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# PERSPECTIVES TO SUSTAINABILITY IN THE SHIPBUILDING NETWORK

## Interview Results of the SUSTIS Project

FINLAND FUTURES RESEARCH CENTRE  
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Turun yliopisto  
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# 1. INTRODUCTION

Sustainability and Transparency in Shipbuilding Networks (SUSTIS) project concentrates on collecting, combining, and utilization of sustainability information of materials and manufacturing processes for creating sustainability based value in shipbuilding. The purpose is to seek and define possible sustainability indicators in the life cycle of the ship.

This interview report belongs to the first phase of the project. The target of the interviews was to create an overview of how different actors in the shipbuilding industry understand the dimensions of sustainability issues currently and what are the possibilities and challenges to promote the use of sustainability information in the near future among the different actors in the value chain.

## **Interview material**

The theme interviews were used as a means to collect information. The value chain of the shipping industry consists of the cruise company, the shipyard and its subcontractors and suppliers. Altogether 15 interviews were done among the representatives in the value chain. First, in order to get an overview of the field, two introductory interviews were done in March 2016, one with Meyer's Environmental Manager and another one in which two representatives from the department of procurement took part as well. Most of the interviews, except two, were conducted in May and June 2016 and most of them were carried out as group interviews. In six cases the group consisted of two persons and in four cases of three to four persons. Altogether 29 people were interviewed of which 18 represented Meyer's different departments. In six cases Environmental Manager of Meyer, Jaana Hänninen, was present in the interview as well. One interview was done by phone and the others were done in the interviewees' workplace. The duration of the interviews varied from 31 to 85 minutes.

All the interviews were recorded and transcribed. The transcribed interview material was read through and coded into four large themes: 1. economic sustainability, 2. social sustainability, 3. environmental sustainability, and 4. challenges and possibilities related to sustainability actions and reporting. When necessary, the themes were divided into sub themes. This report raises forward issues based on the analysis of the coded material. Some of the issues were mentioned in several interviews but there are also viewpoints that emerged only once. The aim has not been to seek consensus but the different aspects that the different actors may have.

Interviews	Number of interviewees
Departments in Meyer:	18
1. Deputy to the CEO	
2. Sales and Design	
3. Investments and Process development	
4. HSE & Risk Management	
5. Human Resources & Administration	
6. Procurement	
7. Project management and - Design & Engineering	
8. ICT	
5 Other companies in the value chain	11
	In total 29

**Table 1.** Number of interviews and interviewees in Meyer and other actors.

The report is organized in two main chapters: the second chapter describes how the three dimensions of sustainability are seen among the interviewees in the value chain of the shipping industry. The third chapter presents challenges and possible indicators related to the supply chain, sustainability reporting and recycling and waste management in the production sites. The conclusions section sums up the main findings.

## 2. DIMENSIONS OF THE SUSTAINABILITY IN THE VALUE CHAIN OF THE SHIPPING INDUSTRY

In the business context sustainability is often defined as a company's responsibility for its economic, environmental and social impacts. Companies' everyday actions produce abundantly sustainability related data that is reported with varying degree. Companies have an impact on the society in the local, national and even global level, and they are to take into consideration several stakeholders in their business actions. This chapter considers economic, social and environmental aspects respectively in the shipbuilding network.

The interviewees were asked how they understand the term sustainability, what aspects they consider important when talking about sustainability, and who they consider as their company's stakeholders. They were also asked about the challenges and possibilities in the field of sustainability actions and reporting in the near future. The themes were discussed in a free conversational manner.

### **Economic sustainability**

In general the economic sustainability is defined to include aspects like profitability, efficiency, stakeholder added value and return on investments. Among the interviewees the exact term economic sustainability was not used that often but the theme was considered more generally as taking sustainable issues into consideration while making profitable business.

In the context of Meyer the economic sustainability came up as it was asked whether the new owner of the shipyard has had an effect on the atmosphere in the work environment. All those interviewees who had worked in the shipyard a longer period discovered that the new owner has had a positive impact on the business. According to the interviewees the fact that the new owner is a family owned company has brought back perseverance and long-term planning to the business in the shipyard. Some interviewees stated that Meyer's business strategy exemplifies economic sustainability. Economic sustainability was interpreted to include especially the long-term view to business which makes it easier for employees in different departments to develop the work processes etc.

