industry were mainly directed to and financed by the trade with the Soviet Union of Russia. The structural changes within the industry started in 1980's. Already during that time it became obvious that the competence and quality of the products produced in Finland have markets globally. When the Soviet Union collapsed in 1992, the yards in Finland had to restructure their operations. The result was outsourcing as much as possible.

Where are we today

If we look with the eyes of the government or the industrial associations, we see the cruise liners, icebreakers and research vessels. We see that the future is depended on how we can support the yard industry to reach the contracts for these vessels. What we do not often see is the turnover and number of people working in the companies that serve the maritime industry globally. The major companies making their turnover within the maritime industry are not the yards, but the suppliers of components and solutions needed in the vessels to be built. Today the main maritime industry in Finland is not the ship construction, but the system and equipment suppliers. The industry having the knowledge and the competence comes among these.

Offshore as an option

Development of oil and gas deposits is a business where generally there is seen no limits in the near future. Development of oil and gas deposits offshore is a potential area for all maritime industry. OTC started the joint industry project IFCO to reveal the potential of the offshore business for the Finnish maritime industry. From the beginning it was clear that the experience, knowledge and references within the offshore business were widely spread among the companies and people working in the companies today. The history of the Finnish yards is such that the yard references and the competence do not follow each other.

Based on the results of the IFCO project one can see that the potential for the Finnish Maritime Industry to benefit from the development of offshore oil and gas industry globally exists. For many of the companies offshore business is already an important part of their business portfolio, but there seems to be a lack of research and development work to achieve a preferred position compared to their competitors.

What to do for the future

The major problem for the maritime industry in Finland is the way the government and the industrial associations see the industry. All major efforts to support the industry are directed to the construction yards. It is easy to see that large cruise liners or huge oil production structures are the products of the Finnish maritime industry. When you participate to a ceremony of a delivery of such an object, you can really feel to be proud of the

Finnish work. And certainly this correct. But, what you forget is, that the majority of the business, turnover and jobs within the industry lie on other deliveries than the one you are celebrating. In fact a delivery of a diesel engine, an engineering product or a software package is something, that you never celebrate, but they create the most of the work that is produced by the industry in Finland. The Finnish yards are today minor clients to many of the companies within the Finnish maritime industry. And still the public and political discussion is around the ownership of the yards. In Germany and in Sweden the maritime industries are accepted without discussion about the yards. German and Swedish maritime industries are major suppliers of the global shipbuilding. Many of the companies within the Finnish maritime industry have also achieved leading position in the world market. And there are many more, which have the potential capability to be there.

During the IFCO project many of the companies expressed their strategic interest towards the offshore business. There appeared to be some reluctance due to unknown factors within this business. To attract and encourage more companies to enter the international offshore business calls for active measures. OTC is actively doing training, facilitating network business development and providing market knowledge and understanding for the industry. Since OTC activities are commercially based, they are done in the volume as the industry sees it necessary. What is lacking here is the research and development activity that would be based on the needs of the industry in large. Today we tend to look for research and development activities aiming at new products for the yards. We do not create research and development projects that would enhance technologies for the different actors in the maritime industry. For instance, instead of developing an icebreaker we should develop solutions for low temperatures. Companies working with diesel engines, cranes, ventilation, structures or anything else that is produced in Finland could benefit the output of such research globally, not only in the icebreaker that would possibly be built in Finland.

Based on the company responds from the IFCO project, it was clear that there are no national values within the business. A number of the companies even indicated that for their business it would be beneficial if the actual object would be built abroad. This is an alarming signal and the governmental bodies and the industrial associations should really reconsider their activities and support policies. Of course it is more challenging to find the ways to support the numerous companies with their numerous projects and deliveries around the world than just put all money and effort in a few companies with only a few megaprojects. But with today's industrial structure in Finland the support would in this reach more jobs than today.

For the future the positive result from the IFCO project is that among the companies there is a strong willingness to work together and the process that was started within IFCO should be continued to achieve a joint Finnish offering or joint Finnish competence for the global offshore market.

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How to support the competitiveness and networking of the maritime clusters in the Central Baltic region?

By Eini Laaksonen and Hanna Mäkinen

The most recent SmartComp Research Report¹ discusses the maritime business networks in the Central Baltic region, particularly between Estonia, Finland and Latvia. Although having somewhat different structures and competence areas, these maritime clusters in Estonia, Finland and Latvia seem to share similar challenges. There is a continuous need for R&D and product development to have competitive offerings, while the general economic situation as well as the global overcapacity in newbuilds give pressure to the shipbuilding sector. The lack of workforce was brought up particularly concerning the Estonian and Latvian clusters, and there is a need for increased maritime education also in Finland. Regarding shipping companies, the sulphur directive is seen as a major challenge for competitiveness, and the development of the Port of Ust-Luga is also likely to influence the Russian transit traffic volumes currently flowing through Estonia, Finland and Latvia.

