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Developing Port Sustainability Awareness and Management: Systems, Processes and Planning

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UNIVERSITY OF PLYMOUTH

DEVELOPING PORT SUSTAINABILITY AWARENESS AND MANAGEMENT: SYSTEMS, PROCESSES AND PLANNING

by

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ABSTRACT

Developing Port Sustainability Awareness and Management: Systems, Processes and Planning

Ridvan Anil Karacay

The Port Sustainability Management System (PSMS) is a well-known sustainability management system for smaller ports. Attempting to update and modify the PSMS for more global use, involves standardising requirements and needs and addressing certain areas where necessary. The primary aim of this thesis is to review the suitability of an existing bespoke PSMS with a view to facilitating additional applications in the port industry to enable wider perspectives for self-evaluation in terms of port size, type and governance. In addition, it aims to address the lack of a holistic approach in port sustainability management systems.

The potential impact of this work is a finding that proposals to modify PSMS to suit applications globally, demand a broader perspective of sustainability management than that which suited smaller ports in the United Kingdom. Further, port self-assessments depend on their geographic location, size, type and governance type. The methodology adopted is appropriate to guide future bespoke applications of PSMS globally, which require minor modifications. These ensure reliability in terms of sustainability awareness, management, systems and processes in ports.

To achieve this research aim, nine semi-structured interviews (three in the United Kingdom and six in Turkey) were conducted with selected experts. Thematic analysis is used to analyse the interviews and questionnaires allowing researchers to analyse and modify the current PSMS system.

Whilst gathering data it emerged that each port has different priorities according to its size, type and governance. The results indicated that bureaucracy is a significant issue in the port industry and has negative influence on port sustainability management systems. It has been established through the interviews conducted that culture is one of the factors which needs to be considered, in order to make the PSMS a more worldwide approach to port sustainability management systems.

Future research is needed to sample large sized ports around the world to update the PSMS. Secondly, it is quite important to keep the less developed countries in the equation in order to update the PSMS. The thesis was started before the Brexit negotiations that the United Kingdom has gone through, in the era of globalisation. Future research might aim to assess the influence of regionalism on the port industry specifically with regards to sustainability management systems.

LIST OF CONTENTS

LIST OF ABBREVIATIONS

ABP   Associated British Ports

AGV   Automated Guided Vehicles

BPA   The British Ports Association

CAD   Cornwall and Devon

CCTV   Closed-Circuit Television

CTC   Container Terminal Chief

DEA   Data Envelopment Analysis

EFQM   The European Foundation for Quality Management

EIA   Environmental Impact Assessment

EMAS   Eco-Management and Audit Scheme

EMS   Environmental Management System

EPI   Environmental Performance Indicators

ESPO   European Sea Ports Organization

ESRC   Economic and Social Research Council

FHC   Falmouth Harbour Commissioners

GHG   Greenhouse Gases

GMP   Green Management Practices

HM   Harbour Master

ISO   International Standards Organization

ISPS   International Ship and Port Facility Security Code

KTP   Knowledge Transfer Partnership

M&A   Management and Administration

MCS   Management Control Systems

PA   Port Authority

PERS   Port Environmental Review System

PMB   Port Managing Body

PMP   Port Master Plan

PPI   Port Performance Indicator

PSMS   Port Sustainability Management System

Ro-Ro   Roll on-Roll off

RoPax   Roll on-Roll off, Passenger Ship/Ferry

SAP-ERP   Systems, Applications and Products – Enterprise Resource
Planning

SDM   Self Diagnosis Method

SME   Small Medium Enterprises

TCDD   Turkish State Railways

TDI   Turkish Maritime Organization

TEU   Twenty-foot Equivalent Unit

TOS   Terminal Operating System

TQM   Total Quality Management

ULCC   Ultra Large Crude Carrier

LIST OF TABLES

LIST OF FIGURES

CHAPTER 1: INTRODUCTION

This thesis aims to investigate the systems and processes which ports deploy to investigate and manage sustainability issues. As the largest ports industry in Europe, the United Kingdom hosts over 700 smaller and medium sized ports (Ports UK, 2014). Non-compliance implies cessation of existing maritime operations and vital commercial revenue streams, which sustain local and regional economies. This thesis builds on recent award-winning research, which aims to assist smaller ports in Cornwall and Devon (CAD) to ensure more sustainable maritime operations and development. Subsequently, this will enable them to survive and grow by safeguarding vital commercial revenue streams. The research identified 11 key pillars of sustainability, which were encapsulated into a Port Sustainability Management System (PSMS). This assists port managers to systematically collate and analyse fragmented data, alongside preliminary investigations of the processes, which underpin implementation in smaller ports (Kuznetsov, 2014). This work assesses the planning, processes and systems required to disseminate PSMS beyond CAD, to the rest of the United Kingdom and to Turkey. It is important to note that the United Kingdom and Turkey differ in terms of membership to the European Union, geographical circumstances and their hierarchical structure within the port industry. The thesis aims to modify/update or give recommendations in order to make the PSMS a port management system that can be applicable worldwide.

1.1 Background to the thesis

To date, initiatives to alleviate concerns regarding the sustainability of ports have typically focused on larger ports, and research into marine sustainability has

highlighted particular scientific processes. Further the financial and expertise resource requirements associated with methodologies to assist environmental management often exceed the resources available to many smaller ports and environmental regulations threaten commercial operations. Research began with a case study strategy to investigate the processes of environmental management. Falmouth Harbour Commissioners (FHC) oversees maritime operations in a very environmentally sensitive setting, within a business context, which incorporates the United Kingdom's largest offshore marine bunkering operation (Dinwoodie *et al.,* 2012). Within Falmouth Bay routine maritime operations include anchoring and bunkering. The impacts on specialist habitats have rarely been reported. Research empowered FHC to ensure sustainable anchoring, bunkering and ballast water exchange operations in Falmouth Bay by redefining environmental management as a business process and transforming. Research prompted wider dissemination of more information spanning corporate social responsibilities and sustainability, doubling the value of editorial coverage, creation of a system, and inter-port meetings to discuss best practice. A Marine Sustainable Developments Officer role, later commercially funded and embedded within FHC, provided specialist advice and information which reduced external consultancy fees. Other benefits from this role include, increased publicity, reduced advertising costs, enhanced stakeholder contact and constructive relationships with environmental interest groups. Furthermore, specialist environmental awareness training and materials were disseminated to harbour users and students. The PSMS clarified in Economic and Social Research Council (ESRC) that understanding and documentation of management processes and empowered FHC to ensure compliance, engage proactively with legislators and environmental interest groups, and contribute to good practice.

Beyond CAD, the drivers of sustainability may depend on models of governance including theoretical typologies such as conservator, facilitator and entrepreneur (Verhoeven, 2010: 258). At a practical level, ownership designations such as public, private or trust may define mission statements and influence how sustainability is managed. For instance, the types of commercial port activity, ranging from dry, wet or containerised goods traffic, through passenger and fishing activities to marina and recreational functions may influence sustainability management.

The evidence from a broad range of sample ports in CAD suggests that PSMS is sufficiently flexible to assist at least self-appraisal in different port governance, ownership and activity contexts.

Taking the evidence of CAD ports related to the PSMS as a starting point of reference, the thesis aims to examine the PSMS regards to its applicability into the ports, which are beyond CAD and also beyond the United Kingdom by using Turkey as an initial case study country. In order to achieve the purpose, the research objectives are written below:

O1: To investigate the need for sustainability planning in ports, including environmental planning requirements, governance and mission drivers and stakeholder influences.

O2: To analyse the commonalities of any sustainable development needs in ports.

O3: To compare the characteristics and management processes of any existing systems available to assist port sustainability planning (including PSMS).

O4: To synthesise current sustainability practice in a theoretical sample of ports.

O5: To assess the attitudes of sample port authorities towards PSMS along with their requirements for sustainability planning.

O6: To evaluate the influence of governance systems and other factors on the requirements for PSMS, and its design and implementation.

1.2 Thesis Structure

It is convenient to represent the various "chapters" in the thesis interchangeably as coherent "parts" of the thesis. Chapter 2 of the thesis presents a literature review of: sustainability; mission drivers of sustainability planning; environmental planning requirements; sustainability planning; sustainability development needs in port; stakeholder influences and port governance. Following that, Chapter 3 presents a literature review of: sustainability practices in ports; port sustainability management systems; an introduction to the case study of Turkey and a literature review of the UK port industry under the subtitle of "The UK Port Environment for Small and Medium Ports". Chapter 3 ends by identifying the research gap of the thesis and a conclusion. The literature review was undertaken by considering the research objectives and in order to find answers to those objectives.

Chapter 4 of the thesis presents the methodology and conceptual model that have been applied to the thesis. It continues with an explanation of the research strategy and identifies the reasons why it has been selected for the thesis. Before explaining the literature review of the thematic analysis in 'Adapting Thematic Analysis to the Thesis' section in Chapter 4, the collection and analysis of data and the data sampling techniques that apply to the thesis are presented. Chapter 4 of the thesis presents the selected version of the thematic analysis and how it will be applied to the data that was gathered for the thesis. Lastly, the conceptual model of the thesis is presented in the Chapter 4.

In Chapter 5 there is an analysis of the data that was gathered during the interviews conducted in British and Turkish ports, using the selected qualitative

analysis technique in terms of the 11 pillars of the PSMS. This Chapter ends with potential themes and codes that emerged from the conducted interviews.

Chapter 6 presents a literature review of organisational culture and the influence of cross-cultural drivers. This is significant as culture emerged as an important topic and potential addition to the PSMS.

Chapter 7 of the thesis presents general discussions related to the research objectives of the thesis. The implications for theory, industry, and policy are projected at the end of the Chapter.

Lastly, in Chapter 8, the main conclusions of the thesis are mentioned, and recommendations are suggested. After the main conclusions presented, contributions to knowledge are illustrated. This is followed by a review of limitations and the requirements for future work of the thesis.

The following Chapter explains the theoretical literature review of the thesis.

CHAPTER 2: THEORETICAL LITERATURE REVIEW

2.1 Introduction

This chapter presents a detailed literature review of relevant research under the topics of sustainability, mission drivers of sustainability planning, environmental planning requirements, sustainability planning, sustainability development needs in port, stakeholder influences and port governance in order to review the motives of the research objectives.

Undertaking a literature review of sustainability helps to recognize how the term sustainability has evolved in general and more specifically in the port industry. Finding the similarities which port organisations need to develop is gained from a literature review of sustainability development needs in ports, which provides the answers to achieve research objective 2 of the thesis. Literature reviews of mission drivers of sustainability planning, environmental planning requirements and stakeholder influences are undertaken to assist investigating the need for sustainability planning in ports with a broader aspect. A literature review of port governance provides information of governance systems and their influence on port organisations. This information helps to specify the requirements for PSMS and its design and implementation and the evaluation of these.

After reviewing these topics, the chapter ends with a conclusion section related to the topics that have been reviewed.

2.2 Sustainability

The term sustainability started to be used alongside an increasing awareness that resources and energy are not limitless, and that various industries were causing long-term damage to the environment (Ceylan and Soygenis, 2019: 368). In order to address growing environmental problems, communities agreed that

they needed to find solutions and to address environmental degradation and the negative impacts of human activity (Rasouli and Kumarasuriyar, 2016: 23).

The United Nations' World Commission on Environment and Development defined sustainability and sustainable development in the Our Common Future publication, known as the Brundtland report in 1987 (Adams, 2006: 3; Dresner, 2002: 34).

In the past, large companies have focused more on sustainability issues than small and medium-sized enterprises (SME) as mentioned by Bos-Brouwers (2010: 419). However, SMEs' interest in sustainability has increased, in spite of the limitations facing them (Halme and Korpela, 2014: 560; Hoogendoorn *et al.*, 2015: 762; Rasi *et al.*, 2012: 2555; Williams and Schaefer, 2013: 181).

The impact of human's behaviour was initially emphasized in early definitions of sustainability. Since then, the attention has moved more to organisational issues, business challenges and advantages (as an example Ford and Despeisse, 2016: 1573) and collaboration (Mathur *et al.,* 2008: 605).

Sartori *et al.* (2014: 2) describe that sustainability is a process and mechanism to accomplish the desired sustainable development, whereas Norton (2005: 315) mentioned that sustainability and sustainable development are used interchangeably. Nonetheless, Axelsson *et al.* (2011: 8) pointed out that sustainability and sustainable development are different concepts, stating that sustainability is society's policy vision, aiming to prevent the natural resource depletion and sustainable development is a collective societal process, which involves various stakeholders with different levels of impacts. Additionally, Axelsson *et al.* (2011: 10) maintain that sustainable development helps to establish a balance between protecting the ecosystem and the expectations of human needs. In order to achieve that, three pillars of sustainable development,

which are environmental, economic and social sustainability need to be successfully blended to create holistic sustainable development.

Ben-Eli (2018: 1339) has proposed a new definition of sustainability: "A dynamic equilibrium in the process of interaction between a population and the carrying capacity of its environment such that the population develops to express its full potential without producing irreversible adverse effects on the carrying capacity of the environment upon which it depends".

Zavodna (2013: 7) found the key elements of sustainability, which are usual for most of authors, after searching through all the definitions. The most common principles from the search are: Consideration of future, Protection of resources, Economic prosperity and Connection between environmental, social and economic areas.

Detten (2010) believes that sustainability can be understood in two different essential ways. The first one is that can be determined as a principle, meaning it has more or less definite and explicit criteria or qualities. In this instance, sustainability can be viewed as a label for behaviours or processes for the operational management. Secondly, sustainability is believed to be an aim or a goal which is referenced by moral obligation.

Establishment of sustainability and sustainable development is not definite conceptually. Therefore, concepts of sustainability and sustainable development are not easily understood systematically and regarding their composite segments and their interactions (Lozano, 2008: 1844).

Succeeding in sustainability is similar to having a journey as Lozano (2015) mentions. As with any journey, navigator plays a crucial role in terms of influencing the destination and in what kind of journey it will be. Linnenluecke *et*

al. (2009: 433) support that statement by observing the differences, even in single organisations depending on how sustainability is understood.

The broad definition and widespread comprehension of sustainability offer the researchers who are studying in different disciplines an opportunity to approach the problems from their point of view and help them to reach their own understandings. For instance, Hansmann *et al.* (2012: 451) observe sustainability as an integrative method which studies environmental, social and economic perspectives as three main dimensions. Whereas Morelli (2013: 5) considers environmental sustainability as a "condition of balance, resilience, and interconnectedness that allows human society to satisfy its needs while neither exceeding the capacity of its supporting ecosystems to continue to regenerate the services necessary to meet those needs nor by our actions diminishing biological diversity."

The main concern of the environmental sustainability is that limiting human actions within the carrying capacity of the ecosystem (materials, energy, land, water) overcoming in the locality and quality of human life. Using resources efficiently to achieve a successful operational profit and to increase market value while re-using and recycling resources, are economic sustainability concerns. While social sustainability considers the well-being of the populace, balancing the requirements of a person with the needs of the group; an awareness in public cohesion, and lastly, involvement in local labour and companies (Olawumi and Chan, 2018: 232).

The economy is an important condition for the society which is definitive from the social relationship perspectives. It is the point of showing the importance of relationship between the economic and social sustainability. Even though the Brundtland Reports is criticised for not covering social sustainability well enough,

the term of "needs" is not only about physical needs, also includes cultural and social ones too. Even though social sustainability is the least focused upon, compared to economic and environment sustainability, involvement of social perspectives in the sustainability definition is important. Not having a clear definition for social sustainability and not offering tangible results, unlike the other two, could be reasons why economic and environment sustainability are prioritised (Ceylan and Soygenis, 2019: 371).

As it mentioned above, there is no definition of social sustainability, or the definitions influenced according to discipline-specific criteria not from general perspectives (Weingaertner and Moberg, 2014: 123). Griessler and Littig (2005: 75) put "work" priority within the relationships between society itself, nature and economy: "Social sustainability is a quality of societies. It signifies the nature-society relationships, mediated by work, as well as relationships within society. Social sustainability is given, if work within a society and the related institutional arrangements (1) satisfy an extended set of human needs and (2) are shaped in a way that nature and its reproductive capabilities are preserved over long period of time and the normative claims of social justice, human dignity and participation are fulfilled". Several studies have been conducted in order to specify the indicators or principles of sustainable society (Weingaertner and Moberg, 2014; Griessler and Littig, 2005; Hansmann *et al.,* 2012; Kim and Kwon, 2018; Dempsey *et al.*, 2011; Pope *et al.*, 2004). At the same time these studies give indicators for the topic of community quality.

Protection of health and safety, education and free individual development, sustaining cultural and societal values, juridical equality and certainty and solidarity between and within generations are the objectives that Hansmann *et al.* (2012: 458) point out for social sustainability.

In the meantime, a number of studies (see Akinade *et al.*, 2015; Althobaiti, 2009; Forsberg and von Malmborg, 2004; Gao *et al.*, 2015; Huang *et al.*, 2010; Wang *et al.*, 2015) have been conducted to involve technological and innovative solutions to progress the concept of sustainability and sustainable development. In waste management and other decision contexts, sustainability assessment has developed to be a fundamental approach to guide decision-making process (Kaufman *et al.*, 2010; Wagner, 2011; Menikpura *et al.*, 2012; Aparcana and Salhofer, 2013). On the other hand, considering the involved stakeholders' perspectives is still a big issue in order to have solid applications, which are created for real decision issues.

Creating sustainable development ideas involves the use of indicators as tool which reflect the progress or failure of national strategies and policies to achieve sustainability goals. Testing these indicators with a different viewpoints filter can help to assist on improvements in terms of for globalised society in terms of knowledge, technological progress, education and popularisation of important components of the sustainability concept (Bastianoni *et al.*, 2019: 69).

If researchers realise the temporal dimension which is a dimension that says natural, social and economics dynamics usually ensue at a different speed, it is possible to set the multidimensional perspectives of sustainability together to create a required model. Policy can influence on the economy faster than the effect on environment where several human generations needed to manifest in. Society is in middle between those two topics, with either quick dramatic reactions such as riots, strikes, or something relatively more gradual, such as changes in mortality levels (Bastianoni *et al.*, 2019: 71).

The holistic approach to the sustainability should be studied when expanding the environmental analysis to the social and the economic perspectives too. This

expanding approach will assist in analysing the issue on a wider scale, rather than concentrating on one aspects of the sustainability.

The different views as mentioned above about the sustainability shows its complexity and also point out that sustainability is widely defined (Agyekum-Mensah *et al.*, 2012). Therefore, it can be said that there is no common understanding of the term: sustainability. Consequently, there are several studies and projects undertaken by initiatives and organisations to examine ideas, practices and standards in order to reach a sustainable world. One of these studies, which is known as Brundtland Report, is helped and used in this thesis to define sustainable development as "the development that meets the needs of the present without compromising the ability of future generations to meet their own needs" (WCED 1987: 15).

2.3 Sustainability Development Needs in Port

Over the past decades, due the increase in globalisation, industrialisation and urbanisation, seaborne commodity trade has experienced a phenomenal growth period. The crucial part of changing a port's function is that the process of change should be executed before the construction is finished. . If this is not the case, it is very difficult to change. Hence, the issues of relieving pressure on demand and the environment, sustainable development and scientific management are playing crucial roles in a port's investment, construction and operation (Xiao *et al.*, 2016: 84).

Ports are being struggling with a more challenging regulatory framework after port policy aligned with transport policy, and in specifically with government policy in terms of sustainable development. Gilman (2003: 275) indicates that government is prioritizing sustainable transport. Therefore to address

environmental issues, ports themselves need to determine market requirements and the financial viability of any development projects.

During the early years of the 21st century, policies have been created which have focused on sustainable development in ports. Pettit (2008) examined the port development policy, specifically the modifications made with regard to its role in creating sustainable growth in British ports. Gibbs *et al.* (2014: 343) pointed out the effort ports are making to decrease shipping emissions may have an impact and prove more effective than previous port operations. The identification and selection of Environmental Performance Indicators (EPIs) are taken care of by Puig *et al.* (2014) for sustainable port management for port authorities. Acciaro *et al.* (2014: 6) mentioned that number of port authorities is increasing day by day which are developing energy efficient projects targeted at observing and accordingly decreasing greenhouse gas emissions in seaports. Several port organisations have entered the "Eco Partnership" programme to increase sustainable growth. Renewable energy will be the only resource for HHLA's Altenwerder terminal. Additionally, replacing the IC-powered automated guided vehicles (AGV) with electric vehicles (Green Port of Hamburg – Combining economic growth and sustainability) is the plan in their port organisations.

There is lack of comprehensive studies about the positive and negative influences of ports and cities in their relation. Current studies usually analyse the port systems and the urban systems on their own not attempting to combine the two systems. Therefore, understanding the sustainable port city development from the regulatory and policy changes perspectives in needed (Xiao and Lam, 2017: 256). In order to achieve long-term evolution of port city development, policy makers need to remember that relationships are dynamic which would change over time therefore policy makers consider these circumstances for this

purpose. In order to achieve win-win scenario for city and port system, there is a need of holistic approach to help integrating port-city planning. Social and environmental issues should be examined too while considering the economic aspect for sustainable development of a port city. Focussing only economic aspect and ignoring the social and environmental perspectives, which eventually influence economic loses such as compensation and penalty fees, would be a narrow mindset (Xiao and Lam, 2017: 260). In order to lead into economic benefits, the reputation of a port city as 'green', with a healthy environment to live in, plays a crucial role.

Several studies analysed the use of environmental variables in the port sector, for instance; the 'ESPO/Ecoports Port Environmental Review 2009' launched by the European Sea Ports Organisation (ESPO) and the Ecoports Foundation. Result of the survey, which is by 122 ports from 20 European Maritime States, shows that 60% of the port organisations have recognised environmental variables show trends in performance environmentally (ESPO, 2010). On the other hand, when these environmental variables were named by port authorities to port organisations, there were 100 different variables. This survey leads to result that even though awareness level of ports is increasing on environmental indicators, there is no standard technique in terms of adopting indicators related to the environment. Although port authorities have differences in their conditions compared to port organisations such as their size, geographical surroundings, operation profile and administration, they share some common needs. These are meeting the demands of economic and industrial operations with sustainable development, obeying with legislation and cost and risk reduction (Puig *et al.*, 2014: 129).

Robinson (2002: 241), Zhang *et al.* (2014: 367) suggest that isolating the different transport applications as the shipping industry must stop. They also claim that fostering the collaboration between the actors in different industries is becoming more common and crucial in the time of supply chain management. As an example, because of weak collaborating between the actors in the Indian shipping industry, it has remained divided and has limited consolidation which has been a significant factor in lowering its competitive position in terms of maritime transport activities, when compared to other players in the industry (Venkatesh *et al.*, 2017: 375).

In the short term, resorting a new terminal and overtime working are the options for container ports to handle with higher volumes of cargo and shipping traffic. However, this would lead to an increase on management costs and difficulties. Hence, Xiao *et al.* (2016: 95) believe that short-term forecasts are crucial for the container ports and port operators in order to control and schedule a traffic-handling system, and decision-making and planning processes respectively.

Port operations are a relative burden for port cities; hence, several ports have begun integration of solutions for the transport externalities problem (Kotowska, 2016: 241). Port municipalities' level of awareness has motivated them to build educational institutions and campuses for students interested in the technical perspective of the port industry. They have also collaborated with companies which now provide training, job opportunities and internships. In addition, collaborating with universities and schools of port planning can be seen as examples of integrated solutions.

Planning for mutual benefits for short and long terms, specifically keeping the strategic collaboration with shipping lines are the areas that port authorities and business partners to focus on. Additionally, analysing risks, sharing the common

lessons and precautionary answers as partners in order to cooperate in external environmental management.

It is also mentioned that port authorities support shipping companies' involvement in addressing environmental issues and making a collaborative effort to solve them. Port authorities and shipping companies can cooperate through business meetings; periodical government authorities/agencies; conferences on environmental improvement; the implementation of rules and regulations and campaigns (Roh *et al.*, 2016: 112). Giving incentives to shipping companies whose activities reduce environmental damage through non-profitable waste disposal by port authorities can also be a good option to achieve the target of reducing harm. Being reliable and trustworthy from customers' point of view is crucial to generating interest and to do business with port organisations, where a good public reputation plays a significant role. Participation in charity programs around the city and neighbour areas, offering internships to students and offering support to local social communities in their activities can be seen as tools that port organisations can use which will help to strengthen them economically and enhance their public reputation.

2.4 Sustainability Planning

Topic of sustainability planning as a study topic is getting attention from governments and societies with an increasing interest (Roper, 2012: 74), from organisations aiming to gain competitive leverage in different industries (Kriese and Scholz, 2011). Partidario (1996: 32), Van den Berg *et al.* (2007: 87) mention that studies on sustainability planning are about significance of public policies regarding the environment. In addition to that, work done by Johnson *et al.* (2004: 142), has determined sustainability planning as crucial for organisational success and its efficiency.

In some specific circumstances such as seaports, efficiency and sustainability are needed at the same time in order to be successful in the industry, which emphasises the importance of sustainability planning (Casazza *et al.*, 2019: 1350).

Schipper *et al.* (2017: 102) in order to generate a growth in job opportunities, human equality and integrated port-city planning, advanced sustainable port management plans need to focus on social measures. In some cases long-term port analyses have concluded that there are no clear sustainable objectives and aims linked to social aspects. Ports, which show effective environmental growth, focus on the implementation of integrated policy action on green plans and the enforcement of environmental law and adaptation of green infrastructural priority. Environmental sustainability plays a crucial role in the preservation and balance of human and ecosystem health, where social and economic sustainability are important criteria for the integration of cities and their ports (Casazza *et al.*, 2019: 1350). It is possible to support the transition of urban areas and ports into becoming more environmentally sustainable, while maintaining economic benefits and the efficiency of their operations. The public's acceptance of any changes and the involvement of stakeholders need to be considered.

Casazza *et al.* (2019: 1349) state that environmental data play a major role within strategic planning for ports in order to achieve their goal which is that port areas should be coupled with cleaner production and sustainable consumption sites. While trying to achieve those aims, the other dimensions should be integrated/involved in the process such as port employment, cargo growth in order to evaluate the sustainability of port performances.

Sustainable solutions planning needs a more complex approach due to variety of exposed targets and the implications on the ecosystem in port cities. Air and

water pollution are the major impacts of ports with their effects on infrastructures maintenance and upgrade (Peris-Mora *et al.*, 2005: 1656). On the other hand, there areas showing a great potential for development, represented both by a combination of port's economic, logistic and industrial activities and by specific cultural features (Girard, 2013: 4330). Daamen and Vries (2013: 12), claim that current governance procedures which are dominated by laws and regulations, are likely to limit the effectiveness in terms of sustainable managing outcomes in such contexts. Acciaro *et al.* (2014a: 482) suggest that real sustainability can only be reached by taking into account the stakeholders in the port sector, and their demands. Therefore, the aims of sustainability planning involve consideration of various factors which include, but also go beyond the environment.

Schipper *et al.* (2017: 105) state that port integration within cities is essential and that people, planet and prosperity (PPP) can be the three keywords behind the implementation of sustainability planning for the future development of port-cities. Shaw *et al.* (2014: 48) claim that approaching sustainability holistically may help to address climate change and support collaboration with local political and economic cultures.

In summary, sustainability planning provides the chance plan beyond just the environmental pillar to essentially reorient the municipality economic future. Specifically, the space for reinvention is created by the long-term frame (Tozer, 2017: 191). Considering diverse interests with the help of involving the definition of sustainability itself, will assist in guaranteeing that sustainability planning departs from reinforcing embedded and unsustainable interests. For the future, more studies are needed to address the increasing interest in social and cultural issues.

2.5 Mission Drivers of Sustainability Planning

Even though sea transport is commonly believed to be environmentally sustainable, sea transport activities influence port activity in terms of sustainable development conditions (Peris-Mora *et. al.*, 2005: 1649). In the late twentieth century, the environmental sustainability concept became familiar and it is still influencing transportation engineering design and practices of management (Kaiser *et al.*, 2013: 78).

Sustainability includes cultural differences, management of conflicts, political associations, stage of economic development, generation and distribution of knowledge, development in technology side among others (Kaiser *et al.*, 2013: 78). Hence, these various factors as mission drivers lead the port industry to set a sustainability planning for their organisations in order to achieve their short/long term aims.

Economies globally are requesting more efficient operations from the shipping and port industry, especially ports (Bergantino *et al.*, 2013: 39). Whilst examining the managerial strategies and port planning, information on port efficiency and its development is crucial at local and national levels. This might impact the port structure in terms of governance (Verhoeven, 2010: 253). Current market and industry situation, which is exampled above in the paragraph, forced the port organisations to answer these expectations with a clear sustainability planning process in order to be competitive in market or to stay in the highly competitive industry.

Under the popular service port model in the United Kingdom, port authorities have broader responsibilities, from investment and operations to maintaining maritime access routes. The port could adopt a competitive role if this suits its financial objectives, strategy and business culture as a Port Authority. Apart from the Port

Authority's organisation, strategic planning and its implementation, if managed by a single management, will improve the port's position (Hoshino, 2010: 45).

Sustainable development in port operations spans 'business strategies and activities' to accommodate current and future needs of the port and its stakeholders, protecting and sustaining human and natural resource (Denktas-Sakar and Karatas-Cetin, 2012: 304).

Environmental management is becoming popular and used as a crucial element in the business plan, which aims at being sustainable, efficient and conforming with legislation. Finding solutions for environmental, safety and security issues needs to be done for daily port activities, and also to get their stakeholders support for port development (Puig *et al.*, 2014: 124) are the mission drivers for sustainability planning to be involved in port activities.

Many different stakeholders have the power to exert pressure on the port management bodies, which guide the port's current market position and its strategic planning phase. The most influential sources are the local port community and the 'global players' (Moglia and Sanguineri, 2003: 423). Even each stakeholder has different interests and needs, but by offering the same goals for all stakeholders such as technological innovations, ports can encourage all stakeholders to collaborate. It might lead to more sustainable regional growth and development (Lam *et al.*, 2013: 37).

Strategies that have been implemented by large ports can also be used for smaller ports to become more sustainable in the organisational process. Whether strategies are relevant to a port depends on its characteristic conditions. Sustainability practice in Northeast Asia's container mega ports including Shanghai, Busan, and Hong Kong provides exemplars to raise managers' awareness in resource-starved smaller ports (Kim 2014: 252). It is essential to

assess specific ports especially smaller ports because of their high economical risk and fund issues (Hernández *et al.*, 2012: 56). Due to financial and budget issues faced by smaller ports, the importance of the sustainability planning is increasing in order to reach their sustainability goals with their limited financial conditions.

Globalisation processes are major transformation drivers for urban ports, affecting both the structure and the functions and the dynamics of these areas, as well as of the surrounding cities. On the other side, ports cannot be viewed as separate from the surrounding environment. A city and its port usually developed at different rates but today these two structures encourage each other to develop by having all-embracing planning programs (Morel *et al.*, 2013: 39). Port activities progress in a continuous way, which usually proceeds independently of a city's development aims and vision of its development (Morel *et al.*, 2013: 45). Professionals and researchers try to develop innovative methods and tools to shape the future sustainable city and it is essential to implement these in port cities (Morel *et al.*, 2013: 40). To achieve the aim of future sustainable cities, sustainability planning can assist in establishing a win-win scenario for ports and its cities in a more balanced environment in terms of development. In some cases however, there is a lack of common vision between a city and a port, which means that there is no shard plan for development and port activities progress independently of the city.

Port planning and the port management have usually trusted numerous methods of forecasting and economic planning to direct their policy for port development. An outline for stakeholder relationship management provides policy makers, port operators, and decision makers with a structure to analyse the numerous

relationships with stakeholders and to show how they are included in terms of port activities and port development (Henesey, 2006: 101).

In summary, as examples and circumstances mentioned above, there are different mission drivers from several areas such as environment, finance and technology that to realise the need of sustainability planning in order to help port organisations to reach their sustainability goals environmentally, financially and socially.

2.6 Environment Planning Requirements

The fundamental job of a port is to run facilities to receive/dispatch and offer efficient handle operations for the projected cargo from or to the different size vessels which are the using ports. To meet these responsibilities, a port needs to have a Port Master Plan (PMP) which provides guidance for future development, reserving facility space where it may be needed in the future while considering regulatory, social and environmental requirements (Taneja *et al.*, 2010: 223).

Erdas *et al.* (2015: 719) state that overall environmental aims and consistency with the environmental policy which is set by port organisations play a crucial role to define port organisation's environmental objectives. In order to reach aforementioned objectives, detailed quantified performance requirements to test the applicability of the targets emerging from the environmental objectives, need to be set to meet expectations. In order to achieve this, a viable prioritisation strategy is needed for assigning the realistic objectives and reachable targets where PMP can assist to the strategy process.

Taneja *et al.* (2010: 223) mention that the life cycle of PMP to assists port organisations is between 15-20 years. The PMP requires systematic reviewing and updating but in most cases, updating is ad hoc. Even though the PMP is assisting for long term planning, short-term measures are more often than the not

unrelated measures in area of the Master Plan. Port planning is a multi-disciplinary action which involves engineering, transport, economics, shipping, nautical matters, safety and logistics topics.