*"Now this company invests in quite in a different way in order that this shipyard would have continuity and through that also responsibility and sustainability, actually they go hand in hand."*

As far as the economic sustainability is concerned the trust was seen as a key component for successful business. According to the interviews the new owner has trust in the eyes of the investors and that in turn can be seen in the form of new orders and an investment program at the production site, for

instance. The economic and social sustainability overlap in the field of stakeholder communication. The shipyard communicates actively with the investors and for that purpose the data from social sustainability issues like the accident rates are also used. A special characteristic of the cruise ship industry is that the data related to safety issues, like fire safety, is shared between the shipyards in order to keep the insurance costs in control.

The general notion was made that the fluctuations of demand and the varying times of good and bad years have always been typical of the business in the shipping industry and shipyard owners have adopted different types of strategies to prepare oneself to the changes.

In some interviews it was stressed that the staff is an important human capital for the shipyard. The professional skills of the personnel was seen as one of the crucial reasons for the competitiveness of the shipyard. In several occasions it was mentioned that for some reason building the ships seems to be such a field of work that people do not easily leave it. As the economic situation of the shipbuilding industry varied during the years some have left temporarily but many of them have also come back later on.

*“The shipbuilding expertise never vanished in Turku. That must be said as a merit for the staff that they endured through the hard times to continue to work with commitment.”*

According to the interviews it is not uncommon to have a rotation of work in the shipbuilding industry. It is possible to change the employer from the shipyard to the cruise company or subcontractors and then rotate back again. Those who change the employer for some time get an understanding of the business from different angles of the value chain. On the other hand it is possible to make your career in the shipyard without changing even once your department.

The role of the shipyard has changed during the years. In the past the shipyard itself was the one whose employees made the ship. Nowadays the shipyard is more like a hub or a core of a network which coordinates that the numerous actors cooperate so that the ship is built successfully in a given time. Meyer shipyard has a large network of partners, approximately 900 partners group includes big turnkey suppliers, subcontractors and suppliers of different size. About 15–20% of the value of the ship is made by the shipyard and the rest is bought from subcontractors and suppliers.

The shipyard has got new orders which keep the order book full for several years onwards and as the work load grows remarkably, the good management of the network becomes ever more important. Some interviewees mentioned that from the economic sustainability view the attention is focused on how to communicate to the subcontractors and suppliers what the growing work load demands from all partners. By communicating its' development strategies to the subcontractors the shipyard aims to encourage its partners to expand and develop their business along with the shipyard in the coming years.

## Social sustainability

Social sustainability includes several aspects, like the well-being of employees, health and safety issues, contributions to society in general and the long-term viability of the business. The social dimension of sustainability was addressed with varying intensity in the interviews. Those who had responsibilities in this area in their company considered the issue more in detail. Some others could shortly mention that fulfilling employer's duties like taking care of working conditions or the safety issues are part of sustainability similarly as environmental issues. Employer's responsibilities, health and safety management and stakeholder dialogue were the main topics discussed in this context among different actors.

From the social sustainability perspective the shipyard wants to act for good corporate citizenship. Growing number of subcontractors brings to the shipyard workers of many different nationalities and working cultures. A separate work group that consists of different stakeholders in the supply chain meets regularly in order to prevent the black economy in the shipyard. Part of the network management is to communicate the values of the shipyard, the code of conduct, to all parties working in the production site.

The Meyer shipyard as an employer has some distinctive features: it has an occupational health care of its own and it educates new employees in its own vocational school which is among the very few private industrial schools left in Finland.

Organizing the health care in the shipyard premises has obvious benefits. The public health nurses and doctors learn to know the staff and their working conditions and it makes it easier to support and promote e.g. good working positions. Apart from vocational courses Meyer organizes short courses for new workers. Beside the work related information this education includes some basic knowledge of Finnish culture and customs as many of the workers come from different countries.

Interviewees in different parts of the value chain mentioned that safety issues are monitored and developed constantly in their company. Statistics are compiled on the number of accidents and sick leaves, for instance. The interviews showed that safety at work is in high priority in the shipbuilding value chain and there are companies whose number of accidents is lower than in the field in general.

*"To these sustainability values belong also the well-being of the people and the safety issues. And the safety issues are in a quite good condition in our shipyard... our statistics show that we are quite good at it. For sure we have to continue to work on it, it comes ever more important when we are going to have a harder work load and it brings along more hurry - we must keep going to work for the safety."*

In some of the interviews representing different partners in the value chain it was mentioned that the working atmosphere is good and the personnel has long contracts. In some occasions the term em-



ployment branding was taken into discussion when talking of the future prospects. How to communicate externally of the work in the industry in a way that guarantees new skilled workers even in the future was mentioned as a challenge in different companies.