The survey and the interviews conducted in the SmartComp project this spring 2013 resulted in a great number of suggestions on what kind of problematic issues should be tackled and what kind of concrete actions should be taken in order to strengthen the competitiveness of these clusters. In Finland, a largely discussed issue was political decision-making which should, in terms of tenders, for instance, be far-sighted in order to support the competitiveness of the domestic cluster. As an example, in the procurement of new vessels, room should be left for financing innovative solutions instead of always selecting the option of lowest cost, and take into account the positive multiplier impacts of having the vessel bought from the home cluster. Moreover, when allocating innovation support and other subsidies, life cycle aspects should be valued and thus support should be given particularly for projects that produce vessels to the nearby seas, later providing further work for the local cluster. In addition, targeted networking events should be increasingly organized for the maritime cluster companies in order to support the sharing of experiences, ideas and contacts.

Political will and radical openings are also needed in order to make the most of the Arctic maritime opportunities. To support the ability of highly skilled companies to engage in international projects, they should have a joint contact point or even an international marketing organization. However, one should not focus solely on the arctic business opportunities as it eventually cannot provide work for all the maritime cluster actors. Instead, at the same time, the development focus should be put on natural needs, such as improving the efficiency of the logistics chains, i.e. the number, specialization and efficiency of ports, the conditions and coverage of railway and road networks, etc. The related developments are relevant to the whole cluster and would result in improvements in its overall competitiveness.

Public R&D funding and the somewhat overlapping research projects received lots of criticism from the interviewed company representatives. Research funding should be reorganized to be less bureaucratic and more

easily accessible for SMEs and international innovation consortiums, and more concrete and profit-resulting projects were asked for. In addition, communication of various project results should be coordinated at some level so that the results would really reach the business and public decision-makers.

Concerning the companies themselves, it was brought up that in order to make it in this global business environment – whether operating internationally or not – one can never rest on one's laurels. Products and services must be developed further and further, and also the business models must be under continuous consideration as “the good old ones” may not be suitable in the globalized industry. Examples of successful decisions within the supplier companies, for instance, include brave internationalisations, establishing various service offerings to supplement the actual product sale, and outsourcing the unprofitable domestic production while focusing on developing the core competences and customer relationships.

When it comes to the Estonian maritime cluster, the main issues discussed concentrated around the educational needs, internationalization support, and political decision-making concerning for instance the purchases of new vessels. In addition, of particular interest was the development of port efficiency as regards the increasing competition with the Russian Port of Ust-Luga. Regarding Latvia, the interview discussions concentrated on national and international networking, the role of public actors and NGOs as initiators of future networks and projects, and cooperation between universities and businesses in increasing joint R&D and education. The Latvians also brought up the need for improving custom services and throughput capacity at Latvian-Russian crossing points in order to support international freight transit.

On this basis, the clusters really share similar challenges and bottlenecks. Consequently, the interviewees were also asked to discuss the potential for increased cooperation within the Central Baltic region maritime clusters. It was brought up that due to the shared challenges, there is great potential for mutual cooperation in terms of joint R&D, repair and maintenance operations, ship conversions, educational cooperation, and EU-level lobbying. As an example, due to the new as well as the forthcoming IMO regulations, the clusters in the region must rapidly discover and develop new technical and infrastructural solutions. This can make the whole region a ‘green forerunner’.

Nevertheless, international political cooperation and support is needed in order to create a concrete policy and vision for the region. An international ‘meeting point’ and the related events should be organized for companies to meet each other and share ideas. Furthermore, through the Arctic Corridor initiative and land connections of Estonia and Latvia, the Central Baltic region should be strongly integrated into the future global freight transport networks as a logistics hub of comprehensive service packages and fluent customs procedures, for instance. Such joint initiatives and development projects would benefit the whole region.

The developments in the whole Baltic Sea region naturally influence the maritime clusters in the Central Baltic region, which thus can never be thought of in isolation. However, cooperation always has to start somewhere. Such

¹ The second SmartComp Research Report was published on the 13th of June and is available at www.cb-smartcomp.eu. The SmartComp project is financed by the Central Baltic INTERREG IV A Programme 2007–2013.

an example in our neighbourhood is the “Scandinavian 8 million city” transport, innovation and cooperation area under development between the metropolitan areas of Copenhagen, Gothenburg, Malmö and Oslo². Consequently, on the other side of the Baltic Sea we should not only sit and wait to see what the global markets will have for us. On the contrary, based on the shared challenges and opportunities, the Estonian, Finnish, Latvian and Swedish maritime clusters engaging in cooperation might definitely make sense in the long run. In addition, Russia’s developing maritime cluster in the neighbourhood is both a challenge and an opportunity, and thus including Northwest Russia into such cooperation activities would add great potential for this international cooperation initiative. Increasing and organizing the international resource and knowledge sharing within this region, both in terms of logistics and shipbuilding, could turn out to be a trigger for increased competitiveness for the region’s maritime clusters.

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² For more information about the project, please visit <http://www.8millioncity.com/index>.

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