Darbra *et al.* (2009: 1397) studied twenty-six European ports to understand and define the requirements of the port in terms of environmental information. In-depth research examines port profile descriptions, environmental management activities and requirements and monitors existing practices which show the variety of environmental performances in European ports. The European Sea Ports Organisation's (ESPO) green guide, published in 2012, is representative of port authorities, associations and administrations of sea ports of the Member States of the European Union and Norway. The definition of the vision towards sustainability in port areas from the European port perspective is included in this research. The environmental policy of the European port authorities has been reshaped and they have committed themselves to work constantly to increase their awareness and their environmental performance. Additionally, results from the research show that using a resource accounting tool, for instance the EF, is crucial to environmental planning as it quantifies and reveals the importance of the impact ports have on the environment.

Dooms *et al.* (2013: 15) explain that port authorities, who are responsible for strategic seaport planning, must distinguish between the goals and preferences of the different stakeholder groups. Port authorities balance the day-to-day efficiency in terms of port operations and implementation of long-term port development plans efficiently.

Acciaro *et al.* (2014a: 482) have mentioned the need for a framework to analyse the effectiveness of seaport innovation in terms of environmental sustainability, which can be an option for the environmental planning requirements.

Peris-Mora *et al.* (2005: 1650) state that examining seaport pollutions can play an important role as an indicator to develop sustainable environmental management system.

Inclusion of stakeholders' concerns about port management and plans has been a topic of debate, but only from the environmental point of view. Whereas social-cultural concerns from local communities have been paid less attention (Rothenberg 2017: 120; Jansen *et al.,* 2018: 937).

In the early 2000s, involving the stakeholder management in the port industry started during a time when port authorities faced protests against their port development projects, particularly in Europe and specifically because of environmental concerns (Dooms *et al.*, 2019: 592). From this point of view, including stakeholders and their concerns into the planning processes of port infrastructure became very important and has given port management an opportunity to become a bridge between the stakeholders' concerns, opinions, interests and motives and the port projects and port organisation.

Researchers, practitioners and financial organisations have endorsed the environmental and social impact studies and mitigation plans (ESIA) as a crucial tool to endorse developing sustainable infrastructure with including ports (van Zyl, 2015). Coutinho *et al.* (2019: 461) and Slinger *et al.* (2017: 290), mention that participation of stakeholders with their concerns and motives help to clarify and capture issues in terms of environmental and social perspective by being involved into the port infrastructure project processes.

Clarifying the socio-cultural issues of local stakeholders is crucial in facilitating sustainability in terms of social aspects (Nebot *et al.*, 2017: 171; Jansen *et al.*, 2018: 930). Therefore, when port authorities rank concerns of the stakeholders in their plans and decisions, it can lead to a quality decision making and avoid

the conflicts over social and environment concerns (Dooms *et al.*, 2013: 21; Parola and Maugeri 2013: 118).

An environmental management system is a requirement for environmental planning. To start with, Environmental Management System (EMS) is a management system which offers a comprehensive, systematic, planned and documented processes for the organisation's environmental programs. EMS contains the planning and resources with the organisational structure required in terms of development, implementation and maintenance policy for environmental protections (Sroufe, 2003: 417).

ISO 14001 is another system that can be used to address environmental planning. It assists seaports in developing an environmental policy, settling objectives and processes to achieve policy commitments, and helps port organisations to act accordingly to increase their performances (Erdas *et al.*, 2015: 719).

From the researcher's perspective in understanding the key parts of ISO 14001, the main steps in implementing ISO 14001 include (Mohee *et al.*, 2012: 11):

(1) establishing environmental policy,

(2) planning processes that consist of identification of all relevant activities that are likely to affect the environment, and in the present context with regards to solid waste generation and management within the port area at PLH, collection of related laws, regulations and/or conventions, identification and setting of environmental management goals, and finally detailed planning of processes on how to accomplish each goal,

(3) implementing the environmental management plans by establishing an optimal organisational structure to determine, who is responsible for a particular issue providing education and training to relevant staff for effective capacity

building, constructing robust and reliable database related to environmental management and solid wastes generation and flows,

(4) checking and correcting the implementation of the environmental management systems and

(5) reviewing the management in order to adjust the management system.

As an example of implementing EMS to a seaport, Limassol port from Cyprus can be a good sample. Cyprus Port Authority updated an EMS in regard to the ISO 14001 standard in order to continuously improve its environmental performance at Limassol seaport. Limassol seaport authorities have been involved in the process by developing a specific procedure to clarify the environmental issues arising from their activities and deciding on which issues could have a crucial impact on the environment. Having targeted objectives and goals is significant for the seaports in terms of a comprehensive environmental management plan which is a must for environmental planning as requirement (Erdas *et al.*, 2015: 723).

According to Barnes-Dabban *et al.* (2017: 568), increasing attention towards port environmental risks and with the development of environmental risks mitigation strategies, have resulted in the institutional reforms of West and Central Africa (WCA) ports. For the WCA ports, British model ports, which are more flexible politico-administrative arrangements that provide the involvement of new players and mechanisms from the applying reforms perspective, are a better option than French model ports, which are more centralised and hierarchical arrangements in order to pursue environmental reform in an ecological modernisation mode. Therefore, in order to achieve environmental reforms, offering the British model ports is crucial to improve environmental reforms. This makes WCA ports a helpful example to show that it is significantly important to become familiar with

port organisation and find the best option to suit your port, before embarking on environmental planning.

Furthermore, from the perspective of environment, there is a requirement to reconsider the port operation efficiency and policy expansion directions specifically related to the Ship Energy Efficiency Management Plan, to manage both sectors to increase performance in the liner shipping and port industries in terms of the environment (Moon and Woo, 2014: 459).

2.7 Port Governance

Widespread literature on port governance shows that there is no perfect model for port governance but the landlord model which combines public ownership and private operation, seems the most desirable model. One of the issues which needs to be resolved is to determine how to divide port ownership between the public and private sectors. The public governance perspective is viewed as traditional governance either locally or nationally, where each country has its unique balance. For instance, a semi-independent port authority governs the most part, but is subject to port policy where port authorities need to include approvals regarding investments and obey planning regulations (Monios, 2019: 26).

Brooks *et al.* (2017: 5) highlight that devolution of responsibility, deregulation and privatisation are significant areas for the evolution of port governance. Causality between port reform and port performance should be settled more clearly by model building for generalisation even though port governance diversification remains as the central policy and its operation being privatised (Shinohara and Saika, 2018: 56). Port governance structure in Marseille, where port management and operation have been divided and the latter is privatised, has been examined by Cariou *et al.* (2014: 438). They mention that there are shortcomings in this

strategy such as the single-minded economic focus and lack of social responsibility.

In many countries port governance is understood as a desirable effort in devolving powers to port level by involving private players more than before. The perfect model Brooks and Pallis (2011: 494) mention that the perfect model for port governance is an illusion. Brooks and Cullinane (2007) examined ports in 14 countries in terms of port governance and they concluded that there are almost as many models as there are ports.

As a general description of port governance models, Table 2.7.1 gives a brief information about the governance port models (Private – Landlord – Tool – Public) including the countries where they apply and their strengths and weaknesses.

Table 2.7.1: The Main Port Governance Models. Source: Ferrari *et al.* (2015: 61)

Governance model		Some applications	Strengths	Weaknesses
Private Port		New Zealand, Australia, United Kingdom	Flexibility, market oriented	No vision for the community and local development
Landlord	Latin tradition	France, Italy, Spain	Community and local development oriented, PPP development	Rigidity, bureaucracy, scarce proactivity of the PA
	Hanseatic tradition	Belgium, Germany, The Netherlands	Community and local development oriented, Flexibility, PPP development	Possibility of having a limited vision for the local development
Tool Port		South Africa	Central planning, private involvement	Rigidity, absence of private partnerships (PPP), public financing
Public Port		Ukraine, Israel	Central planning, Coordination among various national ports	Not market oriented, rigidity, absence of PPP possibilities, heavy bureaucracy

In order to enlighten specific port governance arrangements, some studies have provided a pragmatic understanding of port governance by focusing on empirical proof, where the notion of embeddedness seems to be a significant analytical filter (Parola *et al.*, 2017: 90).

Specifically, Debrie *et al.* (2013: 64) identify that effect of global trends and local specificities combination in the governance model evolution leads to the territorial trajectory emergency of reform at different levels. This condition is occurred by local reactions to national and worldwide changes which can be segmented in relation to the effects crated by such interactions on port governance. Debrie *et al.* (2013: 59) suggested the taxonomy which outlines:

(1) path follower ports, where local forces are weak and the implementation of national changes is fairly easy,

(2) path adaptor ports, where local forces impose a local adjustment on the national framework,

(3) path resistant ports, where local inertia and lock-in effects provoke frictions and conflicts, and thwart or slow down the implementation of national reforms,

(4) path leader/pioneer ports that are triggered by local forces to generate innovative solutions in port governance, project funding, marketing and inter-port coordination, thus reaching beyond national reform changes and/or anticipating innovative trends.

Academics in the port management field have started to rethink the deterministic aspect on lock-in effects and used the institutional plasticity notion to settings of port governance and PAs (Notteboom *et al.*, 2013: 26).

The complexity of the overall port governance reform process is studied empirically by Ng and Pallis (2010), showing the way of integrating general solutions in specific territorial contexts, handling the changing from pre-reform settings to port reform conditions by decision makers.

In the port governance literature and future studies, it should be kept in mind that "the concept of governance has many meanings" (Vieira *et al.*, 2014: 645).

Port governance is a term that usually being used to address to the problems of ownership, pricing, investment, as well as the responsibility division and liberties between various players in maritime ports (Merkel and Slok-Madsen, 2019: 32).

Brooks and Pallis (2011: 512) have provided a relatively complete definition of port governance, which is that "governance is the adoption and enforcement of rules governing conduct and property rights …... in the case of ports,

governments, or other relevant policy makers, usually impose governance structure with particular national or regional policy objectives in mind …...".

Vieira *et al.* (2014: 657) propose that there are four simple questions surrounding port governance despite having done extensive analysis of port governance. The four simple questions namely are: who governs, who is governed, how it is governed, and lastly, for what purpose? These questions have yet to be answered. In order to fill the related gap, an intensive review study by Zhang *et al.* (2018) has answered the first two questions of port governance, mentioned above. Zhang *et al.* (2018: 59) clarified that port organisations and governmental organisations are the main governing bodies. They identified 12 different groups of specific port activities, categorised within five segments which represent the governed areas in terms of port governance.

The evolution of port governance model, involving trends like devolution and regionalisation policies, has been enhancing the autonomy of port authority and responsibility, assigning them a broader job description beyond the port itself (Verhoeven, 2014). The port governance model should guarantee efficiency and effectiveness in operations to the satisfaction of customers and port users, a reduction in costs and high-quality services (Brooks and Pallis, 2011: 504; Onut *et al.*, 2011: 182).

Important port governance related terms may have various boundaries such as the boundaries of what constitutes a 'port' and where 'port' ends are not easy to find out (Vieira *et al.*, 2014), where the hinterland is a topic for port economics studies (Notteboom and Rodrigue 2005; Notteboom *et al.*, 2013).

The port governance model change is a challenge for PAs, which is emphasised by the increasing involvement of private companies in the port terminal management, which is a result of the concessions. Competitiveness, productivity,

dwell time of ships and cargoes in the port and lastly, in the port information systems development connected to the logistics networks are the positive impacts of the change (Caldeirinha *et al.*, 2016: 17).

Wu *et al.* (2016) recognised that one of the problems has not been extensively studied to date. This is the influence of local governments on port investment from the day when port governance is decentralised and accordingly, the local governments can exercise more autonomy in port decision-making processes.

Ng and Pallis (2010) examined the Rotterdam, Piraeus and Busan ports and have a result that players are rooted within a country specific 'political culture', which is an explanation why port governance reforms outcomes are different.

In terms of shaping up of the postreform port governance structure and functions in these ports, Tongzon *et al.* (2015: 1478) believe that institutional framework and traditions are playing crucial roles. Additionally, proposition that port governance is strongly linked with the integration process dependent on the choices that are settled by the wider institutional framework in which the economies have developed, is confirmed by the study. It showed how and why various institutions influenced the integration process and asymmetric outcomes in the structure and PAC functions by focussing on the influence of political culture on institutional development.

Lee and Flynn (2011: 792) noted that the Anglo-Saxon model is chosen for the United Kingdom ports in order to reach the overall goal of profitability, as opposed to the European model approached by somewhere else in Europe that 'views the port as a part of the social infrastructure for the national economy'. Additionally, from different views apart from these two different adoptions, the Asian outlook differs in that it sees noteworthy investment to manage and encourage economic growth (Pilcher and Tseng, 2017: 986).

As Wang *et al.* (2012: 404) noted about Hong Kong as an example, the latest political changes in the region signified it was 'compelled to undergo strategic changes' in terms of its port governance.

Ferrari *et al.* (2015: 61) state that there are Latin and Hanseatic models in terms of port governance, which have more central government control over PA operations and are more controlled by municipal government respectively. Maritime activities dependent on where it takes geographically. For instance, maritime activities are related to the living space, and in France, importance is given to 'the heritage aspects of the living environment', whereas in the Netherlands, 'national strategy choices are guided by the concept of "entrance gates" which elevate the status of the two main ports' (Debrie *et al.*, 2013: 61). On the other hand, in example of Canada, port authorities are focussed on more about port infrastructure to work with private firms (Ircha, 2001: 134), and specifically to increase the level of collaboration in the aftermath of the recession of the early twentieth century (Heaver, 2015: 279). With the new trend, Chen *et al.* (2017) mention that Australia is changing to a private/public governance model, where in Cyprus, several concession agreements are used (Panayides *et al.*, 2017).

In the landlord model the PA is responsible for the management and planning of the port areas with the aim of increasing traffic growth, social and economic wealth (Van Hooydonk, 2002; Meersman *et al.*, 2009).

Many of the European countries have modified their regulation with the aim of keeping pace with evolving market requirements. A few countries have adopted the pure public governance model and Ukraine is one of the main examples in Europe. As in this example of the model, central and/or local governments are in charge of port strategy, and competition between national ports is very limited.

Moreover, because private companies are not allowed to become involved in port investments or commercial operations, the commitment of private firms is relatively lower, when compared to other type of governance models (Verhoeven, 2011).

Tool port is slightly different from the public port, in which private firms can operate their activities within the ports and in the port terminals but with a low chance of running private areas and infrastructures within the port area. Debrie *et al.* (2013: 62) note that similar governance model has been adopted in French ports. A large percentage of European countries adopted the landlord model, where private operators can handle port activities in their individual terminals that obey the concession agreement, a policy tool that allow the PA to manage and regulate the port without a direct inclusion in terms of commercial activities. The difference between the landlord port and the public and tool ports is that the PA only has a planning and management duty. In tool and public ports, the public management body is actively involved in the process (Verhoeven, 2011).

Cullinane and Brooks (2007) pointed out that various differences characterise the same model of governance apart from the general organisational structure and framework. For instance, in Europe, the Mediterranean countries adopted a landlord model different to that in Northern Europe. Truthfully, the Latin model offers a more centralised governance framework where the PAs are more influenced by the decisions and the central governmental planning be it with some level of strategic freedom and this situation can be seen at the planning and financial stages. Usually the PA is assigned as either the regulator or promoted to being responsible for the port's achievements, even if they are not directly linked to port activities. On the other hand, with the Hanseatic model, the PAs are independent from the central government and have a closer connection

to the municipality in terms of strategical and financial perspectives. Additionally, the PAs are often supported to act as organisers during the transport chain, coordinating the connections between different private players.

In recent history, there has been an issue between the independence of ports and the regulation of their functions by EU authorities. When the connectivity of the ports in these various regions is analysed in detail, it shows that Hanseatic, Latin and Anglo-Saxon models of port governance are too simple to survive (Lobo-Guerrero and Stobbe, 2016: 444).

Verhoeven (2011) conducted a survey and the results point out how the variety in the governance model between European ports are in a narrowing trend, despite their differences in terms of their management models.

Brooks *et al.* (2017) summarised the major trends and challenges state that they have moved further away from a belief in, or reliance upon, a 'one size fits all' single port governance model. They believe that the insufficient clear evidence for the efficacy of a specific model and the impact of particular national and regional politics and influences from outside are the reason for this circumstance. The promotion of institutional adaptation is identified as the main strength of polycentricism in the port industry. PAs are less rooted in ministries of governments, changing them to be more dynamic and commercial as port governance has been reformed. Involving citizens and environmental groups in planning and decision-making processes is further evidence of institutional adaptation. These processes are where ports are changing to a clear polycentric form from traditional hierarchical forms and involving many voices of concerns.

Koontz *et al.* (2015: 144) highlighted the challenges of settling and maintaining successful polycentric governance, identified as fragmentation of authority, expenditure of time and effort, and transaction costs. Koontz *et al.* (2015: 145)

concluded by stating that the emergence of a more porous and fluid polycentric model is obstructed by the federalist model with stakeholder in a closed pool, unable to transform to a truly polycentric model with adaptable lines.

Polycentric theory proposes that the risk, which only one actor has power yet fails to act, will decrease when the involvement of many players and jurisdictions is established. Bergqvist and Monios (2018) summarise that this beneficial condition has not occurred due to where legitimacy and power remain with the PA, which is restricted by financial limitations which leads to a situation where the PA does not act without strong assistance or statutory government requirements. Ownership, operation and regulation of port facilities are the main areas that static port governance models are focussing on as direct roles and responsibilities. Static port governance model users are reluctant to involve indirect players such as environmental and citizen groups and port users who do not handle port operations. A polycentric framework can be used to make these relationships explicit and clarify the weaknesses in current policy that need to be addressed.

On the negative side, Carlisle and Gruby (2019: 939) recognise that polycentric governance by a powerful company can be hazardous, as it can direct the system for its own benefits (see Table 2.7.2).

Table 2.7.2: Identifying the known strengths and weakness of polycentric governance in ports. Source: Monios (2019: 33)

	Factor	Applied to ports	References
Strengths	Promotes institutional adaptation	As port governance has been reformed, PAs are less embedded in government ministries, making them more dynamic and commercial. Also, citizen and environmental groups have a larger say now, so there is evidence of institutional adaptation. However, such changes are mostly evident in leader ports such as Rotterdam, rather than being the norm across the sector.	Notteboom and Winkelmans (2001); Notteboom et al. (2013); Dooms et al. (2013); De Langen and Van der Lugt (2017)
	Empowerment to develop collective solutions to local problems	As with the above, this is also in evidence in some cases but not yet the norm. Some evidence of success in working with partners for environmental initiatives or issues in the port hinterland.	De Langen (2004), De Langen and Van der Lugt (2017); Gonzalez Arregall et al. (2018); Notteboom & Lam (2018)
	Suitable for a newly emerging challenge, overcoming path dependency of traditional hierarchical models	This is less clear. Deriving from the two factors above, there is more visibility of divergent interests and more influence from groups advocating environmental protection, but they have less mandate and legitimacy to take action. So more voices are heard which is good, but does not always lead to concrete action.	Wilmsmeier and Monios (2016); Ng et al. (2019)
	May make social-ecological systems less likely to collapse (redundancy mitigates risk)	This is not in evidence (although little work has been done explicitly on this topic). Many diverse groups within the polycentric environment have increased awareness of the issues, but it rarely leads to action because not many actors have the mandate (as with above factor). Some use of incentives and indices but not strong sanctions So in this case redundancy leads to stalemate.	Ng et al. (2019)
Weaknesses	Fragmentation of authority	This is not such an issue in ports (except in terms of environmental management – see below). Conversely, when ports were more nested in city and national government departments, there was more conflict of decision making due to political interests. Now PAs have more power to make their own decisions.	Dooms et al. (2013)
	Multiple jurisdictions creates transaction costs ("institutional externalities")	The quantity of paperwork and reports, planning regulations, etc. increases transaction costs, as does the trend in some areas towards regional port cooperation. Such administration could also derive from a management trend in many sectors due to separation of public and private bodies, thus requiring monitoring.	Wilmsmeier and Monios (2016); Parola et al. (2017); Monios (2019)
	Substantial effort needed from stakeholders	This has always been an issue for public bodies, whether government departments or independent PAs. As with above, this has increased in many sectors due to separation of public and private bodies, thus requiring monitoring.	Dooms et al. (2012); Lam et al. (2013)
	Powerful actors dominating cross-scale linkages	This is a major issue in terms of global carriers and global TOs influencing the PA.	Song (2003); Wang et al. (2004); Roe (2013b); Parola et al. (2013); Knatz (2017)
	May lead to undesirable "spill over effects" such as environmental degradation	Negative environmental externalities of ports (and shipping) is certainly in evidence. Fragmentation of authority on environmental management is a key driver of this (collective action problem, "someone else" should regulate/invest).	Hall and Jacobs (2010); Bergqvist and Monios (2018)

From local socio-cultural aspect, individual port governance can be clarified such as in certain ports, evolution of local activity has grown outside the reforms, making some ports true forerunners, more or less inspiring reforms in terms of national level. From this perspective, the large ports are not always the best in terms of innovation (Debrie *et al.*, 2013: 63).

Worldwide technical and economic changes have been influencing the characteristics and decisions regarding port governance models. For instance, in China, economic growth deceleration and the latest strategy of the new silk route using large ships has influenced a model of collaboration between PAs in terms of flexible management geared towards large investments, service quality and expansion globally (Notteboom and Yang 2017: 191). Caldeirinha *et al.* (2016: 18) state that local economic circumstances also change the port governance

model. For instance, port governance model mechanisms have already changed in the case of Portugal and Greece.

Contexts of cities and regions also decide port governance such as the case of Belgium and the Netherlands, or a new governance model in Italy case (Caldeirinha *et al.*, 2018: 879). Specifically, in the case of Spain, the autonomous regions have a great influence on each port's management model. Laxe *et al.* (2019: 503) believe that this is because of Madrid's approach to control the management in a centralised way through the government agency namely Puertos del Estado.

Additionally, private players in ports also have a role in deciding on port governance models. The French ports have strong local links with port users, whereas in the Turkish ports, private firms own land inside ports jurisdiction areas running their management (Debrie *et al.*, 2017; Esmer and Duru, 2017). Monios (2017: 86) and Chen *et al.* (2017: 211) mention that firms impact on the private-based governance models in British and Australian ports respectively.

From different point of view on influences on port governance, market size also has an impact, such as in ports like Cyprus, where local concerns include PAs oriented towards worldwide transhipment chances in Limassol (Panayides *et al.*, 2017: 65). As can be seen in Canada and France, port size can determine the governance model nationally or locally depending on their size (Brooks 2017: 169; Debrie *et al.*, 2017: 121). With a different area of focus, McCalla (2008) studied geographical factors on transhipment activity in the case of Jamaica.

Apart from the Caribbean, Macaronesia or South Africa as adopting the Service port model, most ports changed their model to landlord strategies (Havenga *et al.*, 2017: 264; Cubas *et al.*, 2015: 21). A couple of the Portuguese ports such as Madeira and Averio still use the tool port model, on the other hand, in the case of

Brazil, some private terminals have been founded under the Federal authority (Galvao *et al.*, 2017: 154). Song and Lee (2017: 33) explain that the Central Government manages ports directly but is observing the introduction of a more entrepreneurial mindset. Table 2.7.3 illustrates the main port governance models characteristics in specific port governance models, which are private, liberal, controlled and centralist, to assist understanding of how the port governance models work.

Table 2.7.3: Classification of the main models of port governance. Source: Caldeirinha *et al.* (2018: 882)

Main port governance models characteristics	Private	Liberal	Controlled	Centralist
PA type	Full private port	Landlord	Landlord	Tool/Service port
PA power	Private power	Devolution/ Autonomy	Controlled devolution	Centralist
PA focus	Core	Regional/ International	Regional	Core
PA's relations	Competition	Coopetition	Cooperation	Integration
PA geo-organization	Each port PA	Each port PA	PA regional fusion	One PA
PA functions	Land manager	Development	Facilitator	Operator
PA competition model	Liberalization	Liberalization	Limitation	Monopoly
PA managers selection	Technical	Mix	Political	Political
PA management/Legal structure control type	Minimal	Internal control	Finance and invest	Total control
PA nature	Full private	Government company	Government company	Government department
PA financing	Pay to government	Balanced accounts	Government add	Public money

In contrast, there are fully privatised port authorities such as in New Zealand ports (Bandara *et al.*, 2013; Tull and Reveley, 2001) or such as Piraeus, where there is a grant of concession by government or new autonomous port authorities, seen in Turkish and Chinese ports (Notteboom and Yang 2017; Esmer and Duru, 2017).

In Brazil, the national authority namely ANTAQ controls the power in terms of port governance (Galvao *et al.*, 2017: 154). The government plays a crucial role in determining and succeeding strategic and socio-economic policy targets, triggering its ownership of the port authority (De Langen and Van de Lugt, 2017: 111).

Vieira *et al.* (2014: 647) point out that the effectiveness, the customer satisfaction and supply chains are crucial targets, but minimally considered in terms of port governance decisions.

Brooks and Pallis (2011: 502) mention that major French seaports have switched to a landlord port governance model in transferring responsibility for terminal operations from the public sector to the private one.

Svindland *et al.* (2019: 616) realise that many numbers of stakeholders assisted some kind of port reform by aiming at centralising port governance in regions while small ports have not been rationalised.

As they are diverse and sometimes ambivalent, political interests between individual ports, stakeholder management are crucial to port governance regionally (see for example Debrie *et al.*, 2013; Dooms *et al.*, 2013).

De Langen (2007: 472) states that individual firms and organisations will consider their own interests most of the time, therefore, regional port governance has to be led by the government or public authority.

Port governance is a vast concept, which involves various dimensions. Seven distinct groups of parameters can assist to analyse governance practices (Verhoeven and Vanoutrive, 2012: 179):

(1) devolution

(2) corporate governance

(3) operational profile

(4) functional autonomy

(5) functional pro-activeness

(6) investment responsibility

(7) financial autonomy

Examining the evolution of modern liner shipping companies, the implementation of liner shipping activities with terminal activities and logistics activities is an inescapable phenomenon with the cost competition (Esmer and Duru, 2016: 222). Hence, the port governance definition must be a part of the transport governance definition.

The approaching imbalance in the fit between the current model of port governance and the requirement of new market and industry structure does not only influence the individual terminal and port performance, but the port and logistics system as a whole (Wilmsmeier and Sanchez, 2017: 182). Hence, a new model of governance is needed to address the progressing of changes in the port, logistics and shipping industry in recent years.

The several institution presences, operating at various level (national-regional-local-port) generated a more complex and more bureaucratic port governance prototype than previous ones (Pallis and Vaggelas, 2016: 56). Examples of Singapore (Airriess, 2001), Dubai (Jacobs and Hall, 2007), Baltimore (Hall, 2003), Los Angeles/Long Beach (Jacobs, 2006) and lastly Busan and Rotterdam (Ng and Pallis, 2010) suggest that institutional conditions limit the choices in terms of port governance and lead to diversified development trajectories.

2.8 Stakeholder Influences

Several studies have been conducted regarding the stakeholder inclusion benefits in port infrastructure planning projects, in order to create mutual sustainability interests or realise shared values (Dooms 2019; Dooms *et al.*, 2013; Parola and Maugeri, 2013).

Practitioners and academics give their attention to the stakeholder concept and examine the widespread stakeholder theories on private firms, public institutions, non-governmental organisations and hybrid companies (Koppell, 2006).

Different stakeholders put multiple pressure to the PAs regarding their roles in the organisation at a local and worldwide level, and competitive challenges (Denktas-Sakar and Karatas-Cetin 2012: 310). As a conclusion, stakeholder management practices have been applied increasingly by port managers in order to have a safe long-term relationship with their pivotal stakeholders. In order to manage pivotal stakeholders, adopting a new communication form become a crucial tool in terms of media and contents disclosure (Pando *et al.*, 2005: 76; Cahoon 2007: 158; Parola *et al.*, 2013: 137). Because of the effects of environmental changes on hybrid organisation, stakeholder management has become increasingly interested in port domain (Verhoeven 2010: 251; Parola *et al.*, 2013: 144).

Due to expansion of stakeholder communities in the port industry, port executives need to know how to manage stakeholders and different participants when defining and executing strategies (Wang *et al.*, 2004: 238; Wang and Slack 2004: 359; van der Lugt *et al.*, 2013: 110).

Port manager capability is playing an increasingly significant role in handling the relationship between international stakeholders for the success of ports (Notteboom and Winkelmans, 2001: 84; Parola and Maugeri 2013: 118). Hence, PMB communication strategies is becoming an important tool for handling the internal and external stakeholder relationships as well as including local and foreign players in terms of stakeholder management (Parola *et al.*, 2013: 143; De Langen *et al.*, 2007: 33).

Developing port managing body (PMB) communication strategies count on the new media utilisation and the innovative content releases beyond the traditional ways (Cahoon 2007: 155; Parola *et al.*, 2018: 200). Additionally, several seaports

have begun to utilise their websites in order to manage communications with their stakeholders (Dooms *et al.*, 2019: 590).

Study in port management and strategy has recognised the potential advantages of stakeholder participation or the stakeholder concern inclusion in port planning, building and management (Jansen *et al.*, 2018: 937; Dooms *et al.*, 2019: 591). Dooms (2010: 23) mentioned these problems when he observed that port "planners who ignore the concerns and interests of stakeholders risk implementation delays and at times protracted legal battles''. Supporting to same idea, Slinger *et al.* (2017: 289) state that including local stakeholder's concerns in port project planning can lead port authorities to co-create value such as creating mutual interests and shared values that will guarantee a sustainable future for the port and the communities around its environs. Reed (2007: 334) mentioned a further benefit from considering the concerns and values of stakeholders, which can be that they assist in new technological projects that adapt to the local, socio-cultural and environmental features. Additionally, Dooms *et al.* (2013: 16) stated the reasons of why management and inclusion of stakeholders are significant for port authorities, by arguing that while the commercial volumes increase and with an increase in port size, port organisations are expanding their locations in order to contact new stakeholders, which have different goals from each other. As a result, in order to handle conflicts and get their support and collaborating with them, port managers should focus more on their stakeholders' spatial and temporal dynamics (Lawer, 2019: 738). Having various perspectives and priorities regarding port development as a stakeholder in the coastal system, stakeholders can impact on the objectives and the outcome of policies in terms of port development as they are involved in the decision-making process (Yap and Lam, 2012: 24).

A study conducted by Notteboom *et al.* (2015) illustrates a PA stakeholder classification by referencing 10 different categories (see in Table 2.8.1).

Table 2.8.1: Stakeholder Categories. Source: Notteboom *et al.* (2015: 230)

Code	Stakeholder category	Description
SHAR	Shareholders	Public entities or private organisations/firms holding an equity share in the PA, or entitled to appoint PA board of directors or executive directors
FINC	Financial community	Financial and credit institutions providing financial resources to support PA investment decisions and port development (equipment, infrastructures, dredging, etc.)
EMPL	Employees and labour unions	Labour unions and people working at executive (white and blue collars, etc.) and operational levels in the PA, public institutions (customs, coast guard, etc.) concessioning firms, labour pools and port-related firms (forwarders, ship agents, etc.)
CONC	Concessionaries	Terminal operators helding at least a concession in the port area, or other concessionaries related to warehouses, industrial areas, logistics platforms, malls or commercial areas
USER	Port users	Freight forwarders, ship agents, brokers, road hauliers, railway companies, logistics providers, etc.
CARR	Carriers	Shipping lines (container, ro-ro, cruise companies, etc.) and tramp operators (liquid bulk, dry bulk, etc.)
PASS	Passengers	People using port facilities for tourism (cruise and yachting) and travel (ferry)
PSPR	Port services providers	Pilots, mooring and towage operators, customs, coast guard, etc
LOCO	Local community and societal groups of interest	People and organisations located in the proximity of the port areas and directly or indirectly affected by port operation and business. This category also includes those people or groups of individuals who are interested in environmental and societal critical issues
REGU	Regulators	Policy makers and public institutions setting the institutional framework and governance mechanisms

The competition in the market has a huge influence on modifying the nature and PA interaction intensity with different stakeholder groups. As a result of this, a problem emerges relating to the handling of stakeholders' 'multidirectional' impact in terms of evolutionary and dynamic points of view (Verhoeven, 2010: 251).

Some researchers have acknowledged conditions that are issues in terms of effective stakeholder participation in infrastructure projects (Enns 2019; Dooms 2019; Otsuki *et al.*, 2016; Swyngedouw *et al.*, 2002). While others have asked the questions about the stakeholder participation specifically on assumed benefits in general, arguing that these benefits are yet to be satisfactorily accepted (Wilson and Swyngedouw, 2014; Flannery *et al.*, 2018).

The hierarchisation of stakeholders in PoR changed between the years of 2000-2012 (see in Table 2.8.2). Local community and social groups of interest had the first rank by 11.57%, after strengthening its rank in 2009. The financial community became third with 11%, behind shareholders which had 11.16% rate, and close to employees, which had 10.91% rate (Notteboom *et al.*, 2015: 246).