Many of the interviewees viewed stakeholder dialogue as an important part of all three dimensions of sustainability. The interviewees of different companies emphasized communication with the local community as an essential part of good company citizenship. The aim is to be ready to answer questions that may arise among the local inhabitants related to the production sites but also to proactively give the community members possibility to get to know the company and its products or working conditions. Cooperation with different schools and research institutes were also mentioned in several occasions.

## **Environmental sustainability**

The environmental sustainability includes aspects like the efficient use of primary resources, energy efficiency, waste and water management and recycling. It considers how the company takes into account the impacts it has on the environment.

The interviewees quite often connected the environmental issues with the technology and technological solutions used in the operational phase of the ship. The environmental impacts that the use of the ship causes during its life-cycle are taken into consideration already when planning the ship because there are many regulations concerning different emissions, for example. The aim is also to reduce both the construction costs and the costs during the operational phase and for that purpose many high-technology solutions are developed.

The interviewees had the opinion that as far as the technological solutions are concerned the cruise ships built in the shipyard represent excellent quality. The different actors in the network are capable to find and create solutions that are forerunners in the field.

The environmental friendly high-technology solutions were often linked with the marketing of the ship. However, this was also a point where there was discussion about whether the development work should be based on needs expressed by customer or done proactively. Both strategies can be used.

The environmental impacts of the production sites or the materials used for the construction were mentioned even though more briefly. The use of energy was one example that was discussed, another one the composition of some raw materials.

Some interviewees discussed the challenges with the way how the environmental friendly technological solutions are understood and treated in the media. The main example expressed was the waste and water management in the cruise ships while operating at the sea. One viewpoint occurred repeatedly in different interviews: the ship makes the water it takes off the sea even cleaner during the process it is used in the ship but in the media this technology seems to miss out of attention repeatedly.

In some cases the discussion about the environmental aspects was linked with some pondering on the values of the interviewee. Interviewees e.g. might mention that they value nature high in their private life or they like to wander in the nature and wish to take care of nature for the next generation.

### **3. CHALLENGES AND POSSIBILITIES RELATED TO SUSTAINABILITY INDICATORS**

#### **Who pays for the sustainability?**

One of the key questions that came up during the interviews was: who is the customer? Closely tied to the first question follows the second: who pays the costs if there are extra needs, e.g. in tracking and choosing the materials. These short questions have a symbolic content: every partner in the supply chain from cruise companies to shipyard and suppliers has their customers that can be partly same or different. Every company thinks their role in the value chain from their viewpoint, how to satisfy the needs of their customer and make profitable business. Matters of sustainability are not a separate field but part of this system.

It was noticeable, however, that different aspects of sustainability are considered differently. Issues that are based on legislation and are obligatory, or demand high risk management like fire safety are taken into consideration evenly between different partners. Issues that have a voluntary basis and would require additional economic resources raised more discussion. It was suggested that the standards of sustainability requirements should be discussed and agreed in the earliest possible stage, i.e. already in the negotiation phase of a possible new shipbuilding contract. In that way the economic costs of sustainable actions would get more attention and transparency and it could be agreed how the costs will be covered and shared. The question of possible additional costs concerns e.g. tracking and choosing materials that are used in the ship during the building phase or in furnishing.

#### **Tracking the materials in the supply chain**

It is estimated that roughly 70–80% of the cruise ship consists of domestic work in the network. Still, tracking the supply chains of every single material is very demanding and it was an issue that raised questions and wondering during the interviews.

For some partners and subcontractors it may be possible to show that a certain degree of the materials and products they produce come from local districts. That might be used as an argument of a sustainable production from the viewpoint of using local materials and local employees and diminishing the transportation costs. It did not, however, come up in any interviews that these kinds of arguments would have been used when making contracts.

One interviewee contemplated whether it could be possible to show the customers that the ship has been built in “the fair spirit”. That would emphasize the social sustainability aspect among the suppliers.

*“Maybe we could produce some kind of assurances, that we have acted in this way and our subcontractors are committed to these, the assurances would go to the end user telling that this ship has been built in a fair spirit and no one has been exploited and everyone has got a salary according to these terms.”*

How to track the sustainability in the supply chain is a highly topical theme in many industries at the moment. The crucial question posed is how far the responsibility should extend. That question was raised also in the context of the interviews and no clear answer was discovered yet. One task that is still under way is to discuss how to value the sustainability information and how to be able to compare the information.