Table 2.8.2: PoR stakeholder salience. Source: Notteboom *et al.* (2015: 246)

	2000	2003	2006	2009	2012	Trend
Shareholders	12.21%	12.42%	12.75%	12.32%	11.16%	
Financial community	14.42%	14.92%	14.92%	13.32%	11.00%	
Employees	8.79%	9.34%	11.13%	10.49%	10.91%	
Concessionaries	10.45%	10.43%	9.72%	9.56%	9.57%	
Port users	9.38%	9.11%	8.37%	8.43%	8.98%	
Carriers	9.53%	9.28%	8.41%	8.21%	8.77%	
Passengers	7.81%	7.45%	6.94%	8.12%	9.03%	
Port service providers	8.93%	8.73%	8.20%	8.38%	8.86%	
Local community and societal groups of interest	8.57%	8.59%	9.30%	10.90%	11.57%	
Regulators	9.92%	9.74%	10.26%	10.26%	10.14%	

According to these results of the PoR in Table 2.8.2, it can be said that priorites have changed over time in the ARs. These rank changes between stakeholders are not only due to external influences such as increased awareness about the environment and safety, but also internal key actions such as a development of major infrastructure ports and port reform processes.

Wilson and Swyngedouw (2014) believe that stakeholder participation on some projects such as plans to expand a port is needed just to fulfil the procedure that is required. The main criticism is that stakeholder participation or inclusion have seen as a tool for defusing tension or depoliticise port planning processes (Swyngedouw 2011: 378).

Stakeholder management requires a principal role in guaranteeing the common goals and targets which are derived by potential conflicting priorities from different

stakeholders (De Langen 2007: 459; Parola and Maugeri 2013: 117). Another way of explaining this situation, is that the success of a port depends to a large extent on how port managers handle interactions between stakeholders and create a common goal and target for the related stakeholders and where port managers need to adopt new perspectives in terms of strategies (Notteboom and Winkelmans, 2001: 87; Dooms *et al.*, 2013: 22; Parola *et al.*, 2013: 143).

Ports should focus on internal core competition and supporting activities as well as be aware of either tangible or intangible integration with their stakeholders in order to be sustainable in the market where the competition is high (Ha *et al.*, 2017: 9).

In recent years, Port Authorities (PAs) have started to be a cluster manager apart from being a traditional role as land manager, regulator and operator, for the purpose of coping with the increasing economic and societal issues and the intricacy of stakeholder's relations (De Langen, 2007: 469). Verhoeven (2010: 258) mentioned the three types of PAs, detailed below.

(1) Conservator PA: passive acting, isolated and mechanistic approach

(2) Facilitator PA: has a mediating role for stakeholder community engagement, accessing beyond the port perimeter.

(3) Entrepreneur PA: Targets both public and economical goals, detects precise market goals and handles B2B relationships with various stakeholders.

The PA should involve digital technologies that will help to change business models in order to integrate a real performance monitoring strategy (Ferretti *et al.*, 2017: 1360). Even though technological investment has been made as IT systems in maritime world develop their operations and stay competitive, several software companies adapted different innovative products for the stakeholder's

needs which are derived from the stakeholder influences on the PAs (Cepolina and Ghiara, 2013: 12).

Understanding the stakeholder's preferences on why they have either supported, or not been interested in participating, is crucial for port managers and their organisations Different geographical conditions should be considered by port managers in order to understand stakeholders' behaviour and to become more sustainable as an organisation (Bergqvist *et al.*, 2015: 88).

Almutairi *et al.* (2019: 220) believe that stakeholders have various levels of influence on projects and processes, where each of them has various interests, objectives and expectations that may or may not help plans for port development. Stakeholder management is significant and also challenging because of multi-party negotiation and implementation, as is illustrated by examples where the improvement needs cooperation from different stakeholders, including Hong Kong Customs, China Customs, trucking companies and logistics service providers (Lam *et al.*, 2013: 35).

Brooks and Schellinck (2013: 87) mention in their work that it is widely known that stakeholder management practices can be used as a tool in identifying and prioritising port investments to facilitate opportunities to improve performance and sustain future growth.

Key stakeholders that influence corporate connections in environmental management are linked with their negotiation power, which decide current and future business conditions (Malmborg and Mark-Herbert, 2010: 60). Perceptions of the stakeholder involvement in the EMS integration vary depending on stakeholder group. In a port environment where port managers see the managing process as an internal action and are reluctant to include external players, the neighbour stakeholders want to be included with their concerns, because a port's

operations can influence their living environment. Nevertheless, external players are keen to act when the operations affect them negatively. Apart from that, they adopt a "wait and see" strategy which is not demanding information about the performance of the port environment. Stakeholder involvement plays a significant role during the integration of the EMS in order to motivate the organisations to raise their effort in terms of environmental targets (Zutshi and Sohal, 2003: 142). The influence policy power or the institution design links the skill to manage the decision making, in either a positive or negative way. Stakeholder power can be explained as the extent to which stakeholders are capable of persuading or coercing other players into decision-making process and follow certain protocols. This power of stakeholders may come from the nature of a stakeholder's organisation or stakeholder's position in collaboration with other stakeholders such as line ministries which control budgets and other segments of the organisations (Ravesteijn *et al.*, 2014: 6).

There is an expectation on the PA to evaluate the potential impact of each stakeholder's community on port operations, as well as long term planning and development. It is necessary to observe the stakeholder hierarchy in order to measure its impact on port operations and performance. Lastly, the PA has to handle the relationship with the most effective stakeholders, guaranteeing that their concern is included in the port-related decision processes (Yarnell 1999; Henesey *et al.*, 2003; Brooks and Pallis 2008). For this aim, the most relevant stakeholders' concerns should be taken into consideration, during the decision-making processes and the development of plans and operations.

There is a potential to solve PA challenges in a range of different areas, tailored to the interest and individual stakeholders' attention (Pallis, 2007: 346). Hence, port managers should focus on scanning their strongest stakeholders carefully

and those environmental trends which might have an influence on their corresponding interests, beliefs or aims.

2.9 Conclusion

This theoretical literature review has used evidence from research to explain that there are various influences, drivers and requirements involved in sustainability planning which influence the sustainability goals of port organisations. The research covered in this chapter has helped in developing a clear focus for this study and has been selected according to the research objectives.

The next chapter will explain the practical literature review with additions of the Turkish port industry and the port environment of small and medium sized ports in the United Kingdom.

CHAPTER 3: PRACTICAL LITERATURE REVIEW

3.1 Introduction

This chapter presents a detailed literature review of relevant research under the topics of sustainability practices in ports and port sustainability management systems (brief information related to the PSMS and its scoring criteria).

Undertaking a literature review of sustainability practices in ports provides information about the sustainability systems used to achieve successful sustainability practices. In addition, it provides an opportunity to compare the systems (PSMS included) that have been used for sustainability planning. Thus, the literature review addresses research objective 4 and research objective 3 respectively. The literature review of the PSMS facilitates familiarization with the system and an understanding of its self-assessment procedure. This is beneficial to identifying the areas that require improvement in order to make the PSMS a more worldwide sustainability management system.

After reviewing these topics, the chapter proceeds to a literature review focusing on the Turkish port industry, as a case study country, in which in the industry's long-term investments and key stakeholders are is introduced. Lastly, the chapter ends with a conclusion after the literature review of the British ports section entitled, "The UK Port Environment for Small and Medium Ports".

3.2 Sustainability Practices in Ports

Cheng *et al.* (2015: 1) believe that sustainability reuqires the synchronised balancing of the environmental, social and economic aspects of the policies, decisions and general management of any organisational function.

In European ports, the terminal awarding practices aim to unite with respect to some specific perspectives. The vast majority of European port authorities

prioritise optimizing the use of scarce land and formalizing this through a clause in their contracts. Additionally, a terminal awarding process is used by port authorities to reach a wider environment for port operations and port sustainable development (Notteboom *et al.*, 2013: 28).

Wong *et al.* (2009: 435) argue about the information technology management and the respective fundamental pressures that seaports are facing. Acciaro (2015: 293) used a fundamental framework to examine the social responsibilities in corporate strategies by sampling ten seaports. With a broader sampling, Santos *et al.* (2016: 2938) have used fundamental theory to understand the importance of communication regarding sustainability challenges by examining 186 seaports and ended that there is proof that sustainability practices are disseminating amongst the industry's players.

Developing best practices is attracting the port community members interest and members of the port community agree on the need to share and apply knowledge. For this purpose, new standards have already been introduced in several areas such as safety and environment, social responsibility, improving processes and activities and corporate social responsibility. Main procedures have been reinforced related to collaboration on information exchange and knowledge between port community members, including supply chain companies. Lastly, handling operations of commercial activities and cargo have been improved and transport services have been modernised (Cordova *et al.*, 2016: 82).

Cordova *et al.* (2016: 82) state that the main practices developed by the port community include the following:

(1) Host content in a Learning or Content Management System.

(2) Try emerging technology solutions.

(3) Knowledge Management convergence with e-business.

(4) Use of Knowledge Management to enhance innovation

CS practices tend to more wide spreading in industries with a significant influence on stakeholders, as firms which are more visible and exposed, are more likely to have their procedures socially judged. (Jackson and Apostolakou, 2010, Adams *et al.*, 1998; Cho and Patten, 2007).

In order to place themselves in a better position in the industry, firms have started to include their environmental concerns. Nevertheless, including the Green Management Practices (GMP) into their structures, many organisations are distancing themselves from the GMP, as they realise that there is no proof that GMP can assist them in achieving their aims (Montabon *et al.*, 2007: 1000).

GMP entail applying operational processes devised from within the organisation itself, rather than being imposed by an external regulatory body. Internal efforts and business planning and functioning are the core requirements in order to create GMP. To apply GMP, organisations need to review their processes and policies and evaluate their environmental influences environmental influences, decide environmental aims, execute environmental practices, check goals achievement and experience management reassessment (Venus, 2011: 560).

Venus (2011: 560) explains that due to starting internal examinations, employee training and planning development into the organisations, costs have increased during the adaptation process with the GMP. In contrast, GMP can assist organisations to make the commitment to aligning their management practices to the environmental regulations. Additionally, GMP can assist organisations in different segments of their structure, such as analysing their internal operations, connecting employees to environmental issues, providing regular feedback on their environmental improvements and increasing employees' operation knowledge.

The results of adapting the GMP as a practice into the organisations in order to understand the relationship between sustainability, operational practices and organisation performance can be summarised as below (Venus, 2011: 561):

(1) Adoption of GMP seems to establish a mutually beneficial relationship in terms of economic and environmental and performance factors,

(2) Cooperation with supply chain partners and environmentally friendly operations quality management are key elements of GMP,

(3) Internal management support is important for organisations to adopt GMP.

Ethics, competition and relationships are the three motivational factors that can connect the EMSs and Wadden Seaports, in the southeast of the Northern Sea. For instance, in order to increase their economic growth, ports are in search of economic fortes whereas the EMS devises funding strategies for new projects and plans. From a negative point of view, EMSs can be costly for ports in terms of time and labour. Lastly, port organisations see a collaborative attempt of developing EMSs as a reason to increase their relationships and knowledge sharing practices with other ports, and more importantly, use the EMS as a tool to communicate with other stakeholders in the same area, which is Wadden Sea on this occasion (Puente-Rodriguez *et al.*, 2016: 460).

The port of Gävle has incorporated a Circular Economy approach into its practice which is the process of land creation by using waste as a resource and by cooperating with local companies. This practice is a clear example of an environmentally sustainable approach by clearing contaminated material from the marine environment. Due to using waste as a resource, the Port of Gävle automatically contributed to a decrease in air pollution by minimizing the transportation required to move materials (Carpenter *et al.*, 2018: 546).

EcoPorts tools provide significant environmental indicators which enable ports to monitor and decrease their widespread impacts on the environment. These tools are popular with larger commercial ports which have a noteworthy level of operations, whereas smaller ports find the cost of these tools difficult to cover. This situation which smaller ports face highlights the need for affordable processes in order to manage their environmental impacts and sustainability. Unfortunately, there is a lack of financial resources needed to invest in costly EMS practices (Gadenne *et al.*, 2009: 58). Therefore, smaller ports require a new, less expensive practice, in order to handle their environmental impact and apply a proactive tool for port sustainability (Kuznetsov *et al.*, 2015: 61).

Harbour Masters (HMs) play a crucial role in the adoption of the PSMS. The use of the PSMS makes HMs more aware of the challenges of sustainability and enables them to disseminate their deeper knowledge and understanding of this area with other HMs.

In terms of disclosure extent, Santos *et al.* (2016: 2939) mention that larger ports are interested in higher levels of sustainability communication whereas EcoPorts members are interested in achieving higher sustainability communication levels both in terms of completeness of content and disclosure extent.

By illustrating knowledge, awareness and understanding about safeguarding port communities, to retain jobs and to decrease the level of resource wastage, HMs are authorised to establish higher level stakeholder partnerships and much more effective debates to increase the sustainability of their ports and communities. In order to reach these goals, sustainability practices in the port industry play crucial role if the right practice is selected for the port's needs and environment (Kuznetsov *et al.,* 2015: 65).

3.3 Port Sustainability Management Systems

There is a lack of worldwide regulations ensuring that port authorities record and measure their environmental impacts. However there has been an increase in the number of ports accepting the help of the Environmental Management Systems, such as ISO14001 and EMAS certification, which shows that more port authorities are adopting an environmentally aware approach (Papaefthimiou *et al.,* 2017: 91).

It is necessary to plan a regulatory system collectively by adopting the support of technology which both encourages and increases an awareness of the environmental impact of port performance. To use environmental management systems and codes, specific measures are required to provide to port organisations with a higher level of awareness and responsibility collectively (Laxe *et al.*, 2019: 502).

Competitive ability in the international market is fast becoming a key instrument in port industry for the future of the port organisations. To evaluate the performance of a port, using quantitative variables such as throughputs and world ranking is an easy way to assist the port development (Shiau and Chuang, 2015: 27). A number studies have been conducted to create a port indicator system such as Marlow and Paixão Casaca (2003) who included quantitative and qualitative perspectives to evaluate port management quality. Whereas De Langen *et al.* (2007) focus on cargo transfer product, port logistics product and port manufacturing product in order to propose their port performance indicators (PPIs). Brooks and Pallis (2008) examined the port performance from the efficiency and effectiveness components perspective, and specifically set their main interest on a financial and economic point of view. From the same perspective as Brooks and Pallis (2008), Tongzon (2001) approached to the topic

by applying data envelopment analysis (DEA) in order to measure the selected port's efficiency.

In order to assist seaports, Darbra *et al.* (2004: 421) created a methodology which is aimed to evaluate the environmental management performance. Self-diagnosis method (SDM) is the name of the methodology, which focuses on reviewing the management activities and procedures that influence the environment and the port authorities' approach to how to deal with the essential environmental perspectives, applied in sixty seaports in Darbra *et al.* (2004: 420) study.

The main objectives of the SDM are (Darbra *et al.*, 2004: 421):

(1) To regularly review the environmental management performance in the port

(2) To allow periodic self-evaluation of environmental improvement in the port

(3) To effectively compare the port environmental performance against a European benchmark

(4) To identify environmental priorities in the port

(5) To move towards the implementation of an environmental management system (for example, ISO 14001 or EMAS)

Darbra *et al.* (2005: 867) continue their work with a new methodology, called the Strategic Overview of Significant Environmental Aspects (SOSEA) with the purpose of assisting port managers to identify crucial environmental perspectives and to increase the awareness about them to highlight work in environmental management. INDAPORT is one of many sustainability environmental management systems, which is proposed by Peris-Mora *et al.* (2005: 1650), which has been created to identify all the operations in the port area and to analyse these operations to assess potential environmental impacts and risks filter.

In order to make good investment decisions, port authorities could use the help of measurement and control instruments, which reduce negative environmental impacts effectively and efficiently (Straughan and Roberts, 1999: 565; Lam and Notteboom, 2014: 172; Acciaro, 2015: 295; Barnes-Dabban *et al.*, 2017: 575; Di Vaio and Varriale, 2018: 783, 2018a; Di Vaio *et al.*, 2018: 233). Hence, Management Control Systems (MCS) are significant for assisting decision processes and port user's operation activities from the point of view of sustainability. Port users are involved in complex decision-making processes which require managing and sharing a significant amount of both internal and external information. With the help of MCS, awareness level on information, data management and sharing can increase, which is helpful for port operations in terms of environmental impact (Di Vaio *et al.*, 2019: 127). From this perspective, MCS can be used to improve the relationship between port authorities and other port users.

Total Quality Management (TQM), Business Process Reengineering, the Malcolm Baldrige Award Criteria and the ISO 9000 certification programmes have been applied in ports in order to help port managers to find solutions effectively to fulfil the needs of their customers (Pantouvakis and Dimas, 2010: 506).

ISO 9000, which is a series of worldwide standards that state the requirements and recommendations management systems in terms of design and assessment, is one the quality standards that has been used by several European ports (ISO, 1987). Additionally, ISO 9000 clarifies how operations must be conducted from the management perspective.

Even though Buttle (1997: 936) mentions the simple objective is to preclude nonconformity, only a few European Union ports have been certified to ISO 9000 because of the associated difficulties, complex character of the port product for

instance. Besides, ISO 9000 is implemented at one-unit level, where production of the port product and assisting activities are performed by more than one production unit in the port industry. Therefore, it is an issue to execute a single standard in various production units.

Synthetic Indexes are usually used in economics for the purpose of acquiring aggregate information from set of variables, which are arranged into different levels of hierarchy. Bluszcz (2016: 41) mentions that sustainable development is a complex and multidimensional topic. Hence, evaluating the sustainable development needs the specific development of this kind of index, acquired through aggregations of variables individually.

Lu *et al.* (2016: 93) state that international ports have developed assessment criteria by showing respect to environment, safety and regulation in terms of sustainability.

The ISO 14001 certificates point out the different aspects of environmental management. ISO 14001 and ISO 14004 are dealing with the EMS. ISO 14001 presents the requirements for the EMS where ISO 14004 provides general EMS guidelines (Klopott, 2013: 446).

The EU developed EMAS (Eco-Management and Audit Scheme), which is another environmental management tool, to initiate and synthesise European environmental policies in 1993. Wenk (2005) explained the relationship between ISO14001 and EMAS that ISO 14001 requirements are EMAS's integral part which means that organisations listed in the EMAS-Register automatically meet the terms of the requirements of international standard demands. On the other hand, organisations which are registered as EMAS-Register comply with requirements that go beyond of ISO 14001.

ISO 14001 standard points out requirements for EMS to assists port organisations to develop and execute policies and objectives. The idea of the standard is to be applicable to all types of port organisations and to become familiarised with diverse geographical, cultural and social circumstances. Additionally, ISO 14001 guides seaports to develop an environmental policy, set objectives and processes to acquire the policy commitments, become more active as required to improve organisation's performance and illustrate the conformity of the system to the need of the standard. As a summary, the overall aim of ISO 14001 is to guide environmental protection and preclusion of pollution in balance with socio-economic needs (EN ISO 14001, 2004).

ESPO/EcoPorts have developed an EMS to set a port's formal introduction which is called Port Environmental Review System (PERS). PERS considers the highly significant nature of port environmental challenges by being the only environmental management standard in port sector. PERS has been specifically developed to guide port authorities with the necessity functional organisation to meet the expectation of sustainable development goals. The purpose of the PERS adaptation is to offer effective port environmental management and according to the EcoPorts website, the Lloyd's Register can certify PERS's implementation independently.

Darbra *et al.* (2004: 423) pointed out the sections of PERS:

(1) Port profile

(2) Environmental policy statement

(3) Register of environmental aspects and legal requirements/performance indicators

(4) Documental responsibilities and resources related to environmental aspects

(5) Conformity review on legal requirements and policy

(6) Environmental report

(7) Selected examples of best practice

Apart from PERS, there are many standards that can offer guidance to ports which have broader scope than PERS by including other port activities. These may include International Port Safety and Environment Protection Management Code (IPSEM) developed by Bureau Veritas, as well as Port Safety, Health and Environmental Management System (PSHEMS), offered to Asian ports by PEMSEA (Partnership in Environmental Management for the Seas of East Asia) (Klopott, 2013: 446).

In summary, the EMS provides a comprehensive, systematic, planned and documented version of an environmental management programme. Sroufe (2003: 425) states that EMS involves the planning and resources, together with the organisational structure required for the policy of development, implementation and maintenance in terms of environmental protection. The environmental objectives and targets of the EMS are a crucial part for the success of ISO 14001 implementation. The environmental objectives are stated as the total environmental goals, aligned with the environmental policy which is set by the organisation. The environmental targets, which emerges from an organisation's environmental objectives, are the detailed required quantified performance. Therefore, the environmental targets need to be agreed on and met with the organisation objectives. To achieve their realistic objectives and targets, an organisation needs a viable prioritization strategy and a port sustainability management system can play a significant role in assisting port organisations in this process.

3.3.1 Port Sustainability Management System (PSMS)

Some studies have embraced a more widespread approach to sustainability calling for an integrated and universal approach to sustainable port policies and practices in terms of stakeholder contribution (Hiranandani, 2014; Kuznetsov et al., 2015; Le et al., 2014).

A port sustainability management system called PSMS was created by Kuznetsov (2014) from the perspective of eleven indicators to assist the harbour masters (HMs) with self-assessing the small port organisations in terms of evaluating their level of sustainability.

Kuznetsov *et al.* (2015) explains that the PSMS aims to assist harbour masters and environmental managers of ports in evaluating the sustainability of their ports by increasing their knowledge around port sustainability. In addition, the PSMS supports HMs in classifying their ports strengths and weaknesses.

The PSMS framework, which was created with the assistance of in-depth interviews over two years of collaboration between Kuznetsov (2014) and HMs from the Cornwall and Devon area in the United Kingdom, is divided into 11 categories which constitute overall habour sustainability (See figure 3.3.1.1).
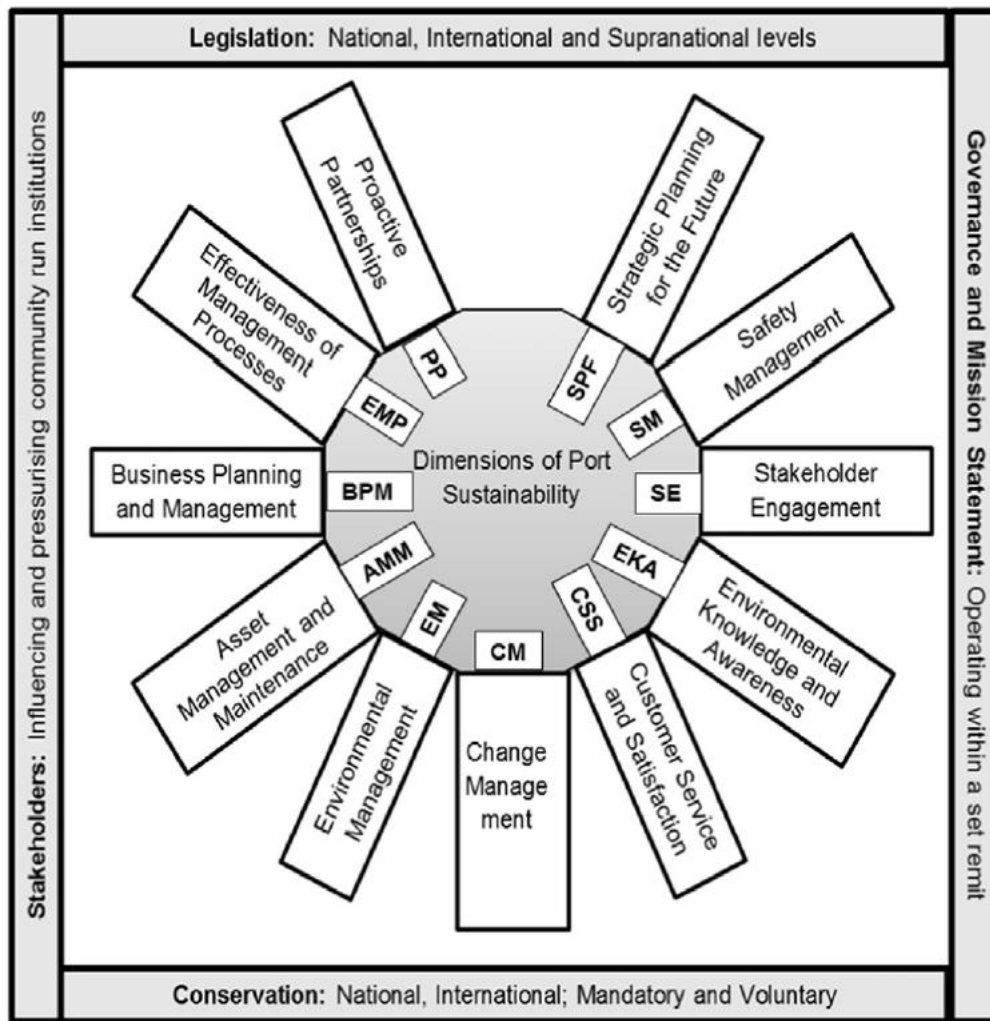
Figure 3.3.1.1: Theoretical framework for Port Sustainability Management System (PSMS). Source: Kuznetsov *et al.* (2015: 63)

The 11 indicators of PSMS, which are: Asset Management and Maintenance (AMM); Safety Management (SM); Environmental Knowledge and Awareness (EKA); Environmental Management (EM); Stakeholder Engagement (SE); Business Planning and Management (BPM); Effectiveness of Management Processes (EMP); Customer Service and Satisfaction (CSS); Proactive Partnerships (PP); Change Management (CM) and Strategic Planning for the Future (SPF). Each of these includes a set of criteria ranging from 1 to 5 (See Appendix J for the criteria ranges), which offer examples of how to achieve a certain category for particular sustainability criteria (See figure 3.3.1.2).
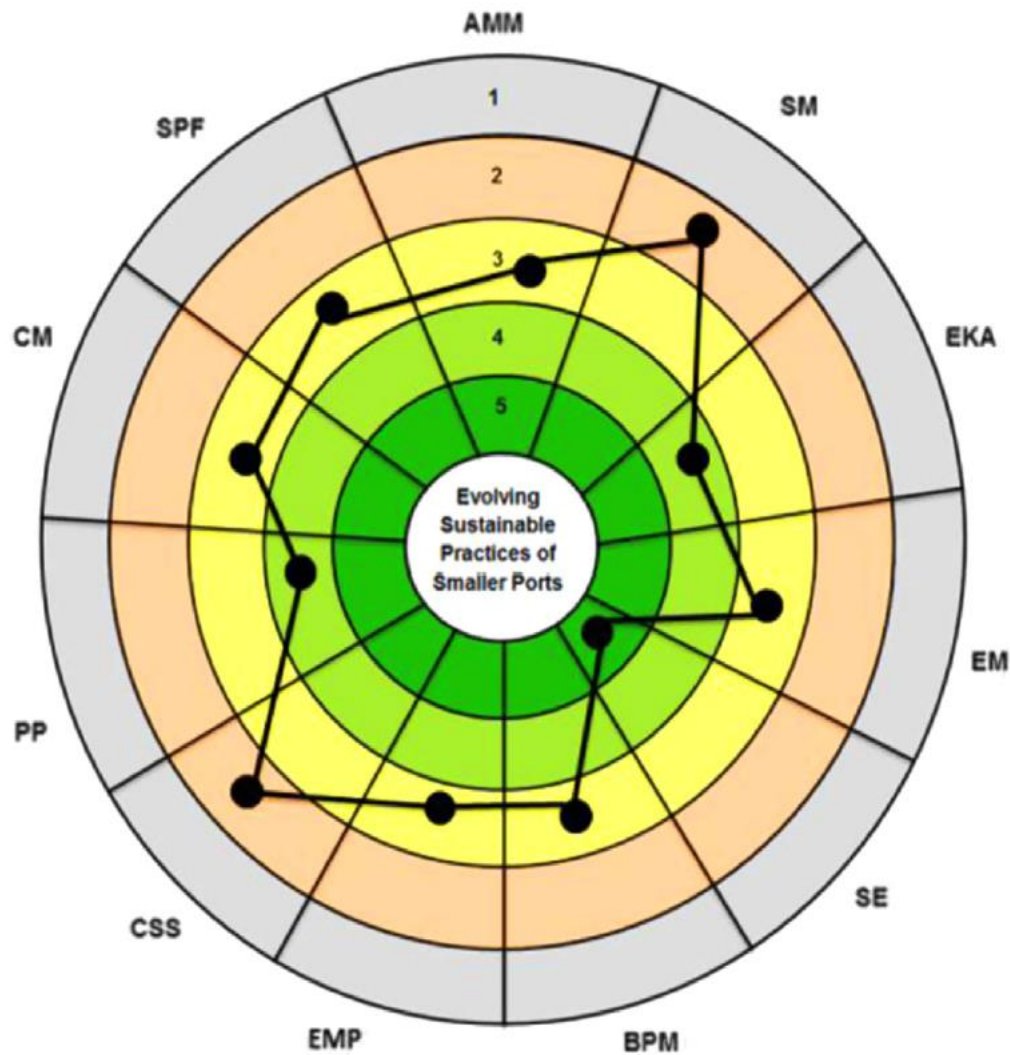
Figure 3.3.1.2: The Port Sustainability Management System (PSMS). Source: Kuznetsov *et al.* (2015: 63)

3.3.1.1 Scoring Criteria of the PSMS

The predominant aim of designing the PSMS was to provide HMs and their environment managers with a strategic tool in regard to their sustainability practices/operations in the harbour where they are responsible (Kuznetsov, 2014: 271). For this purpose, the PSMS aims to assist HMs and their EMs during the process of establishing the parameters of their practices/operations in order to set goals and make plans, which will direct their organisation towards long-term changes.

Figure 3.3.1.1.1: PSMS cover sheet. Source: Kuznetsov (2014: 398)

The self-assessed scoring procedure starts by checking the list of criteria for each of the 11 pillars (see Appendix J) and choosing the most suitable answer for the related port organisation from criteria 1 to 5 for each of the 11 pillars. After executing the answer process, the cover sheet in figure 3.3.1.1.1 provides a chart on which scores can be recorded on one table. The final step in the scoring

process is to connect the dots in the "bull's-eye target" (see figure 3.3.1.2 for example).

Once the scoring process is complete, the next step is to identify which, if any, of the pillars need to be improved upon immediately and how this action can be integrated into short-term plans. In a scenario in which an organisation's score is lower than expected and the HM aims to improve on any of the pillars, the scoring criteria in Appendix J is used as a knowledge resource for the HMs and other colleagues, to assist them to achieve a higher score in terms of sustainability.

3.3.1.2 A Brief Discussion of Port Size and Available Resources for Sustainability Management

Large commercial ports, which are one of the key nodes in the international supply chain, have a significant role in logistics networks (Panayides and Song, 2009: 133) and they are crucial to the any economy in the world. On the other hand, the importance of the smaller and medium ports is embedded in a diversity of activities in fishing and leisure-based ports, which create employment for the local community.

Systems designed for larger commercial ports are the main topic in the literature review of Environmental Management (EM) processes in ports. Only the positive aspects are mentioned despite the costs of those systems (Kuznetsov, 2014: 309). The costs of environmental management systems (EMS) are not an obstacle to larger commercial ports, while for smaller ports this is not the case.

In terms of the success of an EMS, company size is a significant factor and large organisational sized ports are in a good position with their availability of resources, a high degree of competence, know-how and cultural awareness, which gives them an advantage in their environmental performance (Kuznetsov, 2014: 70).

Decisions about where to spend resources are a major factor in terms of an organisation's availability of funds for sustainability. Trust ports divert their port profits into the general council fund, which puts them in a stronger position in terms of achieving and maintaining sustainability. On the other hand, municipal ports do not have the resources available for their needs, which puts them in a high-risk position, possibly unable to fund sustainability projects (Kuznetsov, 2014: 340).

A comparison of the environmental systems and processes of the smaller ports and EMSs of the large ports, exposed the factor of the effectiveness of management processes. In a situation in which a smaller port spends resource on a system, which can only partially address operations, more resources need to be spent to cover all operations within that port. Eventually, this condition places a heavier strain on resource management in smaller ports (Kuznetsov, 2014: 310).

Most of the SME managers see environmental responsibility as a financial burden (Kuznetsov, 2014: 37). If smaller ports approach environmentally friendly practices with a lack of financial resources, they cannot obtain sufficient information to be fully aware, therefore remain only partially aware (Kuznetsov, 2014: 40).

Lastly, smaller ports, which have limited resources for their operations, cannot spend on consultation to improve port sustainability. They would not be able to identify a starting point in addressing a problem and every step would be so costly that they put themselves in an unsustainable situation in terms of resources (Kuznetsov, 2014: 327).

3.3.1.3 Applicability of the PSMS Beyond Small Ports

Successful application of methods such as EcoPorts and ISO are used in larger commercial ports, which do not have a resource issue. However, the missing part of these methods is that they do not cover the overall sustainability of the port and port operations, whereas the PSMS can take their roles in order to offer overall sustainability with its holistic approach (Kuznetsov, 2014: 322).

Even though some large private ports share an environmental statement related to their commitment to the cause, they reference an EMS for internal use only, due to lack of a tendency to share their commercial sensitive information. The PSMS can be adapted by port organisations and can be offered to all for collaboration due to a self-assessment process which does not involve any commercial sensitive information (Kuznetsov, 2014: 67).

It is not uncommon for a large private organisation to chase maximum profit and improve customer service (Kuznetsov, 2014: 86). Self-assessment by prioritizing the related pillars of the PSMS can assist the large private organisations to reach their aims.

Private ports who participated in Kuznetsov's (2014: 288) research, recognised advantages in terms of using the PSMS in order to improve port sustainability. Those advantages that the PSMS offers are:

Improvement: Organisations can identify where to make improvements.

Progress/Performance/Strengths/Weaknesses: PSMS enables port organisations to identify their weak/strong areas, measuring their performance and key areas in terms of progress.

Enhanced communication/Reporting: PSMS provides coordinated reports to the HMs to present to their Harbour Boards and use in their annual reports.

Reminder/ Prompt to stimulate thought process: It is been reported by one of the HMs that the PSMS helped to achieve a high standard and best practice.

Lastly but most importantly, one of the benefits of the PSMS is that its ease of use. 86.7% of respondents at Kuznetsov (2014: 282) research confirmed that the PSMS was easy to use, which put the PSMS in a good position in terms its applicability.

3.3.1.4 PSMS as a Holistic Tool for Port Sustainability

Feedback from the private ports related to the PSMS can be divided into two: either the PSMS is comprehensive enough or it is not (Kuznetsov, 2014: 283). Some private ports consider the PSMS as comprehensive as it has a holistic approach to both the environment and sustainability and that it is a positive starting point to build on for the future.

Insufficient financial resources can be an issue in order to invest in EMS practices, which are costly. For this reason, a new discourse is needed for port organisations, specifically for smaller ports and their overall approach to sustainability (Kuznetsov, 2014: 79). To answer the need, the PSMS has been created using a holistic approach not only considering environmental sustainability.

During the creation process of the PSMS, governance, conservation, stakeholders and legislation were identified as pressures and influences (Kuznetsov, 2014: 161). In order to strive for sustainability as a port organisation, those pressures need to be managed successfully, which requires a holistic approach. Automatically this condition makes the PSMS a more holistic tool for port organisations.

Missing part of the EMSs is that they are not addressing the overall sustainability of the ports and their operations (Kuznetsov, 2014: 322). One of the purposes of

creating the PSMS is to address overall sustainability of the ports and their operations. The PSMS has 11 themes, which assist in setting targets and making plans for progress in port organisations as combing these themes with harbour operations promotes sustainability (Kuznetsov, 2014: 271).

Several themes (Asset Management and Maintenance; Safety Management; Stakeholder Engagement; Business Planning and Management; Effectiveness of Management Processes; Customer Service and Satisfaction; Proactive Partnership; Change Management and Strategic Planning for the Future) amongst the 11 themes of the PSMS assist port organisations to strive for overall sustainability not only addressing the environmental sustainability.

3.4 Introduction to the Case Study of Turkey

This section provides a brief introduction to the current issues in Turkey and explains why it offers a useful case-study economy within which to explore the scope for extending the application of PSMS. Turkey's current situation and trends in its port industry explain its selection as a case study.

Firstly, beyond European ports, Turkish ports offer useful comparisons with British ports. An initial comparison can be made between the hierarchical culture in Turkey, which contrasts with a relatively flat culture in the United Kingdom, which impacts on the importance of corporate awareness and ownership and internal management processes. Secondly, Turkey and the United Kingdom's geographical locations are different, but both include many smaller ports, and a dispersed coastline with many remote ports. Finally, Turkey and the United Kingdom are at different stages of development in the shipping industry with contrasting trade volumes, which offers contrasting motives underpinning sustainability concerns. Therefore, it is necessary to include a focus on the Turkish port industry and its trends. This section provides further details about

the significance of using Turkish ports as a case study for this thesis.

Turkey is a transcontinental country, located between Europe and Asia. The majority of its land is in Western Asia and the rest of its land is in South-eastern Europe. This circumstance makes Turkey a strategic point for both continents. Furthermore, it has approximately 8,300kms of coastline and is surrounded by four seas: The Black Sea (to the north of Turkey); the Sea of Marmara (an inland sea within the Marmara region and connects Black Sea and Aegean); the Aegean Sea (to the west of Turkey) and the Mediterranean Sea (to the south of Turkey), making Turkey a peninsula country (Guner, 2015: 36).

Turkey is of strategic importance to the sea transportation network, specifically to the Far East, Europe and Black Sea seaborne trade routes with its seaports and straits (the Marmara Sea is linked to the Black Sea by the Istanbul Strait and the Aegean Sea by Çanakkale Strait), which provides a link between the Aegean and Black Sea. Turkey has seven regions, four of which are named according to the seas that surround the country: Mediterranean; Black Sea; Aegean and Marmara (Marmara Sea). Its other regions are Central Anatolia, Eastern Anatolia and Southeast Anatolia (see Figure 3.4.1) (Esmer and Duru, 2017: 216).
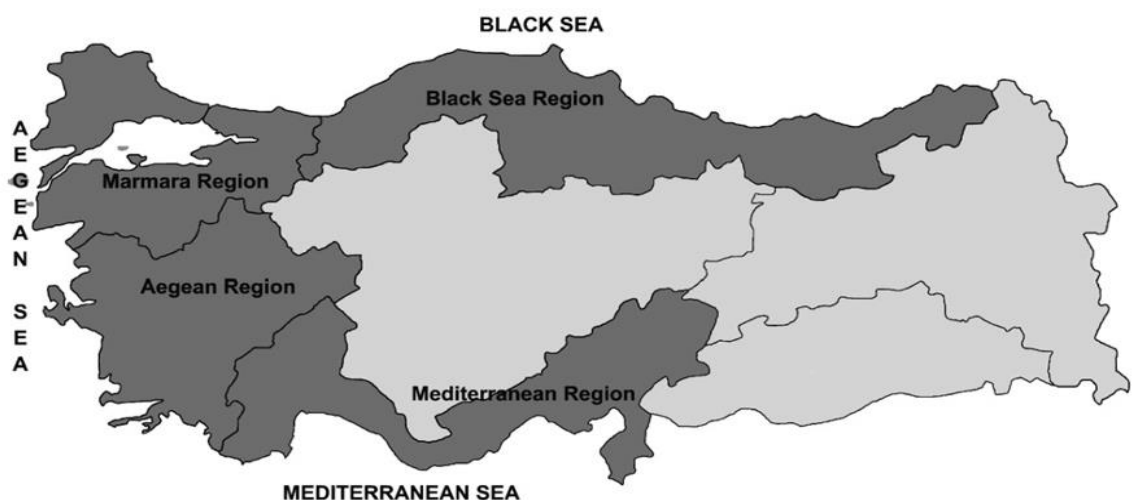
Figure 3.4.1: Turkey's coastal regions. Source: Esmer and Duru (2017: 216)

The coastal areas of Turkey have 178 ports (128 of them are private, 23 of them are municipal and 27 of them are commercialize and public ports) which serve international seaborne and domestic traffic (see Figure 3.4.2 for more detail) (Esmer and Duru, 2017: 216).

Administration Classification of Ports in Turkey

Private	Commercialized	Public	Municipal
•128 Ports	•TCDD (5)	•TCDD (2)	•23 Ports
	•TDI (13)	•TDI (6)	
		•Others	
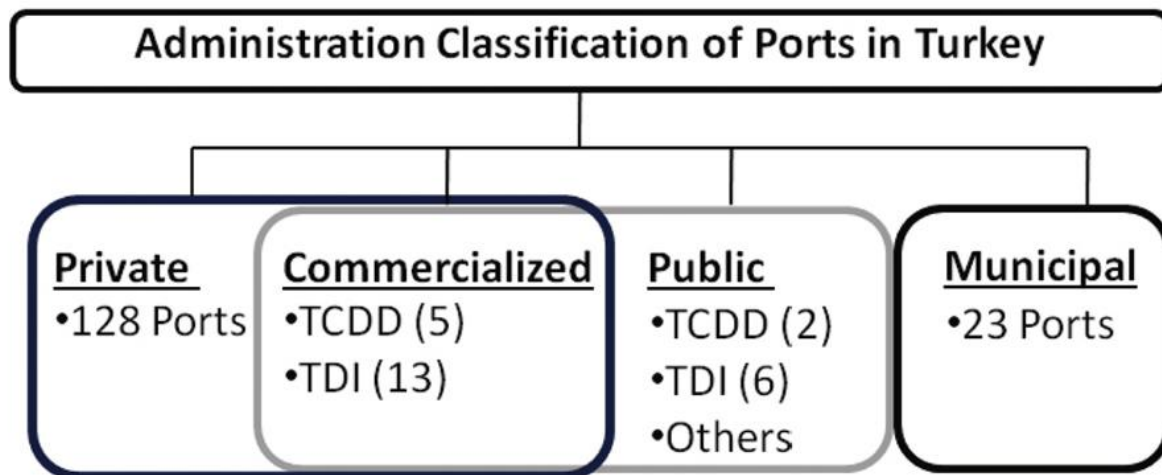
Figure 3.4.2: Administration types of Turkish ports. Source: Esmer and Duru (2017: 216)

90% of the total cargoes are handled by the private ports in Turkey. According to Esmer *et al.* (2016: 5), the large parts of the ports in Turkey are private with Turkish origin. The Marmara, Mediterranean and Aegean regions (see Figure 3.4.3), which are the industrial regions, are the attraction points for the private ports.

The industrial structure of the regions plays a crucial role in determining the services provided by the private ports. In the Marmara region for example, the special service requirements are the focus point for the private ports, based there, whereas in the Mediterranean region, private ports offer services for bulk cargo handling (Esmer and Duru, 2017: 217).

Ambarlı
•Akçansa* •Marport*
•Kumport* •Total*
•Mardaş*

Zonguldak*

•Samsunport**
•Toros Samsun*
•Yeşilyurt*

Park
Denizcilik**

Riport**

Haydarpaşa*** Erdemir*

Trabzon**

•Martaş*
•Asyaport* •Argaz*
•Tekirdağ***

Ü.N. RO-RO*

Çanakkale*

•Çelebi
İçdaş 1* Bandırma**

Gemlik Bay
•Borusan*
•Gemport*
•Rodaport*

İzmit Bay

İskenderun Bay
•İsdemir*
•Toros Ceyhan*
•Delta Rubis Petrol*
•MMK Metalurji*
•Limak İskenderun**
•Assan*
•Botaş***
•Ekinciler*
•Denbirport*
•Yazıcı*

Akçansa

Aliağa-Nemrut Bay
•Ege Gübre*
•Nemport*
•Batıçim*
•Petkim*
•İDÇ*
•APM Terminals*
•Ege Çelik*
•Habaş*
•Petrol Ofisi*
•Total*
•Ege Gaz*
•Tüpraş*

•Ak-Taş*
•Poliport*
•Altıntel *
•Solventaş*
•Kroman*
•Diler*
•Nuh Çimento*
•Evyap*
•İgsaş*

•Koruma Klor*
•Aksa*
•Limaş*
•Ford Otosan*
•Rota*
•Yılport*
•DP World*
•Autoport*
•Efesanport*

•Total Gebze*
•Çolakoğlu*
•Tüpraş*
•Milangaz*
•Aygaz*
•Shell&Turcas*
•Derince**

İzmir***

Ulusoy Çeşme**

Ege Liman**

Güllük**

Bodrum Cruise

•Port Akdeniz**

MIP**

* Private Ports
** Privatized Ports
*** Public Ports

Figure 3.4.3: Ports and terminals in Turkey. Source: Esmer and Duru (2017: 217)

Figure 3.4.4 illustrates the Turkish ports in terms of their size and also provides an idea about the density of ports along the Turkish shores. Othman *et al.* (2019: 20) classifies the port sizes from an annual throughput perspective. From that perspective, if the annual throughput is not more than one million tonnes, it is a small port. If annual throughput is between one million to 10 million it is a medium size port and lastly, if annual throughput is more than 10 million, it is classified as a large size of port. It can be seen that most of the ports in Turkey are small in size; the large ones are in the Marmara region due to the many industrial facilities around the Marmara Sea and its location close to Istanbul.

Port icons are color coded by size.

Very Small — Small — Medium — Large — Very Large

Region icons are teal — Country icons are red

Figure 3.4.4: Ports in Turkey in terms of their size. Source: worldportsource.com (2016)

Turkey experiences a similar evolutionary process with its upward and downward swings, as with every developing country. Government intervention has been a major factor in Turkey, as in many other countries, in terms of building the port industry (Esmer and Duru, 2017: 214).

Several large developments have undertaken recently due to certain changes in the Turkish port environment internally and externally. These significant developments include: port users' increasing and changing demands; the privatization of container ports; the entry of global terminal operators into the port market; increasing investments in existing container port facilities; emerging green field port project; the development of dry port; intermodal transhipment- and logistics centres at the Hinterland of ports and ports' involvement in hinterland transport operations (Gocer *et al.,* 2019: 283). Figure 3.4.5 illustrates the decreasing number of public ports during the commercializing period between

the years of 1996 and 2015. This figure illustrates the privatization effect on the public ports in Turkey between the years of 1996 and 2015.
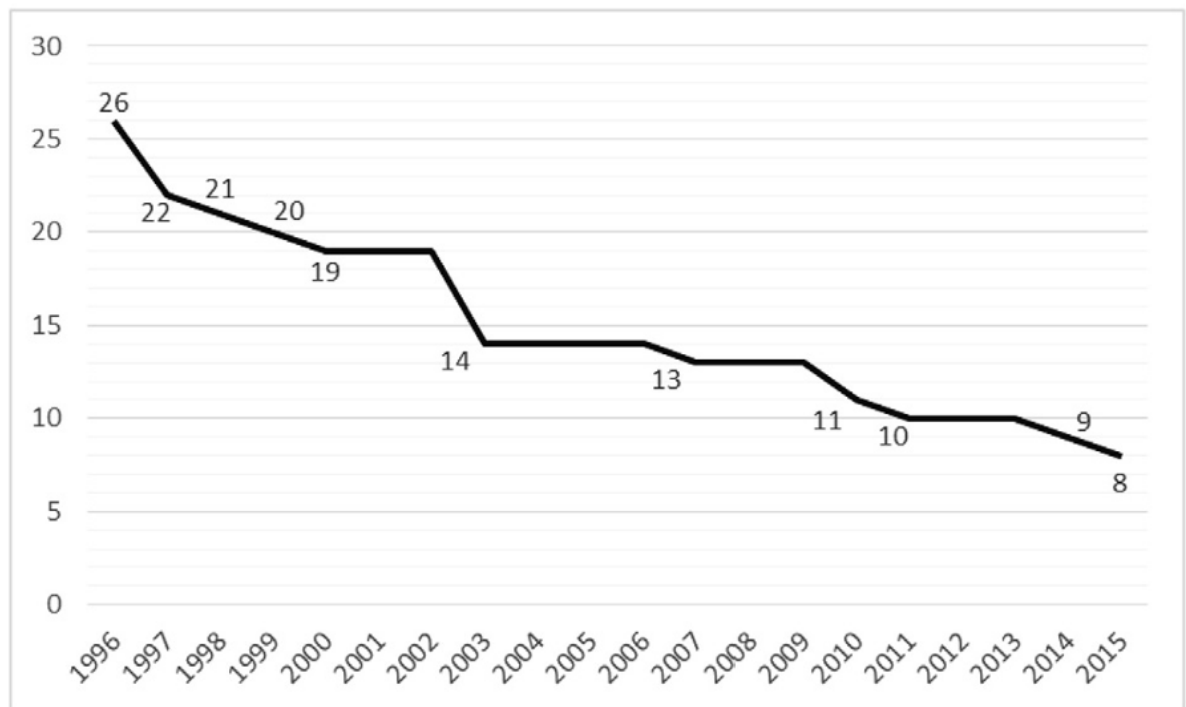
Figure 3.4.5: Decreasing number of public ports during commercialisation period (1996-2015). Source: Esmer and Duru (2017: 218)

The breakthrough that was experienced in the 1980s helped Turkey to increase its foreign trade. In the year 2013, foreign trade reached 403.4 billion dollars which, is 262.6 times higher than foreign trade in 1980 (1.5 billion dollars). Despite the great numbers in the general trade volume, the 2009 global crisis had a negative influence (Aksoy and Durmusoglu, 2020: 208).

The Turkish government has been proposed several port projects (including large sized container terminals) in the last decade. Direct investments from foreigners have had a crucial impact on the development of Turkey's port industry as well as its port governance regime. In addition, global terminal operators, new institutional players, have also influenced and still influence the role of the government and communication links between ports and government. As a result of these influences on global terminal operators, port operation capacity has

changed as well as the local and central government's attitude to the ports (Esmer and Duru, 2017: 215).

Two main hinterlands (Marmara and Ege (Aegean) regions) gained the most significant benefits from the new port governance regime and direct investments from foreign capitals, in order to develop their 'port business' environment (Esmer and Duru, 2017: 215).

Between the years of 1997 and 2016, 2.8 billion US dollars were earned according to the Privatization Administration of Turkey (Esmer and Duru, 2017: 218).

Turkey aims to improve its maritime trade and is already aware of a need for capacity expansion. Therefore, it is searching for appropriate investors (see Figure 3.4.6). Increasing port capacities and changing ports into logistical centres which offer the combination of handling the cargo and guaranteeing the quality of port management is important for governance (Yazgan, 2015: 4).
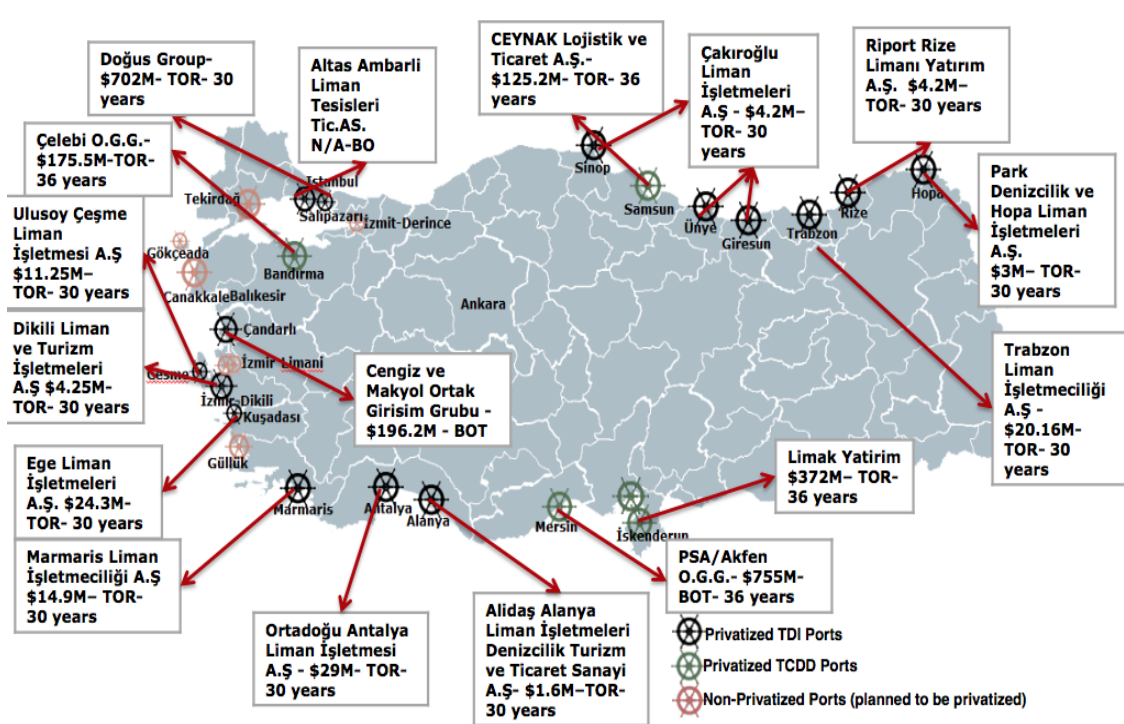
Figure 3.4.6: PPPs have fired up the Turkish maritime sector. Source: Republic of Turkey Prime Ministry Investment Support and Promotion Agency (2013: 61)

Turkey has a goal to become one of the logistic hubs between Europe and the Middle East; the Balkans; Caucasia; Russia; the Black Sea and Mediterranean countries. While doing this, Turkey wants to integrate its network of transport with Trans-European networks (Yazgan, 2015: 4).

The main focus point of the port reforms was port commercialization application by adopting the Build-Operate-Transfer (BOT) system under the name of privatization. The BOT model offers the right of operation between difference time ranges (30 to 49 years), where it does not give ownership rights to the private companies (Esmer and Duru, 2017: 221).

The need for legislation that is simpler and more comprehensible emerged in the Turkish port industry due to there being no single legislative scheme in terms of port development and port operation. In addition, there are too many bodies involved in the port business (Esmer and Duru, 2017: 220). Arduous bureaucratic processes can be viewed as the issue. Therefore, the Port Operators Association of Turkey (Turklim) was founded in 1996 in order to solve the private port operators' problems and challenges. Turklim has 60 members (including commercialized ports) and more than 90% of handling in Turkey is represented by Turklim (Esmer and Duru, 2017: 221).

Table 3.4.1 and 3.4.2 illustrate the importance of Turklim in Turkey by showing the comparison of the Turklim members and general Turkish ports in terms of general cargo and liquid bulk between the years of 2015 and 2019.

Table 3.4.1: Comparison between Turklim members and general Turkish ports in general cargo. Source: Turklim.org (2020)

GENERAL CARGO / TONNES					
	2015	2016	2017	2018	2019
TÜRKLİM	105.484.856	117.362.638	127.043.076	123.548.212	137.046.261
TURKEY	174.207.269	182.080.957	200.989.901	197.630.986	203.017.554
TÜRKLİM (%)	60,6	64,5	63,2	62,5	67,5

Table 3.4.2: Numbers of handling liquid bulk by Turklim member ports and its rate at the general liquid bulk handling. Source: Turklim.org (2020)

LIQUID BULK / TONNES	2015	2016	2017	2018	2019
	7.206.573	8.058.923	8.716.289	8.248.034	8.466.125
%	7%	12%	8,157%	-5%	3%

In terms of berth length, terminal area and container handling volume, the TCDD ports were the largest in the early 1980s in Turkey. For instance, the Ports of Izmir, Mersin and Haydarpasa, which are TCDD ports, handled more than half of the containers in Turkey during that time period (Esmer and Duru, 2017: 220).

The Privatisation Administration is the address for the TCDD ports transferred on December 30, 2004 (for more details, see Republic of Turkey Prime Ministry Investment Support and Promotion Agency, 2013).

The auction of Mersin port (2005) and Izmir port (2007) was won by the Port of Singapore Authority (PSA) and Hutchinson Port Holding respectively. PSA operated the Mersin port with Akfen Holding in 2007 and renamed the port with Mersin International Port (MIP). On the other hand, the global financial crisis in 2008 and lawsuit cases from port worker unions were concluded with the devolution of Port of Izmir. The importance of the Port of Izmir devolution was that it was the largest case with its bid value, of 1.275 billion dollars and 49 years of permission, which is the longest for a port in Turkey (Esmer and Duru, 2017:

220).

The Privatisation Administration had already concluded privatisation of the four TCDD ports via the Transfer of Rights (TOR) system. USD 1.4 billion is the profit from this privatisation as it can be seen at Table 3.4.3.

Table 3.4.3: Privatised TCDD ports. Source: Republic of Turkey Prime Ministry Investment Support and Promotion Agency (2013: 63)

Ports	Acquirer	PPP Type	Date	Winning Bid (USD million)	Duration
Bandırma	Çelebi OGG	TOR	5/18/2010	175.5	36-year operating license as of 2008
Iskenderun	Limak Yatırım Enerji Üretim İşletme Hizmetleri ve İnşaat A.Ş	TOR	12/30/2011	372	36-year operating license as of 2011
Mersin	PSA Akfen OGG	TOR	5/11/2007	755	36-year operating license as of 2005
Samsun	Ceynak Lojistik ve Ticaret A.Ş	TOR	3/31/2010	125.2	36-year operating license as of 2008

Container ports are the main interest for foreign investors in Turkey. In 2001, Terminal Investment Limited (TIL), which is a terminal investor of Mediterranean Shipping Company (MSC) (MSC, 2016), recognized the first acquisition of equity interest and acquired the equity interest of Marport (TIL, 2016). TIL continued their acquisitions and 49% shares of Assan Port was acquired by TIL in 2013 and Asyaport, which is one of the modern ports in Turkey, developed by TIL in the Marmara Region in 2013. Development of Asyaport has its unique characteristic as it is designed in order the meet the expectations of mega container ships and

being a transhipment traffic point to the Black Sea region with its infrastructure and superstructure (Asyaport, 2016).

The world container throughput saw in the margin of an 83.4% increase and reached 701m TEU in 2015, where the number was 386.6m TEU in 2006. In case of Turkey in that same time period, it showed a 115.8% increase and reached 8.2m TEU in 2015, where it was 3.8m TEU in 2006. Figure 3.4.7 shows the annual change in container port throughput for both Turkey and the world (Esmer and Duru, 2017: 219).

The Black Sea region showed an impressive 365% increase with 1.8m TEU in 2015 from 390k TEU in 2006 in terms of container transhipment (Esmer and Duru, 2017: 219).
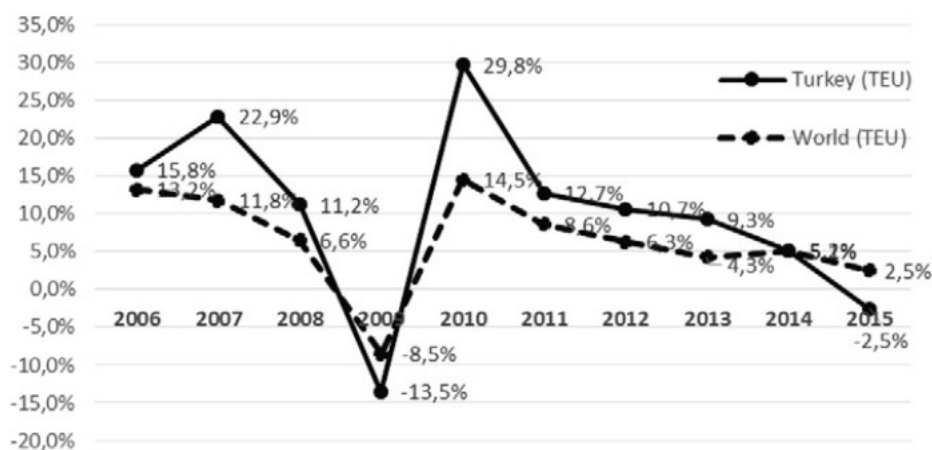
Figure 3.4.7: Growth rate of total container traffic at ports. Source: Esmer and Duru (2017: 220)

Multi-million investments (APM Terminals, Asyaport and DPWorld port projects) from GTOs to coastal areas of Turkey, changed the features of Turkish ports, which were moving from being local players to global players, in order to provide service to the Black Sea transhipment on the Far East-Europe main seaborne trade route (Esmer and Duru, 2017: 220).

Table 3.4.4 illustrates the details of GTOs' investments in Turkey between the years of 2001 and 2016. Additionally, Table 3.4.4 illustrates that the potential

capacity of ports operated by the GTOs are able to reach more than 15m TEU

and as is illustrated in Table 3.4.5, this capacity is much more than the current

container handling number (Esmer and Duru, 2017: 220).

Table 3.4.4: Global terminal operators in Turkey. Source: Esmer and Duru (2017: 221)

Port Name	Ownership	Max. capacity (TEU)*
MIP*	PSA (50%) + Akfen (50%)	2,600,000
Asyaport	Global Terminal Investment (GTL) (70%) + Soyuer Familiy (30%)	2,500,000
Marport	Terminal Investment Limited (TIL) (%50) + Arkas (%50)	2,400,000
Kumport	China Merchants (26%) + Cosco Pacific (26%) + China Investment Corporation (13%) + Oman State GR Fund (35%)	2,100,000
APM Terminals İzmir	APM Leasing Agreement with Petkim	1,500,000
Limak Iskenderun	Limak (80%) + Inframed (20%)	1,300,000
DP World Yarımca	DP World (100%)	1,300,000
TCEEGE	APM Leasing Agreement with Ege Gübre	1,000,000
Assan Port	Kibar Holding (51%) + TIL (49%)	400,000
Total TEU Capacity		15,100,000

Table 3.4.5: Top 10 container ports in Turkey (TEU). Source: Esmer and Duru (2017: 221)

Rank	Port name	2013	2014	2015
1	Marport	1,705,929	1,757,864	1,585,419
2	MIP[a]	1,366,823	1482,774	1,441,196
3	Kumport	1,295,569	1,414,303	1,169,019
4	İzmir[b]	697,026	680,972	656,410
5	Evyap	457,537	522,970	605,385
6	Yılport	305,135	354,410	375,003
7	Gemport	331,430	388,589	369,288
8	Mardaş	376,916	315,473	335,576
9	Ege Gübre	219,469	283,516	330,250
10	Nemport	258,275	256,554	254,311
	Turkey Total	8,001,510	8,418,780	8,203,511

[a] Commercialized port.
[b] Public port.

On the other hand, Table 3.4.6 below illustrates the largest ports in Turkey in

terms of dry bulk and general cargo handling numbers between the years of 2013

and 2015. As seen in the table, there are only two commercialized ports in the

top 10 and the rest are operated by private entrepreneurs **(**Esmer and Duru, 2017: 219**).**

Table 3.4.6: Top 10 dry bulk & general cargo ports in Turkey (tonnes). Source: Esmer and Duru (2017: 219)

Rank	Port name	2013	2014	2015
1	Isdemir	12,416,089	12,540,440	12,462,783
2	Erdemir	10,113,000	9,825,056	10,475,000
3	İçdaş	9,642,494	9,447,673	8,824,967
4	MMK	6,729,713	7,190,479	7,901,463
5	MIP[a]	7,561,602	8,835,718	7,748,856
6	Toros Tarım (Ceyhan)	4,271,430	4,418,597	5,775,187
7	İDÇ	2,645,430	3,335,419	3,799,380
8	Çelebi Bandırma[a]	3,790,529	4,312,566	3,484,745
9	Poliport	2,447,694	3,096,115	3,356,902
10	Borusan Port	3,113,551	3,039,182	3,198,902
	Turkey Total	169,749,071	169,927,871	174,207,269

Turkey has showed a prospect as a developing economy with its high growth of trade demand, also with the demand for the additional trade hubs increasingly. This circumstance offers a significant opportunity to the private seaports, which are sharing the same hinterland with local seaports (Gokkus *et al.,* 2017: 6).

There are several variables that influence the decision-making processes, which are relatively long processes related to port investments in Turkey. Macro environmental dynamics (economic and legal factors) and a company's internal dynamics have an influence on the related decision-making processes (Esmer and Duru, 2017: 220).

The lack of specific port authority, which regulates the port-related problems, makes the legal and managerial issues the most significant issues in the port investment process in Turkey. Five general directorates and more than 10 ministries are the responsible bodies in port projects depending on the type of port investment (Esmer and Duru, 2017: 220).

Lastly, in terms of seaport efficiency, public seaports have better infrastructure efficiency, while private seaports perform better in superstructure, operation and financial segments (Guner, 2015: 47).

3.5 The UK Port Environment for Small and Medium Ports

The purpose of the three interviews (Falmouth – Poole – Gloucester) is to understand the United Kingdom port industry current condition more fully and determine the problems of the United Kingdom port industry countrywide rather than generalizing the current trends and conditions by only examining the, in terms of sustainability management.

The UK's port system is one of the largest in the world and was ranked among top in the world in years of 2009 and 2019 in terms of container export and import. Exporting 1.4 and 1.5 million TEU and importing 2.3 and 2.5 million TEU respectively assisted the UK port system to be ranked among the top (Asgari *et al.,* 2015: 20).

These figures show the importance of the port industry to the UK's economy. Port authorities (Port of London Authority, British Port Association) and companies (Brookfield Ports Company) are the governing bodies of the port system in the UK (Asgari *et al.,* 2015: 21).

In the UK system, there are three types of port, which are private, trust and municipal. Among these three types of ports, privately owned ports are the largest with the majority of them being container ports. (Monios, 2017: 79).

There are two types of port management in the UK, neither of which is government run. Firstly, all large ports, which are owned by private companies and involved in the ports that belong to ABP, Forth, Tee & Hartlepool, Felixstowe and Liverpool are examples of this type of port management. Secondly there are ports which are owned by a trust. The difference with these ports is that they are independent of shareholders and the government (Asgari *et al.,* 2015: 22).

The UK port system is largely highly privatised. Privately owned and operated ports handle almost 69% of tonnage (Monios, 2017: 78).

In terms of tonnage in 2014, 15 of the top 20 ports are private ports. Trust ports were established by their own Act of Parliament and therefore they have specific statutes. The statutes allow trust ports to reinvest the profit in the port rather than reporting to the shareholders. According to a report in the House of Commons in 2013, only 20 out of over 100 trust ports all around the UK exceeded £1m with their annual turnover. The majority of the UK ports are municipal, where local authorities own and operate them, usually offering leisure services even though some of the municipal ports handle commercial traffic (Monios, 2017: 79).