*“We have talked a lot how to value this environmental sustainability. If there were a kind of rating system for ships for example, that would be great. There are a lots of eco-labels but how are they really comparable, I don’t know.”*

It is possible that the general regulations will tell in the near future more precisely about the scale of the sustainability responsibilities in the supply chain, meaning that the companies won’t be able to define it themselves. Meanwhile, it is possible to study and experiment whether the tracking of links in the chain in the first, second or even third order could be organized to be a cost-effective and commonly agreed practice for the partners in the shipbuilding value chain and could be expressed as indicators.

## **Reporting**

Many of the interviewees expressed some mixed feelings when it was discussed whether more data could be opened and reported. On the other hand different actors considered that issues in the social sustainability category, e.g. health and safety aspects, can be easily reported from different angles. However, when it comes to reporting sustainability data related to materials for example, more cautious opinions were expressed, mainly for two reasons. In the smaller units, the human resources are scarce and the working hours can-not be used in reporting if that does not give clear profit to the company. In the shipyard, resources are scarce as well but it is also claimed that one should be careful not to create systems that cause you more work than give benefit. According to some interviewees, if new requirements related to material sustainability reporting are created that should be done at the international level in order to not lose the competitiveness if the shipyards outside Europe do not obey the same standards.

A lot of data comes out of everyday actions in the value chain that can be processed and used for different purposes but not all data is considered as being reasonable to make transparent to all. E.g. data related to work processes was considered confidential and not an open data.

European Commission defines corporate social responsibility (CSR) as responsibility of enterprises for their impact on society. According to the Commission, CSR consists of the impact on environmental, social, ethical, and human rights matters. A new EU Directive 2014/95/EU on Disclosure of Non-Financial and Diversity Information will require large companies with more than 500 employees to report on environmental impacts, social and employee matters, human rights, and anti-corruption and bribery topics for financial years commencing in 2017. (Tiensuu 2015, 7) In Finland this new reporting obligation covers about 100 companies, including Meyer and cruise companies for instance.

The new requirements the directive brings along were mentioned in two interviews. It has a connection on issues related to the SUSTIS project as well as it demonstrates that the demand of more accurate sustainability data gathering may be inevitable in the near future. It also underlines the need for more conscious cooperation with different actors in the shipbuilding industry as there are needs in common to be able to make sustainability reports efficiently in the forthcoming years.

Some interviewees expressed the internal communication in the shipyard and in the value chain as a practical thing to develop in the connection with sustainability issues. The inventory hazardous materials reporting for instance was mentioned as a procedure that could be introduced more for all employees in order to help them understand environmental sustainability in practice. When the customs related to sustainability issues are made known more to different actors and their personnel it promotes the understanding that sustainability issues belong to all workers, not only to those whose immediate responsibility they are.

## **Recycling and waste management in the production sites**

The interviewees were asked what they would see as an easy way to develop the sustainability in their company. The recycling and waste management in the production sites got most of the remarks both among the interviewees in Meyer and other actors. Cleaning up the surroundings and organizing the waste management, especially plastics and cartons, more efficiently were considered actions that would produce both direct cost savings and make the production sites more pleasant to work in.

## 4. CONCLUSIONS

In this report it has been shortly described issues handled in the interviews done among the different representatives in the shipbuilding value chain. The aim has been to get an overview how the sustainability dimensions are identified in the value chain and what are seen as the main challenges in the near future. In conclusion the following remarks are made:

### **Communication between the partners in the value chain**

A clear result of the interviews is that the communication between different partners in the value chain is of vital importance in many respects. In order to be able to develop the working processes to rise to the growing work load the shipyard needs a good management of the network. This requires good communication throughout the supply chain. If one wants to include more sustainability information in the construction phase and the materials for instance, the prerequisite is to have open and transparent communication already in the early stage of the negotiations, preferably at the very beginning, with all partners. That enables even the representatives of the subcontractors in the supply chain to plan in advance the measures needed when tracking the materials.

Part of the staff in shipbuilding industry is putting into practice work rotation in the value chain. This creates a special capacity to understand the different viewpoints of different actors and this competence could be integrated and utilized intentionally to strengthen the communication processes between different partners.

### **Cruise ship - the target in common**

Building one complex product, the cruise ship, demands a large network of thousands of workers. Some of the interviewees described that this creates a kind of sense of community to the construction site: after a year-long building process people feel collective pride when the vast cruise ship gets ready to have its maiden voyage and fine-tuning. This joint commitment to the goal in common is possibly linked with the fact that the staff does not easily change the job but stays long in the different companies of the value chain. The task and the challenge are to think how to leverage the joint commitment and motivation to build ships – and how to enable that building in a sustainable manner would be at the core of the commitment. This commitment in itself can be included as part of the social sustainability but it is another question whether it is possible to measure it with an indicator.