The majority of UK ports and harbours offer their services to the leisure and fishing sectors. The number of the ports that report commercial traffic is 161 (53 of them classed as major ports and 108 of them classed as minor port), which handle 98% of traffic (Monios, 2017: 78).

In the container sector, the UK ports handled 9.5m TEU in 2014. The first four ports are Felixstowe, Southampton, London Tilbury and Liverpool with 4.1m TEU, 1.9m TEU, 1.1m TEU and 666,000 TEU respectively, where Medway Thamesport lost its fourth position to Liverpool and came fifth with a huge decline from 2008 (773,000 TEU) to 2014 with 179,000 TEU (Monios, 2017: 79).

Figure 3.5.1 illustrates the tonnage handled by all UK ports between 1980 and 2019, which is 486.1m tonnes. There is a 1% increase on tonnage handled by UK ports in 2019 compared to 2018 and UK ports handled 486.1m tonnes in 2019 (DfT, 2020: 1).

All ports handled: **486.1** Million tonnes **23.5** Million units
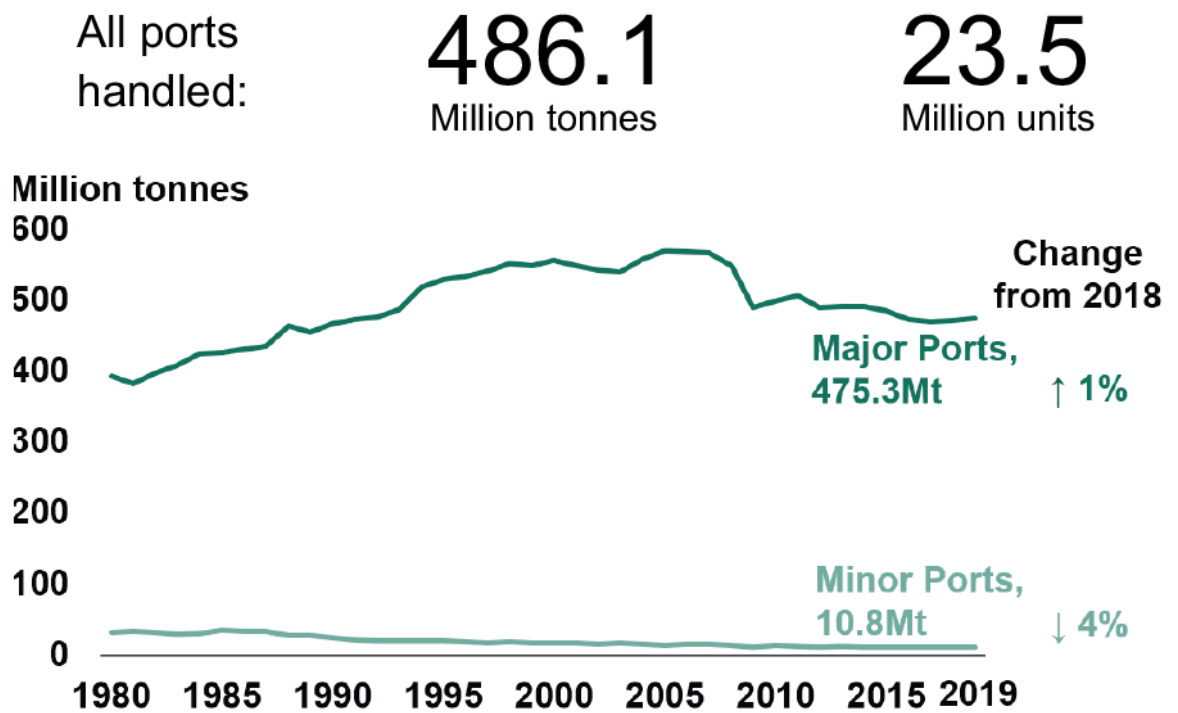
Figure 3.5.1: Tonnage handled by UK ports 1980-2019. Source: DfT (2020: 1)

There are 120 ports that offer different types of services throughout the UK, which contribute to the UK port system being the second largest in Europe with 560 million tonnes per year, where the top 16 ports play a major role in handling 80% of shipping (Asgari *et al.,* 2015: 22). Figure 3.5.2 illustrates the top 10 major UK and all other major ports by tonnage in 2019 with a comparison of their performance in 2018.

	Million tonnes	Change from 2018
Grimsby & Immingham	54.1	↓ 3%
London	54.0	↑ 2%
Milford Haven	35.0	↑ 13%
Liverpool	34.3	↑ 5%
Southampton	33.2	↓ 4%
Tees & Hartlepool	28.2	↓ 2%
Felixstowe	25.3	↓ 10%
Forth	25.2	↓ 5%
Dover	23.4	↓ 6%
Belfast	18.5	↓ 2%
All other major ports	154.9	↑ 4%

Figure 3.5.2: Top 10 UK ports by tonnage. Source: DfT (2020: 4)

Figure 3.5.3 illustrates the tonnage by cargo type in 2019 for UK ports. Even though there was a 1% increase in 2019, from the top 10 ports from the UK perspective, the amount of tonnage handled stayed at the same level although some ranks have changed within the top 10 ports in the UK. (DfT, 2020: 4). Tees and Hartlepool, London, Grimsby and Immingham, Southampton and Milford Haven, which are the largest five ports in terms of tonnage, handle more than 200m tonnes per year (Asgari *et al.,* 2015: 21)**.** An increase in tonnage at Milford Haven in 2019 made it the third largest port in the UK from the fifth ranking. There has been an increase in terms of tonnage traffic in Liverpool port whereas there has been a decrease in Southampton port, resulting in Liverpool overtaking Southampton's ranking in 2019 (DfT, 2020: 4). A sustainable increase in the London port in terms of tonnage traffic over the years has helped London to reach the same level as Grimsby & Immingham tonnage handling with additional help

of the London Gateway expansion in 2019 (DfT, 2020: 4). Lastly, Dover stays strong in its rank as the largest Ro-Ro port in UK with the statistics of handling 26% of unitised traffic and 22% of Ro-Ro tonnage out of all the UK ports in 2019 (DfT, 2020: 5).

As an island nation, 42% of port traffic is with EU countries, while the main part of the traffic (80%) is international at UK ports. In addition, container feeders, oil products and passenger movement between Northern Ireland and Scotland all counted as domestic traffic.
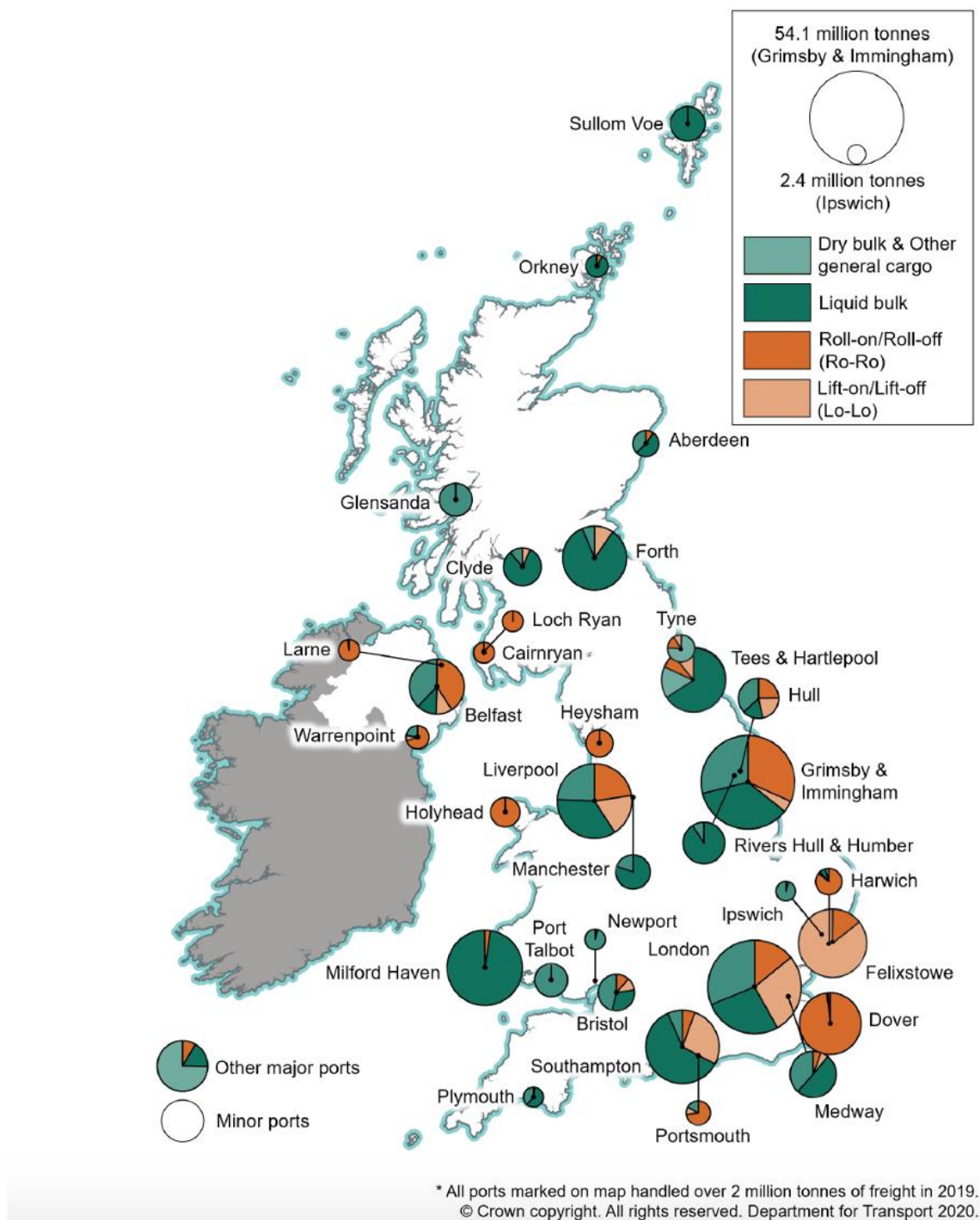
Figure 3.5.3: UK ports: Tonnage by cargo type in 2019. Source: DfT (2020: 5)

The EU remained the largest trade partner for the UK port sector. In 2019, 196.9m tonnes, which is 41% of total port traffic, were transported between the UK and the EU which was more than any other region in terms good transportation (DfT, 2020: 1). Trends in major English ports have a significant influence on the UK trend, which resulted in up to 70% of tonnage handled in 2019 (DfT, 2020: 4).

Figure 3.5.4 illustrates the UK port tonnage by cargo between the years of 2000 and 2019 and cargo types direction either in a positive or negative way from the year of 2018.

Northern Irish ports stayed relatively stable over the past four years since 2013 from the perspective of tonnage handling, until the decrease in 2019 in terms of traffic. All major ports were impacted on negatively except Londonderry during this decreasing period. A fall in the numbers of agricultural and oil products was the main reason for the decline in 2019, where Belfast had the most significant fall with a 0.4m tonnes decline among the other major ports in Northern Ireland (DfT, 2020: 4).

On the other hand, for the Scottish ports, there has been a long-term decrease, even though it has plateaued over the last four years. The liquid bulk fall, specifically crude oil, has been the main reason for the decline, in liquid being handled. In 2019, a small increase in traffic being handled was noted, which was driven by Sullom Voe port with a 38% increase in traffic in terms of crude oil (DfT, 2020: 4).

After a three-year period of decline, Welsh ports experienced an 8% increase in 2019 compared to 2018, which is nearly the same level as 2009 numbers, in terms of the total tonnage handled. Milford Haven was the main driver for this increase with 4.8m tonnes increase in liquefied gas handling (DfT, 2020: 4).
In terms of cargo categories, all cargo categories except liquid bulk, which has been on a constant decrease since 2000, experienced a small decrease in tonnage traffic in 2019 (DfT, 2020: 7).
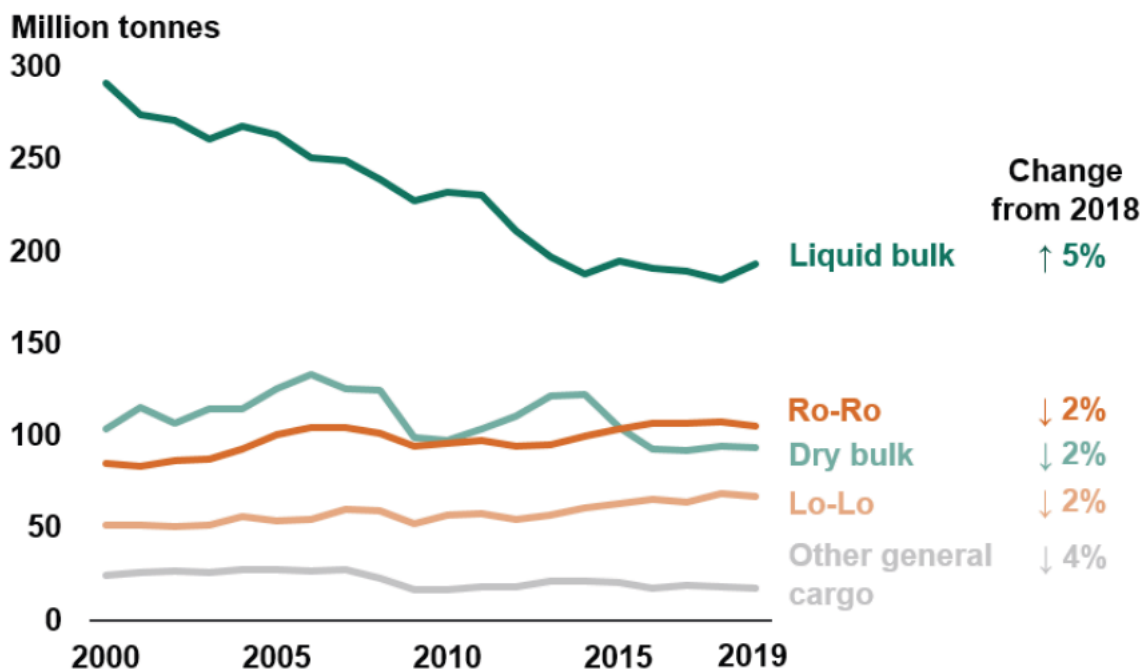
Figure 3.5.4: UK port tonnage by cargo since 2000. Source: DfT (2020: 7)

The UK ports positioned themselves in a stable condition in 2019 with 383.2m tonnes international tonnage handling compared to 2018. In addition, the UK maintains a trend of importing (67% of international traffic) goods more than exporting goods by sea (DfT, 2020: 11).

Despite a general downward trend, domestic traffic in the UK increased by 3% with the help of an increase in bulk goods in 2019 (see Figure 3.5.5) (DfT, 2020: 11). Belfast stayed in the first ranking with 12.2m tonnes in terms of handling the domestic traffic. Ro-Ro traffic has the main role in coastwise domestic traffic in handling 7.6m tonnes. Furthermore, other dry bulk has experienced an upward trend since 2016, reaching 1.7m tonnes in 2019 (DfT, 2020: 15).

In 2019, An increase in coastwise traffic in terms of oil products led to Grimsby & Immingham experiencing a 22% increase compared to 2018 (DfT, 2020: 15).
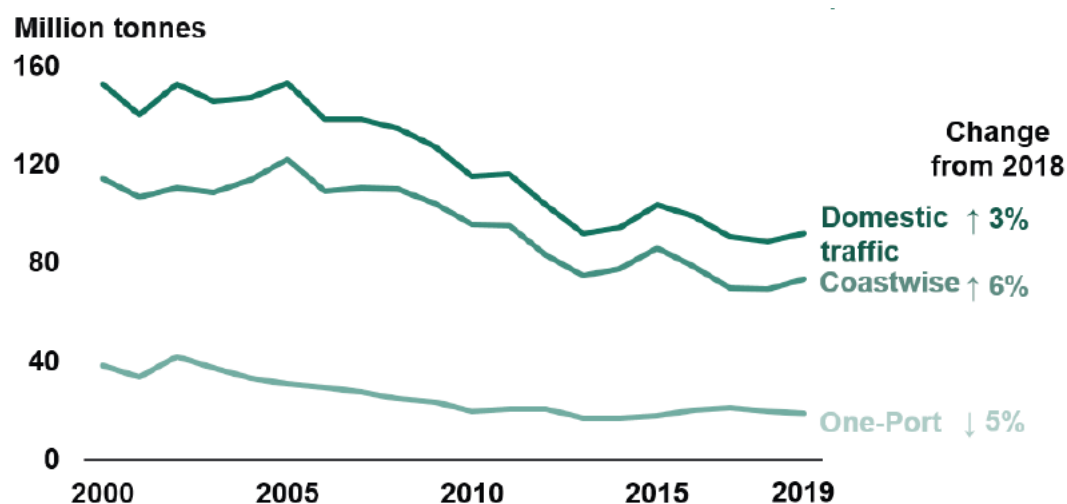
Figure 3.5.5: Domestic traffic by type in UK since 2000. Source: DfT (2020: 15)

Freight moved by water in the UK is covered by domestic waterborne freight with inclusion of inland waterways traffic, coastwise and one port traffic. Calculations for this section include freight handled on rivers, canals and by minor ports (DfT, 2020: 16). The UK ports show a 4% increase in 2019 with 25.2 billion tonne-kilometres in terms of total amount of goods movement, despite its recent decreasing movement. 97.5m tonnes is the amount which stayed in a stable position in 2019 in terms of goods lifted (see Figure 3.5.6) (DfT, 2020: 16).

Goods lifted		Million tonnes	Change from 2018
One-port		19.4	↓ 6%
Coastwise		37.8	↑ 2%
Inland waters		50.5	↑ 1%
Total		97.5	= 0%

Goods moved		Billion tonne-km	
One-port		7.1	↓ 12%
Coastwise		16.8	↑ 12%
Inland waters		1.7	↑ 6%
Total		25.2	↑ 4%
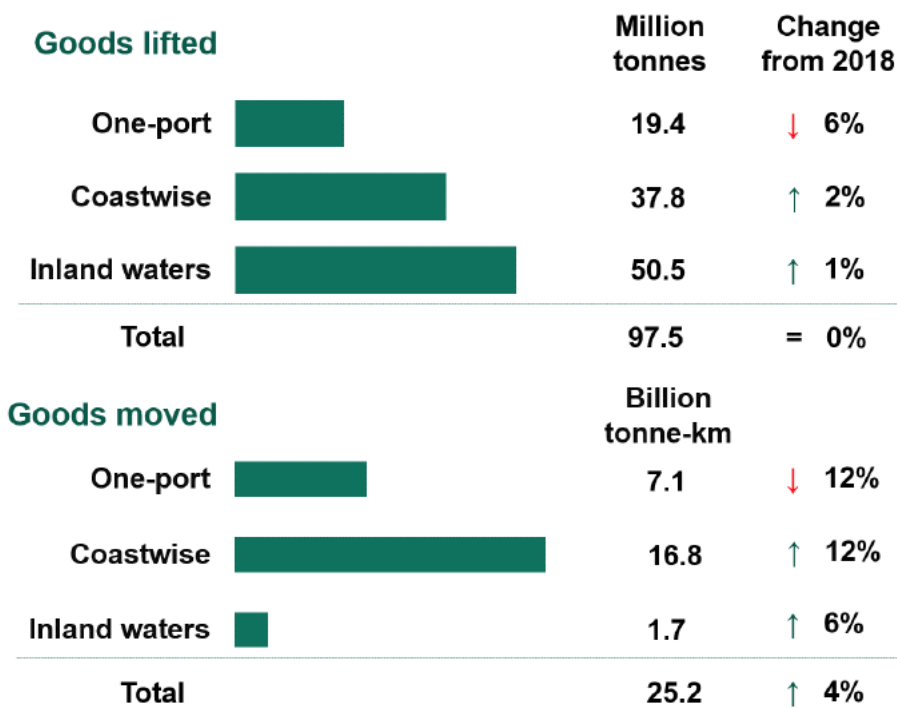
Figure 3.5.6: Domestic waterborne freight goods moved and lifted in UK in 2019. Source: DfT (2020: 16)

3.6 Research Gap

In Chapter 1 and section 1.1, a sample selection is chosen from previous research on which to build the thesis for this research. The selection is of smaller ports based in the Cornwall and Devon regions of the UK, which have the PSMS in place. There is a gap related to the application of the PSMS in medium and large sized ports in other regions of the UK and ports worldwide.

Turkey has been selected as a case study country to compare sustainability awareness between the British ports and Turkish ports. In the history of the PSMS, it has not been applied to the Turkish ports. Therefore, a further research gap has emerged, which is the application of the PSMS to Turkish port organisations and an evaluation of what is required to make the PSMS applicable to ports worldwide as sustainability management system.

As the literature review (see section 2.3 and section 3.3) indicates, there are various sustainability management systems which are used by ports, which align

with their unique structure and requirements in terms of sustainable development. However, these systems do not follow a holistic approach. Therefore, there is a lack of a sustainability management system which has a holistic approach, which is identified as a gap in the literature review. In order to address the research gap, a new approach is necessary to update the PSMS (see section 3.3.1) by re-grounding the 11 pillars of the PSMS as a free tool available to port organisations. This re-grounding process has been done in the context of Turkish ports used as a case study in which priorities and needs have been considered to assist port organisations to conduct self-assessment in terms of their sustainability management.

Some of the reviewed studies in section 2.5 and section 2.7 mentioned that there are various types of port governance applied to port organisations which are determined by mission drivers. The fact that port organisations have unique mission drivers, results in the lack of a port sustainability management system which can be applied to ports worldwide. This lack represents a gap which this thesis aims to address and fill, by updating the PSMS to create a port sustainability management system which can be applied to ports worldwide.

3.7 Conclusion

In the port industry, as mentioned in the practical literature review chapter, there are various sustainability management systems, most of which have been designed to address environmental sustainability issues to assist ports to achieve the sustainability goals. In this sustainability management systems environment, the PSMS may fulfill the needs of the port industry worldwide, due to its holistic approach.

In order to meet the expectations of the stakeholders and environmental legislations, port management bodies have several sustainability practices in

their organisations. Port sustainability management systems have been chosen to assist port management bodies in regard to address these expectations. During the experience of adapting port sustainability management systems to their organisations, port management bodies recognised that the majority of the port sustainability management systems are costly for their organisations. The PSMS, provided as a free tool with holistic approach, could be the solution to overcome to this obstacle by offering self-assessment services to port management bodies.

Turkish ports offer potential to foreign investors due to their geographical locations, while foreign investors need to consider lengthy bureaucratic processes, and a lack of a specific port authority to manage into the equation of their investments.

The UK port industry has been in a stable position in the last four years, apart from a small decrease in the minor port industry. The EU is still the biggest partner with the UK port industry; however, numbers need to be checked after Brexit has been officially finalized.

The next chapter will explain the research methodology that been designed, used and adapted for the thesis.

CHAPTER 4: RESEARCH METHODOLOGY

4.1 Introduction

This chapter presents the research methodology and how it is applied to the thesis. The chapter begins by considering the research philosophy and identifies the reasons why it is suitable for the thesis. After identifying research philosophy, the chapter introduces the selected research approaches and their suitability for the thesis. In the third section, the research strategy for the thesis is reported. The chapter continues with details about the types of data to be collected and how data is examined. The data sampling and the sampling techniques that are applied are presented before sample selection of ports and their managers' attitudes towards the PSMS and possible updates to the PSMS are explained.

4.2 Research Approaches

There are three types of research approaches, which are the inductive approach, the deductive approach and abductive approach. In this thesis, abductive approach is proposed.

4.2.1 Abductive Approach

The abductive research approach is the combination of deductive and inductive research approaches. The deductive approach proposes a hypothesis or hypotheses based upon an existing idea and then expresses the research approach required to examine it (Silverman, 2013). A deductive approach may also be used in cases where expectations developed by an existing project could be developed in ways other than through testing of a hypothesis (Saunders *et al.*, 2007). The deductive approach is applied in analysing current PSMS data used in port sustainability planning from differing perspectives of port sustainability management, mentioned above in the literature review. A deductive approach is

selected to identify themes or categories that are helpful in analysing links to the current existing theory of PSMS. By using deductive thematic analysis, research questions of the research thesis led to themes used to analyse the qualitative data.

The inductive approach is defined as a progression from the specific to the general (Bryman and Bell, 2011). In an inductive research approach, there is no structure that firstly informs collection of the data and the research focus. Structures for analysis can be designed after the data collection phase is complete (Flick, 2011). Even though it may appear that new theories are being generated, after analysing the data, it may be found that they fit into an existing theory (Bryman and Bell, 2011). Induction is usually used in qualitative research such as in this thesis. Interviews are being arranged to talk about specific concerns and then the collected data from the interviews are analysed to look for patterns between interviewees (Flick, 2011).

The inductive part of the approach is used to modify or add more themes/codes to the PSMS during the phase of analysing and exploring the related data and the interviews from Turkey and United Kingdom in order to make the PSMS a worldwide approach.

4.2.2 Qualitative Data

Qualitative data is generated by the thesis because the research strategy involves interviews and questionnaires to assess perceptions and understanding. A key issue in this strategy for data collection is that researchers must avoid influencing the interviewees with their perceptions (Banister *et al.*, 2011). Feilzer (2009) summarises the output of the method, the interviewees structure the project, not the researcher. Hence, the most reliable way to gauge the interviewees' perceptions of related topics is through interviews.

4.3 Research Strategy

The research strategy explains how the researchers plan to do the project (Saunders *et al.*, 2007). The research strategy can involve different strategies including action research, case study and ethnography, outlined below.

4.3.1 Case Study

A case study is a strategy, which is used to test an individual or a single unit to find its important features and generalise them if appropriate (Bryman, 2012). A case study reveals the significance of culture and context within the perspectives of differences between cases (Silverman, 2013). In this thesis, a case study is used to examine the awareness of sustainability in port planning and port management in the selected countries, which are Turkey and United Kingdom. It also provides an opportunity to compare how cultural differences influence sustainability in terms of the shipping and ports industry. Lastly, a case study is selected to focus on selected sample port organisations individually in order to generalise the potential features to make the PSMS a worldwide approach.

Details of the research strategy are given below.

In pilot study, as a research strategy for the thesis, the research began by investigating the need for sustainability planning in ports, including environmental planning requirements, governance and mission drivers and stakeholder influences by undertaking a literature review on the related subtitles under the sustainability. The commonalities of any sustainable development needs in ports are analysed with the assistance of literature review and nine interviews are conducted with interviewees from British and Turkish ports. The characteristics and management processes of any systems available to assist port sustainability planning (including PSMS) are compared throughout the literature review under the title of port sustainability management systems. Next, current sustainability

practice in a theoretical sample of ports is synthesised by using the gathered data from the conducted interviews. In the main study, within this sample, the attitudes of sample port authorities towards PSMS and their general reaction to the PSMS in terms of the PSMS's suitability for port needs are assessed along with their requirements for sustainability planning. Assessment is executed with the assistance of scoring criteria of the PSMS's 11 pillars (check table 4.3.1.1 to see scoring criteria of selected pillars). Perceptions of any issues with regards to implementing the PSMS into port organisations are examined from the conducted interviews. Any modifications of the PSMS required to guide applications, are undertaken with the guidance of the interviews conducted.

Table 4.3.1.1: Scoring criteria of selected pillars of the PSMS. Source: Kuznetsov (2014: 399)

Environmental Knowledge and Awareness (EKA)	(1) No relevant data relates to the quality of seabed and marine habitats in the harbour. (2) We rely on external stakeholders to provide environmental warnings to the Harbour Authority relating to the quality and sustainability of habitats. (3) We rely on unreliable data without scientific evidence (past or present) regarding quality of seabed habitat as a vehicle for environmental management. (4) We have reliable data on habitat composition and condition. (5) We proactively seek new data and knowledge to find tangible evidence to support what we are trying to do, since good science is hard to challenge.
Environmental Management (EM)	(1) No environmental management practices are in place; environmental legal issues are being raised. (2) We implement management practices based on an instinctive professional view, rather than a formal environmental assessment process. (3) We use research as a mechanism for environmental management; we apply measures to mitigate environmental impacts. (4) We undertake appropriate environmental assessment on routine and non-routine operations in the harbour. (5) We have an accredited environmental management system to establish the causes and mitigate the environmental impacts of significant operations.

Stakeholder Engagement (SE)	(1) We use reactive measures based on community and stakeholder concerns and conflicts. (2) Benefiting our stakeholders is a part of our strategy (e.g. supporting young people, maritime events, sailing at lower price) (3) We proactively consult to listen and soften conflicting interests and bring more people to the negotiating table. (4) We educate harbour users and are effectively engaging stakeholder groups about issues relating to harbour sustainability and putting a communication strategy in place. (5) We proactively engage with stakeholders and are able to influence stakeholder's perceptions (e.g. governing bodies). We establish working partnerships and take part in joint projects to benefit the harbour and local community.
Business Planning and Management (BPM)	(1) We have little or no annual surplus, no resources to undertake development, little or no increase in demand and unused infrastructure. (2) Investment and development take place only around the main source of revenue of the harbour. (3) We balance supply and demand of assets and infrastructure to reduce maintenance costs, resulting in a consistent surplus. (4) We apply business measures to increase efficiency to reduce overall operational costs and increase surplus. (5) We have dedicated savings programmes for various long-term planning and improvement initiatives. We significantly increase the harbour's resilience to the economic climate through contingency planning. We engage the Board's strategic thinking and continue to innovate around existing and new sources of revenue.

Finally, the influence of governance systems and other factors for the requirements of the PSMS, and its design and implementation are evaluated. All of the steps are undertaken via e-mail, phone or face to face conversations.

The geographical distances between the location of the study in Plymouth in the UK and the case study port organisations in different regions of Turkey and the interviewees' busy work and business travel schedules, face to face interviews were not always possible. Six of the interviews conducted in Turkey were done either via phone or e-mail.

Literature reviews and desk research have identified legislative requirements and other drivers of sustainable port planning. Finally, later phases of the research

require skills involving models of implementation, validation, and possibly surveys.

Initially, desk research investigated the need for sustainability planning in ports and attempted to identify any commonalities. After investigating the management systems currently available, theoretical sampling in other parts of the world (e.g. Turkey) is deployed to investigate any commonality in current sustainability management practice in different port contexts. Following an examination of the requirements of a range of port managers for sustainability planning, and their attitudes towards PSMS, the impact of governance and other factors on the design and implementation of PSMS are investigated.

Indicative research actions required to achieve these objectives are likely to include:

Actions:

S1 (mainly O1: O3) Undertake literature reviews and desk research to review:

a) Published sources of data relating to drivers of port sustainability planning (e.g. legislation, pressure from stakeholders or peers, impacts on performance);

b) Sustainability systems available to ports;

c) Published sustainability management practice at ports e.g. websites, annual reports, sustainability reports.

S2 Conduct an online/ phone/paper survey of ports, after assembling suitable sampling frames in two phases for research objective 4&5. The purpose of the pilot study is to understand current situations of related ports and obtain some basic information and data from them. The purpose of the main study is to collaborate with port authorities to evaluate the usefulness of the PSMS in related ports and to gain a common sense of the related ports' tendencies of using the PSMS to their ports' self-assessments.

a) Pilot Study: Inventory of number and type of ports

- Contact details (email, phone, fax.)

- Number of employees, turnover,

- Ownership/governance structure

- Major designations / physical issues

- Mission statement

- Major commodities handled

- Principal maritime operations (e.g. anchoring, bunkering, dredging)

- Port development plans

- Three current prime concerns of port managers / Harbour Masters / Board Members

- Methods used for strategic planning (e.g. Master planning)

- Current sustainability planning (why and when is it done, how is it done, who does it, how is it monitored)

- Perceived need for sustainability planning; perceived likely benefits; perceptions of problems/ issues

- Any local networks for liaising with other ports in the domain (e.g. professional or trade associations, statutory meetings, informal networking or benchmarking)

b) Main Study:

- Are respondents willing to apply PSMS and discuss their experiences?

- General reactions to the suitability of PSMS for port needs

- Perceptions of any issues relating to the implementation of PSMS

- Future development plans and how PSMS has assisted in managing them

  S3 (O5, O6) Sample interviews to assess the actions required to embed PSMS into strategic planning and port development plans. Interviews or a wider quantitative survey with a representative selection of ports to assess:

- Potential benefits of applying PSMS;

- Modifications to PSMS required to assist applications

- Implications for port training, IT investment,

- Scope for implementation, mechanisms for benchmarking, meetings to share best practice

- Attitudes towards possible strategies to manage unsustainable ports.

4.4 Data Collection and Data Analysis

The data collection part of the thesis is acquired in two phases. The aim of the first phase is to collect general data about Sustainable Port Management and sustainability in port planning and to observe the level of awareness regarding sustainability in ports in the case study countries. The second phase of the data collection intends to assess the outputs of the PSMS performance and obtain feedback about the PSMS modification if necessary. Two types of data are collected for the thesis, which are primary and secondary data.

4.4.1 The Primary Data

Primary data is collected from first-hand resources (Bryman, 2012). The data that is collected via conducting interviews with Harbour Masters, chief executives and those in charge of the organisations provide the primary data of this thesis. The nine interviews (three in United Kingdom and six in Turkey) are taken by administering the questionnaire in face-to-face meetings, phone calls recorded using a voice recorder after the respondent has given their permission, or via e-mail exchange.

4.4.2 Secondary Data

Other researchers' work or opinions are defined as a secondary data (Newman, 1998). A theoretical literature review (Sustainability; Sustainability Development

Needs in Port; Sustainability Planning; Mission Drivers of Sustainability Planning; Environmental Planning Requirements; Port Governance and Stakeholder Influences) and a practical literature review (Sustainability Practices in Ports; Port Sustainability Management Systems; Introduction to the Case Study of Turkey and the UK Port Environment for Small and Medium Ports) are the secondary data that is used in the thesis with the addition of literature review on organisational culture and cross-cultural in chapter 6.

4.5 Samples

According to Bryman (2012), a sample is defined as a segment of a larger population. Even though the characteristics of samples are important in quantitative research, smaller samples are often chosen in qualitative research whereas large samples are required in quantitative research.

4.5.1 Sampling

There are numerous research techniques available for dealing with samples. (Neuman, 2003). Interviews offer an appropriate technique to assess the awareness of sustainability in different case studies.

The aim of choosing interviews as a research strategy is to gather data relating to the level of awareness of approaches to sustainability management in the port industry in the case countries. In addition, interviews aim to identify any obstacles to ports becoming more sustainable based on discussions with Harbour Masters, Chief Executives and those who have a substantial amount of experience. Three scoping interviews have been set up to achieve the first research objective. This objective aims to investigate the need for sustainability planning in ports, including environmental planning requirements, governance and mission drivers and stakeholder influences of the thesis. These interviewees are from the Falmouth Harbour Commissioners (Interviewee 1), the Poole Harbour

Commissioners (Interviewee 2) and Gloucester Harbour Trustees (Interviewee 3) in the United Kingdom.

The sample ports are selected to include examples of different types of ports such as trust ports, private ports or organisations that works under larger organisations such as Gloucester port. Interviewees selected have a role in port planning and management processes, with responsibilities to the stakeholders of the organisation, to facilitate an understanding and an examination of the relationship between them and their stakeholders from a financial perspective.

Interviews are conducted and further proposed in Turkey which share the same goals and aims. Additionally, two informal interviews with the Chairman of the Executive Board of Kumport and Chairman of Board of the Directors of ARPAS shared their experiences. Apart from Kumport and Arpas executives, an interview is conducted with the high level on management in Port Akdeniz. An interviewee from Port Akdeniz provided contact lists of another three Turkish ports, which are Marport, Mersin Port and Tcg Aliaga.

Due to privacy legislation in the private sector and a reluctance to of some port organisations to share information, a snowball sampling technique is selected, selecting Turkish ports only. This results in a limitation to assessing the applicability of the PSMS on a worldwide scale. Other contacts are identified based on snowball sampling with the interviewee from Port Akdeniz. After the consideration of port organisations as a case study from Turkey, six interviews have been conducted; Interviewee 4 from Port Akdeniz, Interviewee 5 from TCDD Izmir Aliaga Port Management, Interviewee 6 from Haydarpasa Liman Isletme Mudurlugu, Interviewee 7 from Kumport, Interviewee 8 from Trabzon Liman Isletmeciligi A.S and Interviewee 9 academic lecturer from 9 Eylul University.

4.6 Sample Port Selection and Attitudes

The aim of the thesis is to study the appropriateness of an existing PSMS considering wider viewpoints for self-assessment in terms of type and governance.

The questionnaire, which is shown in Table 4.6.1 below, is administered to the interviewees to elicit their answers to examine their sustainability awareness and to learn about their management styles. The questionnaire includes some general questions such as port turnover, number of employees, and the role of interviewees in the organisation, to gain a general view of the sampled port. The other questions are related to sustainability awareness, sustainability management and sustainability systems.

Table 4.6.1: The interview questionnaire. Source: Author

1. *First of all, I would like to ask some basic information such as number of employees and turnover of your port. Of course, you do not have to give this information if it is confidential.*
2. *Could you please tell me about your role in this organisation and your background briefly please?*
3. *Could you please state the mission statement of your organisation in a simple and basic way?*
4. *What does 'Sustainable Port Management' mean from your perspective?*
5. *I am examining sustainable port management in terms of triple bottom line, which are financial-technological, environmental and social perspectives. Could you please tell me how you manage these perspectives of sustainability as an organisation?*
6. *Could you please tell me which management system you use as an organisation, to have a more sustainable port?*
7. *As an organisation, what new businesses would you like to develop? Are there any new development plans to make your organisation more sustainable?*
8. *Related to the last question; could you please tell me how you manage those processes in a sustainable way?*

9. *About your business plan or development, are management systems useful to decide what you are going to develop and useful to your business plan? If yes, could you please give me an example?*
10. *Could you please tell me the three biggest concerns that your organisation has identified in terms of "management"? These can be general or specific to your organisation.*
11. *Do you believe that there is enough collaboration between the organisations in the port industry?*
12. *If you think that collaboration does not work, is rivalry between organisations one of the reasons for it?*
13. *Do you believe that ports are attractive enough for investors? If yes, could you please give me two or three reasons why investors should make investments in ports?*
14. *As we talk about the stakeholders, who is your biggest stakeholder? Do you receive sufficient funds for investment?*
15. *Do you believe that port management systems should put short-term goals as their top priority because markets are so unstable, or should they put long term goals as their priorities?*
16. *Related to the last question, do you prefer to hold regular meetings every few weeks to improve yourself as an organisation in a sustainable way rather than to rely on the annual results of a sustainability management report?*
17. *How does your organisation factor in uncertainties relating to Brexit, Trump's election, EU break-up into its planning?*
18. *Could you please tell me about safety management in ports briefly please?*

From the researcher's perspective, Falmouth Harbour Commissioners have been selected to understand the current conditions of British ports especially trust ports, to increase the researcher's awareness of what issues British ports face as obstacles to survival or growth. Lastly, Falmouth Harbour Commissioners have been selected to understand more in detail about the PSMS as they contributed to its development. Apart from the purpose of understanding the conditions of the British port industry in, Poole Harbour Commissioners have been selected to understand the challenges confronted by medium sized ports. Furthermore, this choice enables an understanding of sustainability issues in

medium sized ports, allowing the researcher to compare sustainability awareness levels in different sized ports in the same country and those between the UK and Turkey. The importance of sampling Gloucester Harbour Trustee, which is the last sampling organisation in the UK, is to examine sustainability awareness and how sustainability management is handled in a trust port organisation, which is a sub port organisation under a private port company.

The sampling selection in Turkey aims to choose port organisations with different type/size from different regions of the country in order to examine their sustainability awareness, their sustainability management and the challenges/obstacles faced by Turkish port organisations. Port Akdeniz in Antalya is selected due to being a private port organisation in the Mediterranean region and a member of Global Ports Holding. Port Akdeniz is a significant sample enabling an examination of how a private organisation in a country manages its operations sustainably and handles its responsibilities to the country in which it is based and the holding of which it is a member. Izmir TCDD port (Aegean region) is selected as a sample port to examine how a municipal port handles operations and management in terms of sustainability. Additionally, Izmir TCDD port provides an example of government influence on management procedures. Haydarpasa Port as a municipal port is another sample in the Marmara region in Turkey. Haydarpasa Port is a municipal port in a highly competitive region and so allows the researcher to examine to what extent management decisions take survival through sustainability into consideration. On the contrary, Kumport is selected as a sample port organisation in the Marmara region due to its being one of the largest private port organisations in Turkey. Additionally, sampling Kumport enables an examination of the challenges that large port organisations face in Turkey and how they are managing these challenges sustainably.

Trabzon Liman Isletmeciligi A.S is a private port in the Black Sea region of Turkey. It is selected as a sample in order to compare the differently sized private port organisations and to examine the region's importance for port organisations. Lastly, an academic lecturer is selected as a sample in order to understand the level of sustainability awareness from every aspect in Turkey and adding a different perspective from an academic rather than the port industry background. To achieve the aim of the thesis nine interviews have been conducted with different methods such as face-to-face, telephone interviews and questionnaires. Table 4.6.2 below, shows the details of the conducted interviews.

Table 4.6.2: List and details of the conducted interviews. Source: Author

Selected Port	Method	Date	Timescales
Falmouth Harbour Commissioners	Face to face	12.05.2016	1h 15m 28sec
Poole Harbour Commissioners	Face to face	08.07.2016	37m 55sec
Gloucester Harbour Trustee	Face to face	13.07.2016	30m 59sec
Port Akdeniz	Via phone	24.02.2017	38m 22sec
Izmir TCDD port	Via phone	03.11.2017	18m 05sec
Haydarpasa Port	Via phone	12.12.2017	33m 36sec
Kumport	Via e-mail	26.12.2017	
Trabzon Liman Isletmeciligi A.S	Via e-mal	19.02.2018	
Academic Lecturer at 9 Eylul University	Via e-mail	13.01.2018	

Three of the interviews have been conducted with British ports. The first British port in which an interview is conducted is Falmouth. This interview is conducted face-to-face with Interviewee 1. It is quite helpful and beneficial for both sides. From the Falmouth Harbour Commissioner's side, it is beneficial to consider different approaches from outside the industry. Interviewee 1's awareness of the PSMS is good, as FHC has been used as a case study in a previous PhD thesis. It was helpful to discuss this thesis in detail.

A second British port interview is conducted with Interviewee 2 from Poole port. The Poole interview is conducted using the same technique as the Falmouth interview, on a face-to-face basis. This interview revealed that priorities vary according to a port's type of governance. Small trust-ports generally focus on their survival whereas private ports seek ways to attract stakeholders and prioritise stakeholder satisfaction. Interviewee 2 from Poole port is quite helpful and offered his contacts in case they are needed. The Interviewee 2's awareness of the PSMS is not as detailed as Interviewee 1. Interviewee 2 is aware that there is a system called PSMS but does not have the details about it and is curious to learn more.

The last interview conducted in the United Kingdom is with an Interviewee from Gloucester port. Gloucester port is a trust-port, which works as a private port company. So, their decisions depend on the private port company's strategic management decisions. The Interviewee 3 is quite keen and eager to help to the thesis and responded to the interview questions with clear answers. Unfortunately, their awareness of PSMS is not extensive, as they are a private port company.

On the other hand, several ports are not interested in participating in the thesis but made reasonable points. Bristol port made a statement that the thesis is not

related to their aims and goals and that they would not participate. Two other ports, Fowey and Sutton harbour, have not replied.

Six interviews are conducted using snowball technique. Mr. Ayhan Paksoy, the first person, was responsible for construction of the first container port in Turkey. Thanks to his assistance and guidance, contacts of the Interviewee 4 from Port Akdeniz were provided. Interviewee 4 is quite helpful and interested in the topic and answered the questions with the help of his experiences in Turkish industry. Interviewee 4 provided an explanation of his company's aim and goals and how these are being achieved through using the right management strategies and by considering how to be a sustainable organisation. Interviewee 4 mentioned the company's issues and problems and the issues and struggles that Turkey is facing as a country in terms of maritime and shipping. Lengthy bureaucratic process is mentioned for the first time during this interview and taken as a possible pillar or sub-pillar for the PSMS. Despite all these issues and struggles, Interviewee 4 is still optimistic about the future of Turkey due to its potential if the right system, management and regulations are established. After the interview had been conducted, he continued his assistance to find contacts in Turkish ports.

Interviewee 9, who is a former graduate from Plymouth University's International Shipping Masters course, visited Plymouth. During a meeting, the current shipping industry is discussed with him to explore an academic's view of Turkish ports to examine differences regarding how the shipping industry and academics approach issues. Interviewee 9 offered his participation at the end of the interview and offered contacts from Izmir port.

After gathering the contacts of Izmir port, third interview is conducted with Interviewee 5 from Izmir TCDD port. The importance of Izmir port is that it is a

municipal port, and its issues can be compared with those in private ports to identify their differences and priorities. Interviewee 5's attitude is helpful and clear answers to questions were provided, in addition to some information about the general management processes in the shipping industry and also Turkish ports. Interviewee 5 explained the processes and strategies designed to make their organisation more sustainable, including the latest trends and Interviewee 5 mentioned the issues that they have faced as an organisation during these processes. One of the most important issues that Interviewee 5 mentioned is that the awareness level of maritime issues is insufficient. Interviewee 5 claimed that the importance of ports has not been realised by the Turkish industry, even though three sides of the country are surrounded by sea. The Interviewee 5 provided the contact of Haydarpasa Port (Istanbul) for further research.

An interview is conducted with Interviewee 6 from Haydarpasa Port. The importance of the Haydarpasa Port is to understand how a small municipal port manages to survive in a highly competitive market in Istanbul. Interviewee 6 mentioned the high-level competition in Istanbul and the challenges faced as a municipal port in a city, which is highly attractive to the significant players in the industry. Interviewee 6 explained that after examining the high-level competition against private ports, they have changed their strategy and have changed their management style. Interviewee 6 stated that they are in the process of turning Haydarpasa Port into a ferry and Roll on - Roll off (Ro-Ro) port. In addition, Interviewee 6 explained how they are aiming to reach their sustainability goals and how the issues and obstacles that they face as an organisation such as fixed exchange rates are being handled. Interviewee 6 is quite interested in the topic and clear answers to the questions were provided, in addition to helpful contact details.

Further snowball sampling is initiated beginning with Mr Altan Koseoglu who is a board director at ARPAS Company and had worked previously as an undersecretary of maritime affairs. The contacts of strategic planning and development manager in Kumport are gathered from him. Kumport is the biggest port in Istanbul and is a private port. For these reasons, the process of answering the questionnaire required more effort to finalise. Interviewee 7 requested time to check the questions on their stakeholder's behalf and their brand name. Interviewee 7 was concerned about any questions that can only be answered using confidential data and was rather strict about company policy, omitting a couple of questions. In this interview the importance and key role of technology in the port operations was highlighted and examples were provided to show how it is being managed by the organisation. Interviewee 7 mentioned that they are focussing on becoming more of a "green port" through developments to decrease harmful gases and gas emissions. Interviewee 7 answered the questionnaire professionally, but did not give many details due to the conditions that it is mentioned above.

Before conducting the last interview with Interviewee 9, an interview is conducted in Turkey is at Trabzon port. The contacts of Interviewee 8 from Trabzon port are gathered via personal connections and conducted the interview via voice recorder. Trabzon port is a private port therefore some information could not be gathered due to their confidentiality policy. Interviewee 8 explained that they have developed their business in terms of port infrastructure to reach their potential and to follow the current trends in the port industry. Interviewee 8 mentioned that they are in collaboration with Softech Company to use their system called "Gullseye" to improve on time efficiency, planning, finance and customer satisfaction. Interviewee 8 also have new businesses linking the city and port.

This Interviewee believes that those two parts are helping each other to grow therefore they are considering new potential businesses for this cause. Interviewee 8 is quite helpful and keen to support the thesis. Also, Interviewee 8 answered the questions clearly. However due to their busy schedule, the interview had to be postponed a couple of times which delayed the whole thesis. A number of ports rejected interview requests. Communications with 20 different ports requesting an interview with them related to the research topic generated only one response. Contacts for the only port which responded were lost, resulting in the interview being cancelled. Initial interest was shown by Mersin port in the south east of Turkey. However, it is a private port and approval to participate was denied due to organisational policy. Eregli port in the north of Turkey was a further option. However, it was omitted as the contact's job title was not related to the research topic.

4.7 Adapting Thematic Analysis to the Thesis

Some researchers explain the use of qualitative data collecting techniques, such as interviews and focus groups, yet not enough attempts are made to explain individual elements of methods other than indicating the process of data analysis as either thematic or content analysis (Vaismoradi *et al.*, 2013: 400). For this reason, it is necessary to refine and present methodological approaches infrequently classified as independent methods (Vaismoradi *et al.*, 2013: 399).

Thematic analysis is the preferred method in this thesis due to various advantages. As a starting point, thematic analysis is suitable for abductive elements because of its flexibility (Heslop and McGough, 2012: 2011), which is used in the thesis. Secondly, thematic analysis provides flexibility for the theory development. Significantly, the flexibility of the thematic approach allows it to manage data and resource gathering at different periods (Heslop and McGough,

2012). Braun and Clarke (2006: 78) view thematic analysis as flexible for developing theory because the search for, and test of themes across languages does not need to be linked to any specific language theory or descriptive framework for people, experiences, or performances. This thesis aims to modify/update the PSMS in order to make the PSMS a worldwide approach as a port sustainability management system. Therefore, thematic analysis assists to develop the PSMS. Lastly, the most common method is Braun and Clarke's (2006: 86) six phases of thematic analysis and in terms of offering flexibility, these 'six phases' should not be seen as a linear system, where one cannot continue to the next level without finishing the previous phase (correctly). The analysis is a recursive process, which allows focus on a specific step of the process, rather than following each step in a linear fashion. The flexibility of this process which allows for a departure from a linear approach, is a convenient feature for researchers. Apart from offering flexibility to researchers, thematic analysis allows for the connection of data from different conditions and different periods of time, which is most suitable for this thesis, where a comparison has been made between the British and Turkish port organisations in terms of their sustainability awareness and modifying/updating the PSMS with the addition of the Turkish port industry. Lastly, thematic analysis assists to find blind spots in research by giving knowledge about research area's extant knowledge and finding the blind spots (Jonsson and Tolstoy, 2013: 57) and works well in terms of identifying the missing points in the PSMS in order to turn it into a port management sustainability system which can be applied to ports throughout Turkey and worldwide.

Braun and Clarke's model is used to analyse the data gathered from the nine interviews, conducted with authorised staff, who work in management parts of the port organisations in United kingdom, Turkey and lecturer in maritime faculty

in 9 Eylul University in Izmir, Turkey.

Braun and Clarke (2006) model that is applied to the conducted interview data, includes six phases, as seen below.

(1) Familiarisation with the data

(2) Coding

(3) Searching for themes or patterns

(4) Reviewing themes

(5) Defining and naming themes

(6) Writing up

4.7.1 Familiarisation with The Data

The first phase of the model is familiarisation with the data. It is widespread in qualitative analysis in all forms- the researcher must submerge themselves in data, and become closely familiar with, their data, reading and re-reading the source or listening to the sources and noting any initial analytic responses.

Nine interviews (eight interviews with authorised staff in port industry in Turkey and United Kingdom, one with academic lecturer in Turkey) are conducted to understand the current situation of the port industry in the United Kingdom and Turkey. In the United Kingdom, interviews have been conducted with the authorised people from Falmouth Harbour Commissioners, Poole Harbour Commissioners and Gloucester Harbour Trustees. In Turkey, interviews have been conducted with authorised people from Port Akdeniz in Antalya, Trabzon port, Kumport in Istanbul, TCDD port in Izmir, Haydarpasa port in Istanbul and lastly, an academic lecturer from 9 Eylul University in Izmir.

In order to follow the Braun and Clarke model, interviews have been written up (see the appendix A to appendix I for the full interview transcripts of conducted nine interviews) in order to minimise the misunderstandings during the interview

and gather data to compare the answers from different interviews. One of the most important parts of the familiarisation process, is to re-read the data.

4.7.2 Coding

After familiarising with the data that gathered from the interviews, the second phase of the Braun and Clarke model (Coding) is applied. Braun and Clarke (2006: 88) define code as "Codes identify a feature of the data (semantic content or latent) that appears interesting to the analyst...". Codes are created from the answers of authorised people from their interviews. The answers that the interviewee responded with and mentioned during the interview are considered as a potential code even if it is not the specific answer to the interview question. Initially in the coding process, data should be read to identify any codes which can be used to categorise the data. Transcripts from the interviews are read and re-read until the researcher is satisfied with the codes identified and confident that no potential codes have been omitted.

The purpose of re-reading is firstly, it assists researchers to not miss any potential codes as this could happened if the interview had only been read once and secondly it allows the researcher to double check that the codes identified are relevant to the research topic. During the re-read section, the codes that have been designated from the data are written down and the related codes are marked in the text. Quote from Interviewee 6 "…Also one of the reasons that we only get the needed certificates only is that procedure of these needed certificates such as ISPS and environmental ones take our most of times and we cannot spare time for other certificates.", which created lengthy processes as a code during the Haydarpasa interview after marked the 'spare time' from the quote.

The iterative phase is for validity checking of the themes and codes to see that themes include all the codes created and link to the theme. These applicant

themes may be excluded, and the position of codes can be changed, or they can be put under another theme, which is more relevant to the mentioned code. This action continues until there is no irrelevant theme and code left in the thematic map (Rizk *et al.*, 2009: 3).

Creating codes, automatically reduces the data and extracts the irrelevant data from the analysis. But the coding phase is more than a data reducing action; it is also part of the analysis process. Coding is crucial for this model due to it leads to another phase, which is searching for themes in order to categorise and analyse the relevant data.

The second phase of the thematic analysis ends with collating the codes, which are mentioned in chapter 5, in order to search themes or patterns from the coded data.

4.7.3 Searching for Themes or Patterns

Thematic analysis is a frequently used qualitative method to classify, report and analyse data for the significance created in and by human beings, situations and events (Alhojailan, 2012: 43). According to Braun and Clark (2006: 82), a theme is a '… patterned response or meaning of the dataset'. Thematic analysis has five functions, as detailed below.

(1) A way of seeing

(2) A way of making sense of seemingly un- related material

(3) A way of analysing qualitative information

(4) A way of systematically observing a person, an interaction, a group, a situation, an organisation, or a culture; and,

(5) A way of converting qualitative information into quantitative data (Floersch *et*

al., 2010: 2).

The created codes are used to recognise the possible themes. At the early stages, a new theme is created by each code until the patterns and associations appear. Subsequently, more codes are linked with existing themes and sub-themes are generated. During the theme choosing process, it is essential to check that the semantic context does not overlap (Rizk *et al.*, 2009: 4).

Following the data reduction phase of coding the interviews undertaken in the two different countries, the next step is to search for themes or patterns using the codes obtained from the interviews. Hence, deducted version of nine interviews are re-read in order to designate a pattern and a theme from the codes that emerge. The themes and patterns are generated from the codes used to categorise the data. Several codes that relevant to one specific sub-topic can lead to a theme that covers all of the various codes, which helped that related theme to be created.

Particularly in thematic analysis, patterns are typically quite abstract, and because of that are difficult to classify (Vaismoradi *et al.*, 2013: 402). In order to identify the themes or patterns from the gathered data, the codes from the nine interviews that conducted are reviewed to find similarity, pattern and overlap between the codes that gathered from the data. A search was done by separating British (Poole, Falmouth and Gloucester) and Turkish (Kumport, Haydarpasa, Trabzon, Izmir, Antalya and Academic lecturer at 9 Eylul University) port interviews respectively to find the similarity between the British and Turkish port interviews separately first. After designating the potential themes in the British and Turkish port interviews by re-reading each interview to search for potential themes and not overlapping the themes, the relationship between the themes is examined in order to fit potential new themes or sub-themes into the PSMS firstly

amongst the British and Turkish port interviews separately. For instance, cross-culture and organisational culture emerge as designated codes during the interview of Port Akdeniz, which lead to the consideration of 'Culture' as a theme for the thesis. While lengthy processes involved in obtaining certificates and operations generated 'bureaucracy' as a theme to be considered. After this step, same process has executed to determine the relationship between the themes and check that themes are not overlapping from the conducted British and Turkish port interviews. The potential new themes or patterns are collated in the same place in order to start the next phase which is reviewing themes or patterns.

4.7.4 Reviewing Themes or Patterns

After searching for the themes or patterns from the codes generated by the interviews conducted at British and Turkish ports, the themes or patterns are reviewed. The purpose of the reviewing potential themes, or patterns is to determine whether the potential themes or patterns work in relation to the data. Each theme created by the procedure needs severe investigation to find its full connection with the data (Heslop and McGough, 2012: 2011). Therefore, themes gathered from the codes are reviewed to check if they fit the aim of the research well and to identify any which are not a good fit. A theme can be divided into two themes in order to obtain more reliable results or themes can be deleted if they are not relevant to the research topic. Before progressing to the next step, which is defining and naming themes, the themes reviews are undertaken to the gathered data from the conducted interviews in the Turkey and United Kingdom, which involves a final reading of the data to check the suitability of the themes and if some potential themes are not suitable to be a theme for the research, re-evaluating the suitability of this theme to see are they themes or codes or not related at all to the research topic. After the careful consideration, suitability of

culture as a theme is questioned and even though culture is a significant factor in order to achieve world-wide port sustainability management system, it is observed that culture has an impact on various pillars rather than a theme or potential pillar to fit 11 pillars of the PSMS. The process continues with defining and naming themes that designated from the conducted interviews.

4.7.5 Defining and Naming Themes

Thematic analysis clarifies descriptive themes; there are few rules about how to achieve this. There was a short account in the literature that exactly defined the steps for conducting thematic analysis (Floersch *et al.*, 2010: 3).

After reduction of irrelevant themes and some changes in the structure of the themes such as dividing one theme into two themes to produce more reliable data, each generated theme is analysed. Bureaucracy and, governance emerge as themes from the conducted interviews, where it is examined that culture is more than a theme for potential addition to the 11 pillars of the PSMS but an influence that embracing the whole 11 pillars of the PSMS. On the other hand, due to culture's wide influence on the pillars, subtitles, which are organisational culture and cross-culture, have emerged underneath of culture. Hence, the need for literature review of the organisational culture and cross-cultural has arisen. It has been noted why each theme is unique and specific.This involved writing down what the themes are about and deciding on a name for each theme which concisely informs readers of its contents. The next step of the process is writing up of the Braun and Clarke (2006) method.

4.7.6 Writing Up

After naming and defining the themes, the whole process from familiarising with the data to defining and naming themes is written up in detail and broadly to explain the research clearly. This step starts with the first phase of the process

and ends with the final one. Therefore, writing up does not commencing after the defining and naming themes phase, but with the familiarisation with data phase. This is done by taking notes, memos or quotes from the gathered data. This phase explains the aim of the research analysis and how the research plans to succeed in its aims. Furthermore, this phase includes an explanation of the research and discusses its research questions.

4.8 Conclusion

In this research, abductive research approach is applied. Nine interviews are conducted with Turkish and British Port authorised employee with the addition of maritime lecturer in 9 Eylul University in Turkey, which generate qualitative data related to the research topic and meets the expectations of the research aims and goals. In terms of primary data collection, a case study strategy is used to guide interviews with interviewees from British and Turkish ports. In order to analyse the secondary data that is gathered from the conducted interviews, thematic analysis is used. Even though it is a rarely used qualitative analysis technique in the port and shipping industry (mostly used in health and nursing research), thematic analysis helps to add or remove elements of the current version of the PSMS and thematic analysis is more flexible compared to other qualitative research techniques. In this research, Braun and Clarke's (2006) version of the thematic analysis technique is used.

In the next chapter of the research, a conceptual model and diagrams related to the research are illustrated.

4.9 Conceptual Model

4.9.1 Introduction

This section illustrates details of the conceptual model that underpinned the whole thesis process. The details of various stages in the research and how it is undertaken is shown in this section including the research context, components of sustainability management and the PSMS. A conceptual model is presented to explain how the initial PSMS evolved and is updated and modified to suit more generic contexts and determine whether the PSMS had the potential to become a worldwide sustainability management system.

4.9.2 Research Conceptual Model

This thesis focuses on developing port sustainability awareness and management in details of systems, processes and planning. Dr. Andrei Kuznetsov created PSMS (Kuznetsov, 2014). His thesis project is focused on smaller ports in the CAD region. However, suitability of the PSMS is not examined in different types of ports. Also, this project focused only on British ports, which provided insufficient data to assess the suitability of the PSMS in international ports in terms of broader sustainability contexts. Hence, Turkish ports, which have different cultural and geographical conditions, are included in the thesis to determine the PSMS's international suitability. Dr. Andrei Kuznetsov aimed to define environmental sustainability. On the other hand, current thesis is aimed to widen environmental sustainability by adding financial, governance, social/community and technological perspectives of sustainability related to ports. In the conclusion of the literature review research, sustainability issues, sustainability awareness, sustainability management and sustainable

development are shown under the segment title in Figure 4.9.2.1. The literature review is undertaken to identify sustainability issues that the port industry is facing in various departments. To tackle sustainability issues, firstly the port industry should realise the importance of sustainability awareness in its industry. A solution to the sustainability issues in the port sector is an unrealistic aim until the awareness level of sustainability reaches certain standards, requested by governments from port organisations. Sustainability management is playing the crucial role in this process. It is important to understand how sustainability is managed after evaluating the individual organisational characteristics and how far each organisation is aware of sustainability, at the same time as aiming to achieve the port sustainability goal.
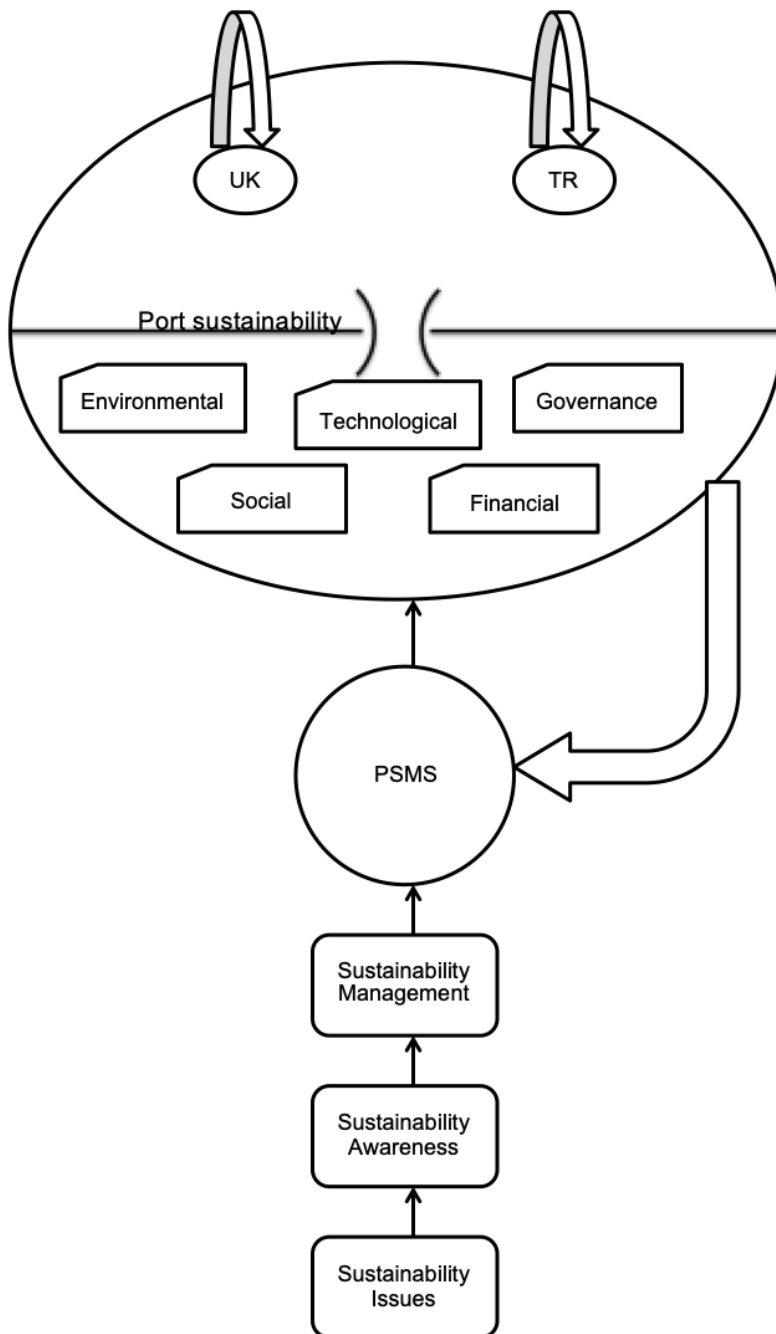
Figure 4.9.2.1: Conceptual model of the thesis. Source: Author

Research to find the most suitable management systems are undertaken in the literature review. Apart from other management systems such as SDM, PERS, ISO14001 and EMAS; PSMS is selected to achieve the port sustainability goals due to its highly rated reputation and as it covers the term of sustainability more widely than the other mentioned management systems.

In terms of broader perspectives of port sustainability, financial, environmental, social, and technological and governance sustainability appear as subtitles under this title.

4.9.3 Design of the Context

The context is designed to provide a background to the work environment related to this thesis. In the port industry, the importance of sustainability is increasing. One of the reasons for this is that government regulation and legislation is raising sustainability awareness. Even if an organisation is reluctant to act sustainably it must meet the expectations of governments. Otherwise, there are penalty charges applied, that disadvantage an organisation in terms of market competition. In addition, sustainable changes and standards support the organisation in becoming more efficient and reducing its expenses.

As it seen in Figure 4.9.3.1, the need of finding practices is emerged in order to examine and understand port sustainability. During the literature review period, several sustainability practices are researched. These sustainability practices are found in port websites, annual reports, mission statements, sustainability reports and their master plans. In order to collect data such as their turnovers, their number of employees, port's websites and other resources are checked. The research aims to examine port sustainability in two countries, which are the United Kingdom and Turkey.