The other side of the coin with commitment to the shipbuilding industry among the staff is that there were some interviewees in different companies in the value chain who said that one can ask why we build cruise ships in the first place. This question was further developed by saying that those who work in the business have to face the question whether cruising is a sustainable way to spend a holiday or not. This kind of discomfort that evolves when an individual holds two or more contradictory values at the same time is called a cognitive dissonance and the interviewees dealt with it most often by contrasting cruising with the hotel resorts. They listed the environmental friendly high-technology solutions that are developed in ships in order to organize energy consumption and water and waste management in a sustainable way and had the opinion that the cruising industry deals with these issues better than the hotel resorts. Flights to the starting point of the cruise were considered as an unsolved environmental burden, though.

Developing and communicating actively to the staff different practices that are implemented to promote the sustainability of both the shipbuilding phase and the operational use of the ships can lessen the discrepancy people can feel when thinking especially of the environmental impacts of the cruise ships. Thus the use of sustainability reporting need not be limited to external stakeholder communication, but the process of creation, measurement and reporting of sustainability data could also be used for internal communication.

## **Indicators, the operational environment and future prospects**

In two cases interviewees pointed out that the amount of tourists that choose cruising internationally is still small, about 20 million tourists annually of which US citizens form about 10 million. The number of cruising tourists increases approximately 4% per year since 1980's. In other words there are many possibilities that the demand for new cruise ships increases. On the other hand cruising is just one option how to spend one's spare time and therefore one should be aware of the possible changes of the attitudes towards the cruising among the end customers.

*"There's no real need for cruising, because the people they can, simply decide if they go for holiday on a ship or if they go to land based holiday. So there is not a real, very strong, need for ships. It is just an option beside many other options."*

The interviewees anticipated that the end customers' interest in sustainability issues may grow in the near future. What kinds of effects it would have on shipbuilding remained quite vague, however. This might partly be connected with the observation that the sustainability related issues seem to get a label as something like 'viherpöperys' or do-goodery every now and then among the different representatives in the value chain. It is a challenge for all parties in the value chain to separate what is healthy

criticism and what is a skeptical attitude. The latter one could in best case be altered to a proactive way to rise to the challenges that the industry is possibly going to face in the future.

Another challenge is how the international competition situation evolves in the near future. In order to keep the leading role in the market the actors in the value chain are not willing to open up all kinds of data related to the shipbuilding phase or the operational use of ships. It seems, however, that the new requirements for big companies in the European Union to increase their corporate social reporting may lead to a direction where it is important to be able to consider in a proactive way at what kind of accuracy level the sustainability issues are reported in the future and how this is made possible and measured in the whole chain. These questions extend the responsibility aspect down in the supply chain and underline the good communication and the network management. Creating suitable indicators and tracking practices in cooperation with all parties ensures the commitment to fulfil these measures also in practice. (It is possible to develop e.g. indicators that give weight to local materials etc.)

The Table 2. below puts together the main findings. The present status of the sustainability shows what aspects the interviewees brought forward as essential at the moment. The emerging issues section includes questions that can be raised when thinking of the future of the shipbuilding industry and sustainability issues as part of it.

	<b>Economic sustainability</b>	<b>Social sustainability</b>	<b>Environmental sustainability</b>
<b>Present status of sustainability</b>	Owner's long-term planning as the economic sustainability and responsibility	Health, safety and other regulated issues and employer's duties; Job satisfaction; Dialogue with local community and other stakeholders	Impacts of cruise ships at sea; High technology solutions in the ship to advance environmental sustainability; Waste management and energy use at production sites;
<b>Emerging issues</b>	How to secure or optimize the availability of key expertise as the sector keeps changing? Employment branding: How to attract new people to work in the companies related to shipbuilding industry?	How to share the image of sustainable shipbuilding through stakeholder communication and media? How to enhance the internal communication of sustainability issues within companies?	What and whose perspective to prioritize when measuring the sustainability of the shipbuilding materials and process? For example: who decides whether to emphasize the sustainability of materials that are used a lot or materials that have a high symbolic value (e.g. rare wood)? How to take into consideration the sustainability of the whole life cycle of the ship already in the planning phase and how to share it with all partners?
<b>Emerging cross-category issue</b>	How to manage the costs of sustainability information creation? For example, it is a lot more affordable to focus simply on the recyclability and properties of the physical materials than on the social and ecological sustainability of their production and processing history.		

*Table 2. Sustainability aspects and emerging issues in the shipbuilding value chain based on the interviews.*



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