Figure 4.9.3.1: Design of the context. Source: Author

4.9.4 Components of Sustainability Management

The model below (Figure 4.9.4.1) is created to explain the perspectives of port sustainability.
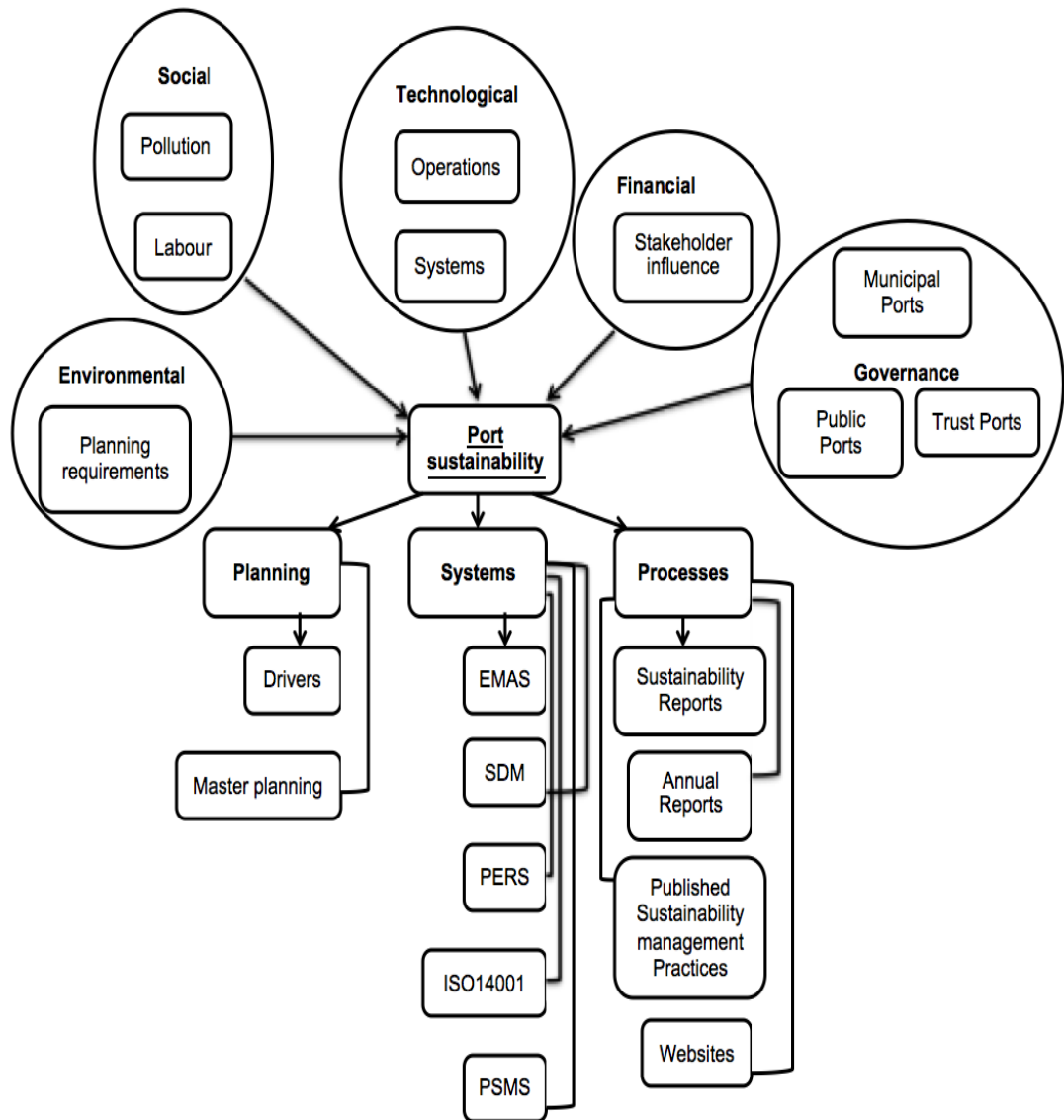
Figure 4.9.4.1: Components of sustainability management. Source: Author

As can be seen from the model sustainability can be divided into two parts. Below Port Sustainability, there are the perspectives of port sustainability. These perspectives are environment, social, technological, financial and governance. Under these perspective titles, the sub-titles can be seen. Planning requirement is playing a pivotal role in terms of environmental sustainability. Organisations should make their long-term planning and determine their requirement for the

long-term goals and aims by considering the environment within which they are based. Hence planning requirements is a subtitle of environment. Ports can generate light and air pollution, which affects the social life of residents who settled close to ports. Hence pollution takes place as a subtitle under the social title. Ports are offering huge numbers of people employment. While offering this to the community that lives to ports, ports should consider the labour conditions and meet the expectations and requirements of regulations from government. Therefore, labour is another subtitle under the social title. Ports are run by high-tech systems and several systems are being used to make the port run efficiently. These high-tech machines and systems are used in port operations. Hence, operations and systems are the subtitles for the technological perspective title. After the privatisation of the ports, stakeholders' influence over port management is becoming stronger. If the port wants to be sustainable in finance, stakeholder management must be done successfully. There are several ways of governing ports. Municipal, public and trust ports are some examples. Priorities in ports vary according to the governance model used. For instance, trust ports are aiming to make profit, but they can only use it to upgrade their facilities. On the other hand, a small public port's first priority is to survive in the market, instead of growth, due to its individual profile. Therefore municipal, public and trust ports are the subtitles under the governance title.

It can be seen from the Figure 4.9.4.1 that the port sustainability title issues are more related to the management part of the port. These titles are planning, systems and processes. Ports are planning their long-term; short-term plans depend on the expectations of drivers and condition of the market. Therefore, the first subtitle under the planning title is drivers. Ports are showing their long-term or short-term plans to the public or their stakeholders or government by creating

a master plan. Master plans are usually created to consider the next 30 years of the organisation's future. Master planning is playing a crucial role in port sustainability. Hence, master planning is the second subtitle under the planning title. There are several systems that provide sustainability in ports such as EMAS, SDM, PERS, ISO14001 and PSMS Most of their first concerns relate to environmental sustainability. In the thesis, the PSMS's suitability is checked in a broader range of sustainability perspectives not only in environmental sustainability. These mentioned systems below are the subtitles of the systems title. Port sustainability is a process. Due to research topic, it is needed to examine some practices and processes that organisations must undertake to become sustainable ports. To find their way of succeeding in terms of sustainability, port sustainability reports, annual reports and their websites are checked. Also, published sustainability management practices are another resource which is researched. These four resources are the subtitles of the processes title.

4.9.5 The Components of PSMS

This model below (Figure 4.9.5.1) is used to explain the components of PSMS in the thesis. It starts with the appearance of sustainability issues in general. This main issue of port sustainability is unpacked, and an examination is done of some related systems which can offer sustainability in ports. There are several systems for port sustainability from an environmental perspective such as EMAS, SDM, ISO14001. However, the PSMS, created by Dr Andrei Kuznetsov is different in its approach.
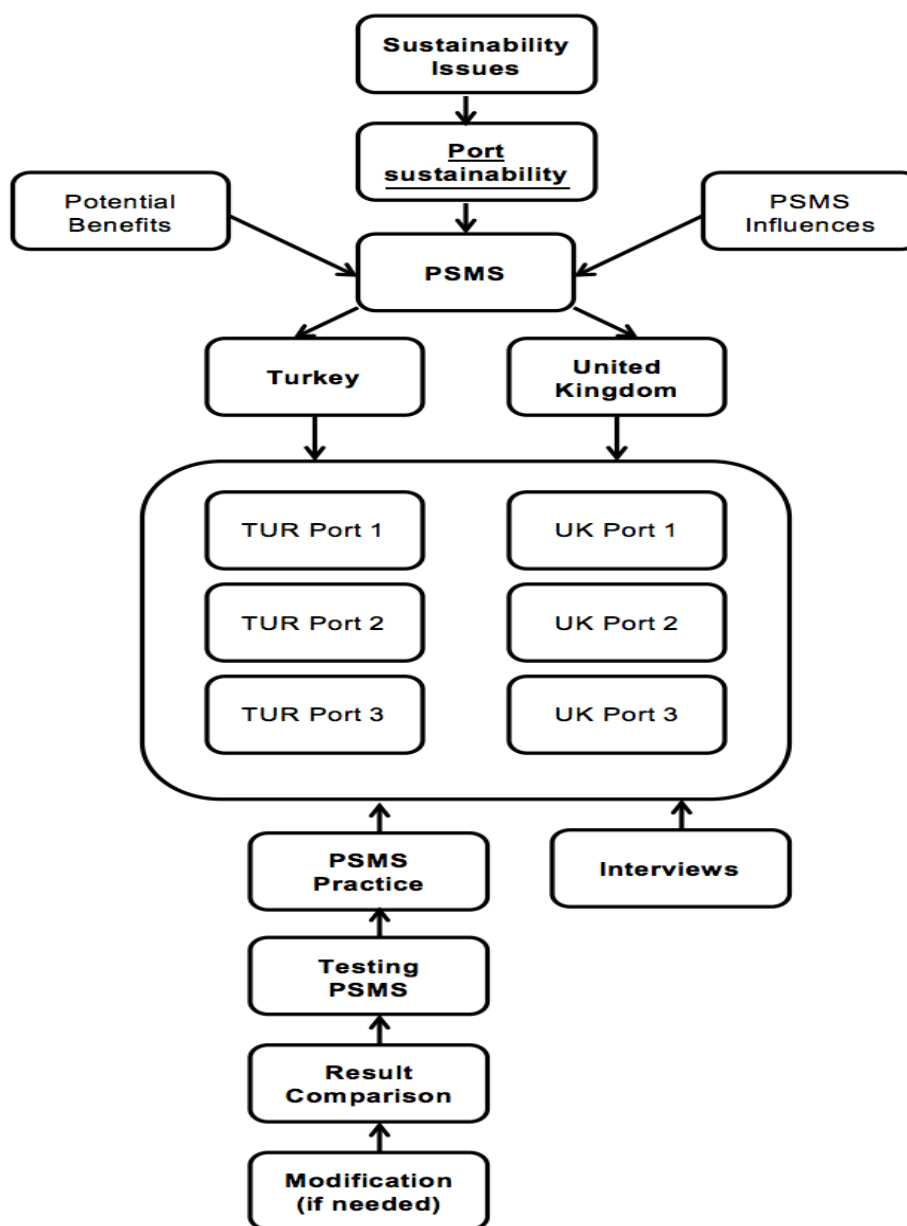
Figure 4.9.5.1: Components of the PSMS. Source: Author

The PSMS allows a wider examination of sustainability, not only from the environmental sustainability perspective. Because of the PSMS's potential benefits and influence, it has previously been the focus of a PhD research study, in which Dr Andrei Kuznetsov tested the applicability of the PSMS to smaller ports in the CAD regions. The difference with this thesis is that it aims to determine the PSMS's suitability to different types of ports.

The process started with conducting interviews with these selected ports. It started with one Turkish port (Port Akdeniz), and two British ports (Poole and Gloucester). After obtaining the basic information in order to understand the organisations, investigating the PSMS practice in these selected ports is the next step. Checking the PSMS in these selected ports and comparing results are the following steps in this process. The main aim of this topic is to determine whether PSMS is suitable for different type of ports in terms of a broader conception of sustainability. After comparing results, the thesis is examined to decide whether the PSMS needs a modification, and if there is a need for modification, how the PSMS can be modified to incorporate these sustainability issues.

4.9.6 Summary

This chapter has illustrated the research processes and related diagrams that are used to explain the thesis by including research conceptual models. The aim of this section is to provide a clear explanation of the research process and illustrate the thesis whilst establishing a strict guidelines for the author to follow in the research process in order to achieve the study's aims and goals.

The next chapter presents analysis of the research data. This relates primarily to interviews that are conducted and data gathered from port organisations in the United Kingdom and Turkey that aim to assess their sustainability awareness and any requirements to modify or update the PSMS.

CHAPTER 5: THEMATIC ANALYSIS OF DATA

5.1 Introduction

This chapter presents the responses to the questionnaire that is distributed and presents the analysis of the data that is gathered from the nine semi-structured interviews that are conducted in selected British and Turkish ports (three from British ports, five from Turkish ports and a maritime lecturer in Turkey. In this chapter), the data is analysed by focusing on the 11 pillars of the PSMS via answering the research objectives of the thesis and the approach and actions of the sample ports, relating to their sustainability goals and aims. In order to investigate the need for sustainability planning in ports, including environmental planning requirements, governance and mission drivers and stakeholder influences, which is research objective 1, literature interviews are undertaken with keywords from each of the areas mentioned above, plus sustainability, as guidelines. To answer the research question 2, which is analysing the commonalities of any sustainable development needs in port, data from the conducted interviews are analysed and it is aimed to find commonalities between Turkish port and British ports, separately first, after which the results are compared between two countries. In order to compare the characteristic and management processes of systems for port sustainability planning (research objective 3), a literature review is undertaken with the keyword of port management systems and the PSMS. In addition, conducted interviews are examined to check if there is another system that port organisations used apart from the port management systems from literature review. Conducted interviews are analysed for the aim of synthesising current sustainability practice in theoretical port samples. Furthermore, the influences/motivations are identified, and it is explained how they influence/motivate for the purpose of finding answers

for research objective 4. Assessing the attitudes of port authorities plays a crucial role in order to make the PSMS worldwide applicable port management system. Therefore, in order to answer for research objective 5, attitudes of the interviewees towards port management systems and the PSMS are analysed. Requirements for sustainability planning are identified from the conducted interviews. Lastly, other factors and governance influences were outlined on the PSMS requirements by analysing the conducted interviews to see what is recommended for the implementation of the PSMS and undertaking a literature review of governance models.

With the intention of analysing the related data, Braun and Clarke (2006: 87) model of thematic analysis has been selected. Six phases of Braun and Clarke (2006: 87) model have been applied respectively to the nine conducted interviews amongst the British and Turkish ports and the maritime lecturer in Turkey for the purpose of finding/removing code(s) and theme(s) as an addition to the 11 pillars of the PSMS. Also, in this chapter, data is analysed relating to any scope for updating the PSMS into a more widely applicable sustainability management systems for ports.

5.2 Eleven Pillars Analysis

To make improvements in the specific pillar, the current situation should be examined carefully in detail to decide which pillars need to be improved, changed or removed. After reviewing the current situation, the second step is to find a suitable management action to assist port organisations in achieving their goals. Management systems are playing a crucial role in management's success.

In this related topic, the improvement process starts with evaluating the sustainability awareness of the related ports where interviews had been

conducted. For this purpose, interviews had been conducted with interviewees from the selected ports in the United Kingdom and Turkey. The aim of the interview questions is to evaluate their sustainability awareness not only environmentally but also financially and socially.

The awareness phase of the process includes examining each port authority's sustainability awareness level and their attitudes to the sustainability management systems via a questionnaire, phone calls and face-to-face interactions. Following that, the management phase commences. Finding the most suitable management system to guide the management process is the most significant step. After checking the suitability of various systems such as the Environmental Management System (EMS), the Self-Diagnosed Method (SDM), the Port Environmental Review System (PERS) and the Port Sustainability Management System (PSMS), the PSMS was selected as the most suitable management system for ports in terms of sustainability. This completed the system part of the process by concluding that the PSMS is adequately adaptable to assist port authorities' self-assessment of their organisation in terms of port governance and ownership without incurring any expenses.

The data from the conducted interviews are gathered using the related PSMS 11 pillars. Gathering the data using the PSMS 11 pillars allows a focus on details about the organisation's sustainability awareness by comparing and recapping data relating to an organisation's sustainability awareness level obtained during earlier interviews. At the end of each pillar section, the key findings summary is presented after giving more details about the conducted interviews. In this chapter, each pillar of the 11 sustainability pillars is examined to compare each port's sustainability awareness in terms of related pillar topics and is analysed to seek any potential code(s) and theme(s) as an addition to the current PSMS.

5.2.1 Asset Management and Maintenance

Asset management and maintenance is the first pillar of the 11 pillars of the PSMS that have been analysed. Interviewee 8 mentions that Trabzon Liman Isletmeciligi A.S. had investments in two port cranes, which are Liebherr and costs them seven million Euros in total, to become more efficient and to reduce costs in terms of operations. Interviewee 8 continues to give details about the Trabzon Liman Isletmeciligi A.S. that due to the crane investments, throughput capacity increased to ten million tonnes from 3.9 million tonnes and Trabzon Liman Isletmeciligi A.S. also made investments in warehouse storage capacity including open and closed warehouses. Closed warehouse storage capacity increased from 12kt to 85kt. Besides, open warehouse storage capacity increased from 150k m^2 to 240k m^2. The board of Trabzon Liman Isletmeciligi A.S. made investments in berth extensions. Current berth length is 2235m whereas it was 1525m before the extension. Despite these investments the board of Trabzon Liman Isletmeciligi A.S. specified that there is a lack of railway logistics and sought options to improve it.

Interviewee 6 gives brief information related to the TCDD Haydarpasa Liman Isletme Mudurlugu. Interviewee 6 explains that the story of the TCDD Haydarpasa Liman Isletme Mudurlugu started in 1924 when the government bought the facility. In 1927, the facility was given to TCDD to manage. In 1979 TCDD built a container terminal with a 600-meter wave breaker and included these facilities within its own management. A small passenger waiting area was built and the certificate of the sea border gate was received in 2017 for passengers after the port had started to offer cruise services to its clients.

The current number of employees in Kumport is 841. The board of Kumport makes their investments on staff training and education. Interviewee 7 says that

"The subject of educating the most important role (Human) in this chain is crucial. The investments that been spent on educating human resource is beneficial for the organisation as an adding value service." Kumport as an organisation believes that education has a major role and therefore, Interviewee 7 believes that human resources are their most crucial assets and that educating their human resource plays the most crucial role by adding value services to the organisation to satisfy their clients.

In terms of asset management and maintenance, Gloucester harbour trustees could not give any data because they do not own any of the facilities that been used during their operations. Therefore, they do not have any business plan about the facilities that they are using because they have no claim on related facilities. On the other hand, they offered some useful data in terms of understanding the challenges of smaller ports. Interviewee 3 mentions that most of the smaller ports have physical constraints, which in Gloucester's case is the height of the tide. Interviewee 3 also mentions that Gloucester Harbour Trustee provides its services with very old infrastructure such as lack of depth of the dock. To generate their own energy for their operations, Interviewee 5 considered constructing a windmill but due to environmental disadvantages and also being a safe port, constructing a windmill to generate their own energy plan was cancelled. Interviewee 5 mentions that insufficient port and dock draft is the main concern of the board of the TCDD Izmir Alsancak Port Management by saying "First concern is the insufficient port and dock draft. Ships are getting bigger and bigger every day and your draft is staying at same level, that's an issue for the port. We got the EIA (Environmental Impact Assessment) report from the Republic of Turkey Ministry of Environment and Urbanisation due to scan the gulf and increase the draft of the gulf." Lastly, they mention that their equipment is not

the most up-to-date and because it is not working at 100% during their operations, this will eventually affect the efficiency of port operations in terms of sustainability and they mention the reason of the issue by quoting "Port is on the privatisation process and we do not have any investments in terms of increasing number of employees. We have the same situation with our equipment. They are little bit old and they are not working with 100% during the operations."

One of the challenges for FHC is to both maintain their crew capability and their infrastructure at the same time, which seem to be their key concerns from the commissioner's view. Everything should be in place to provide flexibility and versatility in terms of how they focus their resources. Being a trust port, they have to invest back into the organisation and commissioners must either invest in buying a new pilot boat or maintaining their operations. Interviewee 1 believes that having facilities for large cruise ships would be beneficial for Cornwall for the local area from a financial perspective. Deepwater is needed to provide services to the large cruise ships. Currently deep water in Falmouth harbour is five metres in depth and harbour commissioners are working to make it deeper but Interviewee 1 from Falmouth quoted "We are too tied really to local commercial fleets, so our aspiration is to get the harbour approach to cruise ship depth. Specifically, we want to encourage cruise ships to come in to attract tourists and visitors." FHC are concerned about their assets' age. They are operating with these aged assets because their financial situation is not stabile. Even in these hard-financial conditions, FHC are focusing on improvements such as refreshment of the oil tanks, improvement of the jetty and some dredging work for berth improvement. Interviewee 1 prefers to operate their services with assets, which are under 20 years old but due to financial struggles, they are operating services with their current assets, which are 30 years old.

In terms of the organisation, there are other challenges that they face; space is one of them. In order to mention their space issue and the differences of each ports and different priorities between them, Interviewee 2 quote that "I think you understand what a trust port is, but obviously different ports have different characteristics and different priorities. So, Poole is probably what you would describe as a medium-size port, but we are a huge harbour, the largest harbour in Northern Europe, ten thousand acres but the port is only seventy acres of that ten thousand acres." The Poole harbour commissioners have got about 70 acres of port land, but they are now severely restricted and that is having an impact on what new business they can bring into the port because they cannot develop it due to environmental legislation. Regarding yacht transportation, Sunseeker is a major employer in Poole but all of the yachts go to Southampton for export principally because they do not have the facilities in Poole currently. With a new quay, they expect all of those yacht transfers to take place through the port. Lastly, Brexit remains a concern for harbour commissioners, as its impact on the port industry is uncertain and it may be limiting in terms of improving facilities and progressing forward.

The board of Port Akdeniz is aiming to achieve the best Management and Administration (M&A) and induction capability in the sector, and the best value creation program for the public with the help of their asset management and their infrastructure. Interviewee 4 from Port Akdeniz argues that value adding services can be included in the definition of assets of the port organisations and believing involving logistics to their services is beneficial to their assets.

From the conducted nine interviews, it is seen that port organisations (as examples of Falmouth, Poole, Trabzon) are aware of the ship size trend and they argue in support of making the infrastructure developments a top priority by

focussing on dredging, port expansions and infrastructure investments to stay strong in highly competitive market. Whereas Kumport prefers to focus on staff education first and include their staff as a part of their assets. Interviewee 9 joins the argument from different perspective and argues that IT department of the organisations are asset too and require a significant development in this technological era in order to offer their services with the latest technology. Lastly, financial struggles and rumours about the future of the organisations are major obstacles in terms of asset management and maintenance as experienced in TCDD Izmir Alsancak Port and Haydarpasa Port organisations.

5.2.2 Safety Management

As an organisation, Trabzpn Liman Isletmeciligi A.S have the ISPS (International Ship and Port Facility Security Code) certificate. Interviewee 8 says that Trabzon Liman Isletmeciligi A.S. has 28 employees, who are responsible for the port security in three entrance gates. Added to that, Interviewee 8 continues that Trabzon Liman Isletmeciligi A.S. has 76 high-definition security cameras to record port operations 24/7. Security employees provide maximum level security with the high-definition cameras.

TCDD Haydarpasa Liman Isletme Mudurlugu organisation meets all ISPS code and international ship and port standards. Interviewee 6 mentions that TCDD Haydarpasa Liman Isletme Mudurlugu has 180 CCTV cameras for the security of port. Besides, Interviewee 6 adds that TCDD Haydarpasa Liman Isletme Mudurlugu has custom securities to keep the port safe. Recently on the 27th of July 2017, a storm occurred close to their area and damaged some of their port infrastructures such as gantry and container cranes. And all these damages ended up with fire because of the explosion of the tank container. This unlucky

situation might be a signal to focus on any weaknesses in the organisation's safety management.

Top management in Kumport, is aware that all employees have the same responsibility for health and safety at work. All employees share the responsibility of securing safety management. Against all physical and technological threats, they evaluate the risks regularly and depending on the results they are preparing action plans. In addition, they are collaborating with official organisations and consultancy firms.

Interviewee 3 reports that they prioritise navigation safety because their main service is navigation assistance for their clients in relation to environmental issues.

Interviewee 5 is very proud to say that "Our port is a safe port. We are the first public port that has the ISPS certificate in terms of safety management. We have not had any problem in terms of safety so far." They employ 80 security employees. Apart from that police force and customs guards are also helping them with their safety management. There is a rigorous control procedure in their organisation concerning safety.

FHC must serve a wide range of vessels from tiny boats to Ultra Large Crude Carriers (ULCCs), which can be challenging in the case of ships catching fire and in the management of the harbour. The FHC have regular meetings to discuss marine operations but they also have a goal of continuous improvement. This is the way that they manage their leisure operations, health and safety and environmental management. FHC are trying to integrate a system of management by considering four subjects, which are health and safety, empowering safety, environmental management and quality. Interviewee 2 explains that Poole Harbour Commissioners outsource a number of activities

such as their security for instance – a private security company handles the port's security, also they have about 100 full-time employees within Poole Harbour Commissioners. There are other risks such as terrorism mentioned by the Poole Harbour Commissioners and Interviewee 2 quotes "We have to have plans in place to ensure that we are prepared, and the organisation is at a high level of readiness for incidents. It could be an accident on a vessel, it could be a fire, it could be an explosion, there could be a collision between vessels - so we have to put a lot of resources into ensuring that we mitigate those risks as much as we are able to."

No data is delivered in terms of safety management during the interview with Interviewee 4 for confidentiality reasons.

Interviewee 9 summarises the safety management in the perspective of port constructions and shows APM terminals and Star Refinery as clear examples in order to positive change in port industry in terms of safety management.

From the conducted nine interviews, it is seen that Turkish port organisations have a tendency to acquire the certificates (mainly ISPS) related to the safety management whereas in British ports, safety management is seen as part of the port organisations' operations. Custom security featured in the analysis of Part Akdeniz but did not feature in the analysis of British ports. The differences in safety management structures between Turkey and the United Kingdom, have led to the creation of different departments, as with custom security in Turkish parts. Even though Poole Harbour Commissioners has a private security firm as their employee, employing a security company for the safety of the organisations is less popular when the British ports are compared with Turkish ports. CCTV is playing crucial role for port organisations in both countries. Interviewee 7 from Kumport stated that there is importance placed on employee training in terms of

health and safety which comes under the topic of safety management. On the other hand, Interviewee 9 focuses on safety management in relation to the construction of the port phase. Whereas other interviewees focus on the certificates and infrastructure segments of safety management by mentioning ISPS and CCTV for the security of their port organisations.

5.2.3 Environmental Knowledge and Awareness

No data is delivered in terms of environmental knowledge and awareness during the interview with Interviewee 8.

TCDD Haydarpasa Liman Isletme Mudurlugu do not focus on obtaining certificates however, they obtain the certificates that are required by the regulations. One of the reasons for not focusing on obtaining other certificates is the time factor. Gaining certificates is a long process and an issue for port organisations, which emerged as a code under the bureaucracy theme.

Interviewee 7 says that Kumport serves clients by being aware and considerate of the environment.

The only time the Interviewee 3 have been interested in environmental matters is when they were responsible for authorising or licensing aggregate dredging activity and they had to get involved. They might have to get involved in environmental assessments if if there is interest in building a quay or other facility in the estuary in the future.

Interviewee 5 is aware that all ports should consider environment and social issues to keep abreast of the latest trends and developments in the port industry to become more sustainable. Interviewee 5 continues "The issue is we have not realised the importance and awareness of the ports as a country. Three sides of our country surrounded by sea, but we have not using this advantage as efficient as we should be."

FHC have to have people who are capable of driving pilot boats and putting pilots on-board at sea, and at the same time, they have to have people who understand environmental legislation capable of working as part of the environmental management community. In terms of the work, dredging was the most difficult because of the environmental sensitivity and so that came out as a very strong option and in terms of economic output. Therefore, that is what the FHC has prioritised to a large extent. In term of employment, the FHC do not only have to employ people locally who understand what the issues are, but they have to be prepared to work on a national level.

The Poole Harbour Commissioners have statutory responsibilities to maintain the harbour and look after the harbour and try to achieve the right balance between the commercial activities between leisure activities and environmental concerns as well. In managing the asset of Poole Harbour, which is believed to be a jewel on the south coast, the intention is for it to be well maintained for future generations and to enhance its facilities while simultaneously adhering to statutory and environmental duties. Therefore, sustainable growth in business is being encouraged. In order to facilitate this growth, it was necessary to conduct a major environmental impact assessment due to the environmental issues within Poole Harbour.

In terms of the organisation, there are other challenges that they face; space is one of them. Poole Harbour has about 70 acres of port land, but they are now severely restricted, which is impacting on the possibility of new business coming in to the Poole Harbour, due to environmental legislation. Regarding their environmental responsibilities, Poole Harbour Commissioners have a Chief Executive, a Harbour Master who is partly involved, a harbour engineer and environmental specialists in marine environmental issues, who are very clear how

progress should be made. Their environmental responsibilities are changing because there is new environmental legislation being introduced, mostly from Europe. However, Interviewee 2 effectively deals with all of the statutory environmental organisations within Poole Harbour so that would be Natural England, the Environment Agency, local authorities, Wessex Water and Marine Management Organisation. Interviewee 2 continues "So we have developed what is called a critical management plan for Poole Harbour and that zones activities in different parts of Poole Harbour and as I said last year, we were instrumental in setting up a new marine nature park in Poole Harbour. So, the organisation is very clear about its environmental responsibilities. It is a challenge keeping abreast of new environmental legislation and new environmental initiatives, but we attempt to do that with the resources that we have got in the organisation."

Rather than talking about his organisation's perspective on environmental awareness and management, Interviewee 4 from Port Akdeniz answered more widely from an "in-country" perspective. Interviewee 4 mentions that unlike European countries, which are putting environmental sustainability first, they put financial sustainability first because of their short-sightedness and act spontaneously without a plan.

In summary, the interviews conducted reveal that British port organisations have clearer job descriptions structures than Turkish ones. British ports appoint harbour masters and harbour engineers, as in Falmouth and Poole Harbour. The Gloucester Harbour Trustee is different in that it meets the minimum requirements as their capacity allows. Turkish port organisations are keen to upgrade their profile, but current environmental legislation and certification involve time consuming processes which makes them impossible for the ports to focus on at this stage. Therefore, Turkish ports have a tendency to only acquire

the regulatory environmental certifications required, to avoid any penalty charges. Interviewee 4 from Port Akdeniz argues that prioritising financial sustainability ahead of environmental sustainability can be the reason of the lack of awareness across the country. Lastly, the level of environmental awareness via legislations is crucial for the employment process for the British ports more than the cases in Turkish ports.

5.2.4 Environmental Management

No data is gathered in terms of environmental management during the interview with Interviewee 8.

TCDD Haydarpasa Liman Isletme Mudurlugu has a protocol with Istanbul municipality about waste management. With this protocol, they constructed a facility for waste management and thanks to this facility they can dispose of the liquid wastes of ships. Also, they built large tanks in their repair workshop to store used oils which they then send to another facility for disposal.

The waste management system that Kumport established is helping them to control their operation's waste by distilling waste from its source. They are decreasing and controlling the greenhouse and harmful gases by energy conversions of their equipment. Also, by setting the ISO 14064 Management System, they have controlled the greenhouse gases (GHG) emissions.

No data is gathered in terms of environmental management during the interview with Interviewee 3.

One of the biggest issues for Interviewee 5 is the draft problem with a quotation "… one of the biggest issues is draft problem. To solve this problem, government and local management developed a project, which is the rehabilitation of the Izmir Gulf.". During the progress of this project, Interviewee 5 says that they are sensitive as organisation to the environment and want it to be liable in terms of

sustainability. One of the concerns that Interviewee 5 faces is the insufficient port and dock draft. Interviewee 5 quotes "First concern is the insufficient port and dock draft. Ships are getting bigger and bigger every day and your draft is staying at same level, that's an issue for the port." Interviewee 5 says, "We got the EIA report from the Republic of Turkey Ministry of Environment and Urbanisation due to scan the gulf and increase the draft of the gulf."

The FHC do employ an environment specialist who is also employed for their system management skills, so the FHC combines the role in terms of both managing environments but also dealing with the quality integrated management system responsible for that. Interviewee 1 found an environmental management system interesting quoting "It is interesting because environment is actually managing our environmental activity. It is because our activities are settled. We run office, we run boats. And because our environmental impact is not that great, we are a small business which has policies around trying to minimise our use of resources." The environmental management system is bespoke and quite limited, but the marine safety management system actually includes issues related to environmental impact. They assess the risks to the environment and sometimes assess the safety risks.

Poole Harbour Commissioners believe that environmental legislation is important because they have to dredge the harbour in order to bring ships through and with environmental legislation, there is uncertainty whether they would be allowed to continue basement dredging and whether they would be allowed to go ahead with new projects, making environmental legislation a key issue.

Board of Port Akdeniz focuses on doing some developments to meet government requirements. Interviewee 4 from Port Akdeniz adds "Being responsible of a human being, we are trying manage these businesses by consider environment

and without damaging it too. We are really lucky in this topic that when you manage your business with considering environmental sustainability, our expenses are decreasing instead of increasing." They have developed rapidly in terms of environmental sustainability. Therefore, they are attempting to set new standards and trying to meet those expectations.

Interviewee 9 who is maritime lecturer at 9 Eylul University in Turkey points out the importance of technology in decreasing the long bureaucracy processes by quoting "Automation, innovation and digitalisation are key factors for sustainable port management as they reduce environmental effects, increase productivity. Internet of things and technology that enables process data are bring solution for more efficient ports. Operational optimisation and technology driven approach support port business and management process."

From the conducted interviews in Turkey, Turkish port organisations as TCDD Haydarpasa and Kumport focus on waste management in their environmental management by collaborating with their municipal governments in order to dispose the waste where British ports do not mention waste management specifically. Also, Interviewee 7 adds that Kumport acquires the ISO 14064 certification which is related to greenhouse gases. In the case of the other ports selected for interviews, they either did not have the certification, or it was not mentioned. From different focus point, Turkish port for instance TCDD Izmir, follow the guidance of environmental legislations during their infrastructure investments where Falmouth and Poole also follow the guidance that provided by their government. Interviewee 4 from Port Akdeniz argues that environmental sustainability is beneficial for port organisations whether there is a legislation or not from government, where Interviewee 1 agrees this argument by mentioning that they are using management systems in order to reach their sustainability

goals in Falmouth Harbour. Interviewee 9 promotes the importance of technology adaptation to the port industry with mentioning the benefits of the technology on reducing environmental effects and increasing productivity. Interviewees in the United Kingdom pointed out the importance of appointing an environmental specialist.

5.2.5 Stakeholder Engagement

Interviewee 8 mentions that since 24 January 2018, the Board of Trabzon Liman Isletmeciligi A.S. have shared their organisation's 30% share with the public. Interviewee 8 continues that Trabzon Liman Isletmeciligi A.S. helps their shareholders in this perspective. Interviewee 8 ends with saying that, Albayrak Holding is the largest stakeholder in the organisation with a 70% share. The rest is offered to the public.

Rumours about the port's future drove them to find a new client or lose their current clients. Despite the rumours, Interviewee 6 believes that ports are still attracting investors when the right conditions are achieved. For example, having liner shippers as customers, collaborating with major companies, gaining support through networking and finding customers that share the same goals from a general perspective. This idea is supported with a quotation from the Interviewee 6 that "It is quite attractive when you connect with the right customer. We can see that ports are attractive for investors with Dubai Port investment in the gulf region." On the other hand, from the organisation perspective, government is their biggest and only stakeholder and unfortunately, they cannot get enough funds for their investments.

As a container logistics base in the region, Kumport aims to offer high standard port services to clients and add value to their shareholders sustainably. Interviewee 7 believes that Turkey has a trade capacity that is increasing every

year. Because of the competitive conditions, all organisations have become more finance-oriented to become profitable and shipping is the best option among other transportation options in terms of international trade.

The main stakeholder for Interviewee 3 is probably Sharpness Dock Limited, which is the reason they exist. Over 100 years ago this body was set up to provide navigation, aids and services to help ships come to this facility to the docks here to discharge and undertake operations. Interviewee 3 believes that an investor would come to a port if they had ten years of guaranteed quay space on which they could establish warehouses or facilities.

It is mentioned that the port industry always develops and attracts industry. Also, it offers a quick investment return, which keeps investors interested. TCDD Izmir Alsancak Port Management is a public port. They are demanding their investments from TCDD headquarters and they are requesting investment funds from the Ministry of Finance.

The population of Falmouth is interested in what FHC do; FHC spend money on communicating what they do without press releases and they try to be as open about their activities as any authority can be. They have bunkering operations in Falmouth, they provide the pilotage for that, and they provide harbour environmental regulation. Interviewee 1 continues that "…They would regard themselves as a significant stakeholder and a lot of the money that comes to Falmouth Harbour is raised through harbourages and pilotages associated with bunkering." Falmouth Docks regard themselves as a large stakeholder because FHC charge harbour dues to ships berth Falmouth Docks and provide regulatory regimes around that.

Interviewee 1 mentions that being seen to support the town is an important part of why the harbour exists, but it is separate. It is understood that recognition

should be given to the Falmouth community, who have a legitimate interest in the harbour and a legitimate right to benefit from its activities. Dealing with the community on an individual basis can become complicated as there are some individuals who are difficult to satisfy and tend to complain. There is a department which deals with such complaints, however, the effort involved in coping with certain individuals, can divert attention away from the Harbour's main services. It is a difficult balancing act as the Harbour needs to protect the interests of stakeholders which cannot be compromised by the actions of some individuals. Interviewee 1 mentions that if the community is consulted about aspirations for the Harbour, it seems to be in agreement. There is sometimes difficulty in maintaining impartiality if staff are close to the community, so it can be easier if employees are recruited from outside the local area. Eventually staff members become part of the community but need to remain impartial. Ideally Harbour employees would like to cater for the community's interests while spending more time on stakeholder engagement. Interviewee 1 continues that if they look at some of the commercial ports and related port's stakeholder engagement, sustainability has not been a priority and sometimes there is a major rift between the ports and their supporting towns. Interviewee 1 thinks that they have to put resources into making improvements but that can be difficult. A realistic improvement needs to be identified in a legitimate way and stakeholders need to be convinced of the need for it and approve of the way it will be done. This situation is a great example of showing the difference in priorities depending on which governance model is applied to the organisation and their stakeholder engagement. Therefore, governance is another potential theme for the PSMS. Interviewee 1 finishes by saying that they believe that all ports face common challenges, but they all have different approaches. For example, if they are a

privatised port, their main driver is the return to shareholders. They are driven by enhancing the harbour and looking after the interests of the stakeholders whether related stakeholders are financial or not.

Interviewee 2 thinks that there are approximately 200 different stakeholders within Poole Harbour, all with a different view or different angle regarding what they desire. A job of the Poole Harbour Commissioners is to try to manage the harbour and the port, while taking into account all of the overall needs of the stakeholders. Interviewee 2 quoted "Not everybody is going to be happy, but we have to take decisions for the greater good of Poole Harbour and that's what we are trying to do."

The Board of Port Akdeniz is really careful to create healthy and sustainable relationships with their employees and their clients. Unfortunately evaluating of financial and technological sustainability is dominated by short-term plans due to investor's return period expectations.

Port management, which was the shining star of the industry once, is losing its powers. One of the reasons is a decreasing number of clients; they are doing business with fewer clients, which are quite strong in the market. These strong clients want services to be provided from one port or one area which best suits their consolidated company structure. One of Port Akdeniz's aims, according to Interviewee 4, is to become their client's important preference and their partners by integrating the latest trends and providing best performance on container operations. By doing this, they give their clients one respondent, keep them away from logistics risk and create a new value-added service, which will help support their growth and progress sustainably. Also, by having this approach to their clients, they are removing long paperwork process as one authorised organisation. The Interviewee 4 from Port Akdeniz continues "Ports were the

investments that got attention of investors most recently. But from an investor's eye, I cannot see that positive picture in Turkey. Because container volume is 9 million TEU and container capacity is 17-18 million TEU in Turkey. Still there are some projects and investments that focussing on increasing the capacity. Recently, government is being decisive on port tariffs and port charges seriously. Government interferes several prices specifically last 1-2 years it is getting intense. Several ports do not give a good picture for the investors and it is been seen from the outside." Government's attitudes can be a great example of different culture's influences on governance models in their port industry which makes culture a potential theme for the PSMS. Interviewee 4 mentions that stakeholders want to increase the value of their stakes in the short-term; therefore, top management of the organisations are focussing on short-term aims and goals. In Turkey, companies are managed by the expectations of the biggest shareholders and investors, which is the same in Interviewee 4's organisation too. Interviewee 4 finally says that if he were asked if all they are proceeding together by getting the approval of stakeholders and investors, with the help of the board – it would be a difficult question for him to answer.

Interviewee 9 briefly mentions about the main stakeholders in the port industry in Turkey and quotes "Two leading container carriers recently invested in Turkey where they built container terminals… they bring technology and standards that applied at highest industrial standards….Although geopolitics crisis are just nearby…However, as there is no benchmarking between rival ports, no smooth integration of other transportation modes- effectiveness of this new built ports are not as good as global leading ports…" Interviewee 9 wants to mention that in order to receive foreign investors, politic crisis in south/southeast border need to be sorted out to create a more stable environment for foreign investors.

Interviewee 9 believes that ports maintain their appeal to investors even though the rough circumstances in the industry and the amount of the investments might change depends on conditions but by quoting "Yes It is attractive, despite the global economic slowdown since 2008, new port investments or expanding port capacity continued. Ports are critical gates for international trade, and they will keep their position despite the fact that economic crisis. Just percentage of investment they receive will change according to geographical location, growing percentage, type of ship they will serve." This quote is a great example of geographical differences and how they can affect the port industry in terms of stakeholder perspective and its management.

As summary of the key findings, Interviewee 5 and Interviewee 6 argue that uncertainty of the port's future is a major obstacle to managing their stakeholders. This situation leads to a lack of stakeholder funding available to the port organisations. If a port is a trust or municipal port in Turkey, government is the largest stakeholder and this condition is not helpful to obtain enough funds for their investments. It also involves bureaucratic processes as they need to gain approval from the headquarters. Due to meet the stakeholder's short time return request on their investments, Interviewee 7 and Interviewee 5 argue that port organisations are transforming themselves to a more finance-oriented organisations. Interviewee 4 from Port Akdeniz supports that argument by explaining about the pressure from stakeholders on the board of the port organisations in terms of planning. Interviewee 5 and Interviewee 7 claim that port industry is an industry where the investment can be returned in shorter period than other industries and it is the reason of stakeholder' attitude in terms of short-term return from port organisations.

From a different view, Interviewee 3 mentions that port organisations need to offer long-term benefits to their stakeholders in order to keep them interested about their organisations. Interviewee 1 argues the importance of local community as stakeholder influence and mention that not all the stakeholders are satisfied with constant developments. Besides, Interviewee 1 asserts that governance model of the port is a crucial factor on stakeholder engagement. Different governance models have different priorities and therefore different approach is needed to manage their stakeholders. Interviewee 2 argues that it is impossible to please every stakeholder they have and says that the priorities are the benefits for Poole Harbour and it is their way to manage their stakeholders. From a different perspective, Interviewee 9 mentions that stable geopolitical security is a significant factor to keep stakeholders interested in port organisations in Turkey and argues that it is impossible to have investments if the port organisations cannot provide that security.

5.2.6 Business Planning and Management

Trabzon Liman Isletmeciligi A.S.'s mission is told by Interviewee 8 that "Our mission is to be the heart of the modern Silk Road by connecting Europe and Asia in terms of shipping transportation." Interviewee 8 thinks that ports are organisations that have high-rate profits in the business. The competition level is relatively lower than the other businesses and in terms of Turkish ports, your income is coming with foreign currency and your expenses are with Turkish lira, which is an obstacle for Turkish ports in terms of sustainability. More efficient operations lead them to increase trade capacity in a more profitable and sustainable way and they are aware of the importance of it.

Interviewee 6 from TCDD Haydarpasa Liman Isletme Mudurlugu is responsible for managing different sections, which are all related to the container operations.

Investments and budgets have been spent on developments of the port such as technology of course by considering the environment and daily circumstances. Since it is a public port, tariffs are decided on at annual meetings and need to get approval from their headquarters in Ankara, before they start a development or investment. They prefer instant meetings rather than awaiting reports and having regularly planned meetings in terms of business planning and management. Interviewee 6 continues that "Due to political, terrorist problems, huge decrease happened in cruise tourism, but it is not going to stay like this forever. That's why we still continue and consistent about this project. These projects will finish in 2018 and we put them in our 2018 investment plans."

Interviewee 7 from the Kumport interview is responsible for deciding the strategic aims and dissemination of related aims. Their aim is to achieve the best port management in terms of quality, process and cost management. In terms of the financial part, to reach their sustainability goals, they are working on changing their system to Systems, Applications and Products- Enterprise Resource Planning (SAP-ERP) system. They are consolidating by gathering their all data into a mutual pool. They created a management system approach by considering quality, health and safety at work and environmental standards. They have EFQM (the European Foundation for Quality Management) excellence in quality and green port projects. To track their short-term goals, they prefer having meetings frequently but for their long-term goals, they prefer to have yearly meetings.

The main concern for Interviewee 3 would be that the port operator continues to want to operate this port and track ships here. The business plan is to ensure that they set the charges appropriate to what they think the level of trade would be and according to the business plans. So, as a conservancy they deal with the provision of pilots for ships and provide navigation aid, voice beacons and

lighthouses in the way of safety features and they also have interests in environmental matters. Interviewee 3 quotes that "So we look ahead several years and we think where we need to make improvements and then we set the harbour dues accordingly to bringing money to do that kind of work." During their services, if they need expertise, they use consultants for that purpose.

Interviewee 5's aim is managing the government provided facilities efficiently, by considering the environment and social sustainability and becoming an organisation that aims to add value to the economy of Turkey. Interviewee 5 mentions that they have their own sustainability management system for their organisation. Deepening the canal of berthing for ships, rehabilitation of the gulf and building the second container terminal are the projects that Interviewee 5 can mention as the areas that they want to develop, and they are progressing. The investment fund is always in government's control and approval is required from the headquarters, as with the situation regarding tariffs. Tariffs are decided yearly at the headquarters and the tariffs cannot be changed whatever transpires unlike with private ports, which are entirely the opposite. This is another important example of how the governance model can impact on the business planning processes. Interviewee 5 finishes his word with "Of course you need a long-term plan in the port industry but also during this long-term planning, you have to act flexible depends on the short-term situations. As an example, you make long term plans for your organisation, but some issue occurred, so you need to adapt that situation by being more flexible in terms of management." This quote shows the importance of the flexibility and adaptability of the business plans, which is created for long-term aims, to have an option to solve short-term problems in the port industry.

Interviewee 1 mentions that it is important to realise that it takes a substantial amount of time to satisfy the port management, it is not his port. In his case Interviewee 1 is accountable to the Harbour Board Commissioners, and they are employed to manage the ports strategically. Due to slow business growth and a poor market in their core business, they can only look for other areas where they can develop the business to compensate. They must have reserves to invest but obviously, they have to invest them wisely because it is not good investing in something that is not going to give them enough of a short-term financial boost in order to balance the books. Hence the increased interest in business planning and investment appraisal for the port. Interviewee 1 explains the importance of business planning saying that, "You can't become very complacent and wasteful about how you deal with your resources if you are not under pressure to be efficient and to grow." If the port does not employ people with the right skills set to manage areas such as maintenance and engineering, then those areas will be neglected and not developed or challenged. To support a pilot boat, they take a very long-term view and that is one of the advantages of the trust ports because there is the investment, which is never made in a private port. Interviewee 1 have looked at what they ought to be so the home vessel traffic services here to manage the shipping instead of pilotage might be all costs associated with the pilot boat trying to get a pilot out to all those ships. Because they are set up by statute, Interviewee 1 believes that they will be here in 50 years' time. So, they tend to operate with a long-term future in mind, which is quite often the case with trust ports. From a private port perspective, private port organisations could increase their value until they might receive an offer of a take-over, which may make them a substantial amount of money, so that they can retire. Therefore, there is a different way of working there between trusts and private ports. This is

a significant example of the difference in various governance port models' approach which leads to question that ports might not be evaluated generally, they can be evaluated amongst the same governance models by considering their priorities. It is not just the cost of the investment at the time, it is how they manage that investment, how they plan for it and is therefore one of the aspects they have been attempting to improve in their business plan. They have invested in an extension in the marina, which is only a relatively small investment, but it was done on the basis of assessing the market and they thought they would get a good return on the investment. And then they planned that kind of growth. They reviewed a number of schemes before they decided on where to invest. If they had no business plan and accepted that the business model would change, no control over the outcome of their investment. By saying that they need to have a plan for the organisation, they need to have mid-term plans. It does not commit them to follow that plan through, but the fact is that they have written a plan. Interviewee 1 continues that "Very few of my colleagues will be doing that because they have never written a business plan and they have never been told to have to write a business plan and use other information that is available. And so, although our position in terms of the problems we face, we have a problem in deposits, we have a problem in income for this year but there is no panic in the organisation." There is a measured approach that they review their business plan in June, they need to have a couple of options to increase investments by increasing performance or to make savings. Interviewee 1 thinks they did the port master plan study that they contributed to and that came up with a number of schemes in terms of work around and improving facilities in Falmouth Docks. Poole Harbour Commissioners are aiming to substantially grow business and proceed with a new project with the aim of increasing their turnover to GBP 15M

within the next three to four years. Some land was purchased for Poole Harbour, which has been turned into a nature reserve. Development of commercial quays is also being considered. Profits are re-invested back into the business to benefit the stakeholders. A number of leisure activities take place within the harbour making anybody who owns a sailing boat a stakeholder. They liaise closely with yacht clubs and mariners and other marine leisure organisations. They have got that all approvals and applications in place for the project and they should be starting work on it July, 2016. It has been a long process, but they started construction of the new quay and completed it in 2017 and that will really enable them to bring in bigger vessels and the intention is to bring more cruise ships. Effectively there are a number of phases for the business plan and the first phase is the construction of that south quay. The next phase has received planning permission through the Harbour Revision Order Act to deepen other existing quays in a field part of the port, to create more land. Another six acres of land is required for the port and a project to develop a marine centre where there are currently marinas within Poole Harbour.

An extensive consultation process involving over 90 meetings and public meetings; displays in local libraries and shopping centres and open evening meetings was carried out, and three versions of the Master Plan were produced, before it was finalised. In terms of the organisation, there are challenges that they face; space is one of them. There are approximately 70 acres of port land, but now severe restrictions due to environmental legislation are having an impact on the amount of new business that can be established in the port. Interviewee 2 states that "We have to be selective in terms of which businesses we focus on and which businesses we do not have room for, so space is key. Environmental legislation is important because we have to dredge the harbour in order to bring

ships through and with environmental legislation, there is uncertainty whether we would be allowed to continue basement dredging, and whether we would be allowed to go ahead with new projects so environmental legislation is a key issue as well." A critical management plan has been devised for Poole Harbour which zones various activities in different parts of the Harbour. According to Interviewee 2, this was instrumental in establishing a new marine nature park in Poole Harbour in 2015. The organisation is very clear about its environmental responsibilities. Poole Harbour has not encountered problems in gaining the support of financial providers for their new quays project. This is due to the fact that there is a vision, a Master Plan and a business case in place. Interviewee 2 mentions that without a doubt in the shipping industry they used to go from a ship owning perspective to a broader shipping perspective. . They used to go through seven-year cycles, peaks and troughs and that seven years now those cycles are much more concentrated, this creates regular volatility within the shipping industry. Interviewee 2 continues that it is very important to remain adaptive because things can change within a very short space of time and that can have a major impact on particular sectors.

The Interviewee 4 from Port Akdeniz is spending most of his time on business development and trade areas. The aim of the organisation is planning the current environment, organisation, resources and commerce in terms of expectations of the future and creating a strategy by considering these related topics. Interviewee 4 says that when the Antalya region is viewed positively, it has huge potential for development and growth because it is one of the lowest levels in terms of logistics service. Interviewee 4 from Port Akdeniz tells that "… when we look Antalya region with a positive point of view, it has huge potential to develop and grow because it is one of the lowest levels in terms of logistics service. You can

perceive the same situation negatively too; there is nothing around this region. We are trying to do business in this environment. That's why we are supporting the other partners as a biggest investor in this area to help them to grow too by considering not becoming monopoly in the region. This is our logic and approach to the circumstance.". This quote from Interviewee 4 illustrates that growing with the other partners instead of being a monopoly in low level regions can be seen a better option for business planning in terms of sustainability.

In terms of Turkey, economical and governmental fluctuations allow the agenda to move to other subjects than economic development and sustainability, which makes shipping industry's job harder. Interviewee 4 continues that the move first that the Turkish port sector should make is to observe the European organisation's consolidation and adapt it to their organisations. This attitude of not being collaborative internationally and open minded to the world, is linked to cultural differences as a code under the culture theme. In the Turkish working environment, organisations experience the pressure of their stakeholders' influence on them and therefore focus on short-term goals. Interviewee 9 thinks that rivalry between organisation is one of the reasons but not the main issue why collaboration does not work in Turkish port industry. Interviewee 9 quotes "Yes one of the reasons but the main concern is market condition that ports need to compete for small margin of profits… Unlike European ports, Turkish ports are reluctant to collaborate…." This quote is another example of how cultural differences can affect the port industry specifically on collaboration between port organisations.

One of the key findings from the conducted interviewees related to the business planning and management is that long-term planning is important, but it needs to be flexible towards short-term occasions in order to adapt and continue to be

competitive in the market. Analysis of the interviews conducted in Turkey shows that various factors have a significant influence on the business planning and management processes. These include terrorist threats, the government's influence as tariff decider and economical fluctuations for the trust ports which put trust ports in a situation where they cannot show any reaction to the short-term problems. Specifically, in case of Turkey, Interviewee 8 argues that port industry is less competitive than the other industry for the main reason of having a foreign currency as their income and paying expenses with local currency. On the other hand, Interviewee 9 argues that the reason for the lack of collaboration is the small margin of profits in Turkish port industry and it creates a highly competitive market condition. Interviewee 4 from Port Akdeniz mentions that being monopoly is not a good situation in a not developed region and that is the main reason that they are collaborating with other companies in same region to grow bigger and more sustainable together. From a different perspective, Interviewee 7 mentions that in his organisation, Systems, Applications and Products- Enterprise Resource Planning (SAP-ERP) is the system that they want to apply to their organisation. Also, Interviewee 7 mentions that Kumport has EFQM (the European Foundation for Quality Management) excellence to point out the importance of systems and excellences in terms of business planning and management. Interviewee 5 and Interviewee 6 argue that as trust ports, setting tariff charges yearly from the headquarters is a significant issue to them in order to solve to the short-term problems, which need an instant solution. On the other hand, Interviewee 1 from Falmouth argues that there is an advantage of being a trust port in United Kingdom in terms of infrastructure investments. Interviewee 1 continues with saying that having a business plan allow them to be in control of the process. Interviewee 1 says that trust ports have to make wise choices on

160

investments, which allow them to have long-term plans on investments (for instance pilot boats). Whereas private ports might be taken over if the right conditions are in place and long-term investments are not their prioritised targets. Therefore, Interviewee 1 argues ports should evaluated differently depends on their governance types due to each governance model has different priorities. Interviewee 3 mentions that in Gloucester, various services are offered to customers with the set charges and if extra an service is required it is not offered, but rather customers are directed to consultation companies who are offer the related service. Interviewee 2 argues the importance of master plan and the actions they take before finalising their master plans in terms of their business planning and management. Interviewee 2 supports the general opinion, aforementioned, that the shipping industry has seven-year cycles and port organisations need to adapt to the cycle with their business planning and management.

5.2.7 Effectiveness of Management Processes

Trabzon Liman Isletmeciligi A.S. aims to manage their operational capacity in the most efficient way and at the same time to increase this operational capacity with the same level of their regional developments. Interviewee 8 quotes "In terms of financial and technological perspective, we are one of the first ports that collaborating with Softech Company about the system called "Gullseye". By using this system in our organisation, we have progressed in time efficiency, true and exact information, planning, finance and customer satisfaction." The operation section is planning everything by examining this software, which leads to a decrease in failure rate in their operations. To show a quicker reaction to the issues and demands, they have daily meetings in their operation section. Interviewee 8 finalises words by mentioning that bureaucracy is one of the

obstacles in terms of the effectiveness of management processes which is emerged as a major obstacle from other port organisations that have been conducted interviews. Therefore, bureaucracy is a potential theme addition to the PSMS with a potential code namely 'ineffective management processes' underneath.

TCDD Haydarpasa Liman Isletme Mudurlugu is aiming to meet the daily and future expectations while considering health and safety at work and environmental factors with technological and management improvements. But due to the decrease in employee number, operations that they are having are getting less effective and affecting their aims negatively.

Interviewee 7 is responsible for simplifying and enhancing the processes in the Kumport Company. He mentions that having an efficient connection between Terminal Operating System (TOS), which is a fundamental piece in port management operation, and the devices, which are used in the area is crucial in terms of performance and sustainability criteria.

Interviewee 3 mentions that they have heard of the PSMS, but that it is not appropriate to their operation. He thinks that the PSMS should be more generic. As it stands it is not suitable for every port.

All the systems which assist navigation are clearly marked on charts and Interviewee 3 manages their maintenance.

Apart from insufficient port and dock draft concern, Interviewee 5 does not have enough employees to manage the ports efficiently. Usually, weekly meetings are held, however he believes that it would be more efficient to evaluate the organisation in monthly meetings and to devise an annual plan.

Falmouth Harbour Commissioners need to invest in new boats to maintain their efficiency. It is important that they can do their job without putting people at risk.

A list of necessary jobs is drawn up and every two weeks, these are monitored to check progress. This has been an effective improvement as they are not leaving the monitoring for three years, as this proved far too difficult to run efficiently. They are managing in a much more coordinated way and their progress is surprising because they are actually concentrating on improvement as opposed to just finding resources to deal with the status quo. When they start to score themselves against those pillars of the PSMS, they realise it applies not just to us but to everyone, they all have areas that they do well in but also some score very badly. They can look at that identity which shows the personality of a Harbour Master, what he is comfortable with, what would he be interested in and what are their priorities in terms of those particular responsibilities. Interviewee 1 does not think that they could do everything they want but he thinks they have to be aware of where the holes in the wall are going to develop if they want to try to manage effectively. Interviewee 1 thinks that PSMS is very useful with his words "Actually that's why the scoring system is very handy. Because actually you could say that because a pillar appears to be our weakness, we are going to put resources over the next 2 years into improving this and then gradually you start to expand that pillar, so you start to do better all around. And I think again that is a very useful aspect of it, because it was a good assessment of your strengths and weaknesses and where you may need to put resources." Therefore, it is necessary to pay attention to all areas. They can postpone dealing with some of it, but they really need to have their overview of the system needs to ensure they can get around to everything eventually because otherwise there will be a leak. Only negative feedback about the PSMS is that he thought that there are rather too many themes.

Effectively Poole Harbour Commissioners have got about 100 full-time employees. They also have got an agency, stevedoring agency, to provide them with additional staff, during busier periods. Poole Harbour, experiences a peak in the summer due to increased ferry activity, for example with Brittany Ferries and Condor Ferries which are busiest during the summer months when more people holiday. Using an agency for temporary staff during the summer, enables them to ensure they do not have too many people on their official books. They are developing their risk register and there are a number of different potential risks to the organisation.

Turnover is one of Port Akdeniz's performance criteria and they are checking regularly due to human resources efficiency productivity. Interviewee 4 feels that they are lucky in this topic that when they manage their business by considering environmental sustainability, their expenses are decreasing instead of increasing. He continues "For instance, when you move to a new machine with less carbon resonance, your expenses are decreasing and also it allows you to avoid the penalty for not meeting environment requirement from government. For all these reasons, we have developed quickly in terms of environmental sustainability."

Interviewee 4 discussed segments of bureaucracy in terms of shipping (Industry Structure) and the need for minimising these related segments. He points out the issue "The segments of bureaucracy in terms of shipping and the need of minimising these related segments. There should be regional port authorities and from these associations, local organisations should be managed. Otherwise, a new investment, which is a sea investment on land, nearly takes 4 years due to this long bureaucratic process." Minimising some bureaucratic obstacles and those of other areas minimising could be a solution for this bureaucracy issue. In

Turkey, unreasonable and costly investments are made, without feasibility tests being done which can consequently fail. As a result of no returns from these projects, management teams are changed. This is proof that there is a focus on today and little, if any planning for the future present in the country.

Interviewee 9 explains how to have sustainable and effective management processes in port organisations in his words, "Working with right people, right software, integrating and combining different platforms as well as different ports and different transport modules."

To address the key findings, Interviewee 7 argues that port management systems are pivotal in terms of efficiency in port organisations whether organisations have their own systems or applying other systems are used in the industry. Interviewee 8 supports this argument by mentioning that they have increased their efficiency via applying Gullseye system into their organisation. From the usefulness of the PSMS perspective, Interviewee 1 defends that the PSMS is applicable to any ports one way or another because one of the pillars that the PSMS has, can address the need of improvement to the port organisations. Interviewee 1 continues with claiming that the PSMS is useful for improving the port sustainability via offering self-assessment service to port organisations in order to address their areas of improvement. On the other hand, Interviewee 1 believes that the PSMS has too many themes which is resulted with a negative feedback for the usefulness of the PSMS. Interviewee 3 supports this negative feedback with mentioning that the PSMS is not that generic enough to be applied in every port in the industry.

Interviewee 6 argues that lack of employee number in port organisations is another issue that have a negative impact on effectiveness of management processes. Interviewee 2 believes that additional support should be available

from outside of the organisation (stevedore agency in Poole Harbour Commissioners case) when it is needed, as it could be a solution to this problem. Interviewee 4 argues that pursuing environmental sustainability targets is also effective in terms of management process and decreasing the organisation expenses. Interviewee 5 focus on a different segment in port organisations and argues that monthly meetings can be more effective for annual planning than weekly meetings in order to create annual planning, where Interviewee 1 points out to the importance of infrastructure renewal in order to be more effective in management processes. Interviewee 4 briefly mentions about the issues that he has faced in regards of effectiveness of management processes, which are bureaucracy and unwise investments in port industry. Interviewee 4 argues that long bureaucratic processes are a major obstacle for port organisations. He ends his arguments by mentioning how unwise investments in the port industry are influencing port organisations and the general condition of the port industry in Turkey negatively, in terms of the efficiency and effectiveness of management processes. Lastly, Interviewee 9 argues from a broad perspective in regard to effectiveness of management processes with mentioning that holistic approach is required with adding different transport modules and selecting the right partners and customers at the same time.

5.2.8 Customer Service and Satisfaction

By using 'Gullseye' system, it is mentioned that Trabzon Liman Isletmeciligi A.S have improved in customer satisfaction.

Any rumours or delays surrounding a project, results in customers becoming anxious. TCDD Haydarpasa Liman Isletme Mudurlugu cannot guarantee or set the timing of a project, because of government control. Interviewee 6 mentions

that they have to provide some short-term offers to customers due to this instability, to prevent their customers trying to find new ports.

To give an adding value service to their shareholders, Kumport manages their services effectively and evaluating their performance regularly.

Interviewee 1 mentions that when taking a look at the municipal ports, small ports that run by a local council, they have issues because they are generally small, the taxpayers are their local residence, they are paying a lot of money to have a port there, they probably have issues getting funding. Interviewee 3 continues that they do not have great access to other areas of the country. And small ports have developed to serve small communities.

One of the issues that Turkey has is the long procedural bureaucracy, which foreign investors and the business world are complaining about. From the perspective of Interviewee 5, when the crisis occurred between the organisation and its customers, as it is a municipal port, tariffs should have been changed to encourage customer satisfaction.

It is mentioned that it is not that difficult to create jobs for local people as a small port. It is not a major expansion but in terms of the limited mission that the Falmouth Harbour Commissioners have, and the fact that they need to provide good service, and the fact that they need to grow and develop, and that that creates opportunities for employment, they need to bring in people with new skills in order to meet the expansion. Interviewee 1 quotes "And so to get a positive return on investment in ports, it is quite often not the exciting or dramatic or significant schemes and the smaller port is less likely going to be a major scheme where there is going to be transformation or development. The population does not like it; those ports tend to be valued for what they are. In some way, almost

for the living museums in terms of what use they are like Boscastle and a lot of ports on the north coast."

Poole Harbour Commissioners have got bulk carrier customers, so they have existing customers who want to bring bigger ships in. New customers also want to bring bigger ships into the port. So, a new quay will enable them to develop that side of the business in terms of customer service and satisfaction.

Port Akdeniz has an aim to be the best partner to cruise lines, firms, B2B partners. They are aiming to provide the best customer experience, both in port and on land. They put their customers, shipowners or exporter, and importer first by seeking to add value activities for their customers. They have several plans for their clients such as to provide agency service, logistics service, storage service and border storage services (it is only in Turkey).

As summary of the key findings, Interviewee 6 argues that they have provide some short term offers to customers to retain them and take their focus off any rumours about the future. Interviewee 3 states that port organisations shape their investments in order to please customers. Therefore, Interviewee 3 mentions that new quay seems a good solution in order to satisfy their customers, who want to bring in their ships. Interviewee 8 argues that port management systems (Gullseye in their case) are crucial in order to offer their services to their customers with more efficient and effective. Port Akdeniz argues that they need a holistic approach to their customer with offering value-added services. Interviewee 5 argues that long bureaucratic processes are an issue in customer satisfaction.

Interviewee 1 points out that the local community pays a substantial amount of tax for the port, therefore it needs to be satisfied with current conditions. Interviewee 1 believes that schemes do not have to be large ones to satisfy small

port customers as those ports tend to be valued for what they are. Interviewee 3 supports this by saying that small ports are developed to please small communities.

5.2.9 Proactive Partnerships

Trabzon Liman Isletmeciligi A.S. is one of the first ports that collaborated with Softech Company about the system called "Gullseye". With their new system, Interviewee 8 can say that there is enough collaboration between the organisations. Their port is also serving as a cruise port so the tourists that came to their port are really important to their city's economy. In this case, the city and the port are growing together.

Interviewee 6 says that as an organisation, TCDD Haydarpasa Liman Isletme Mudurlugu is running the passenger waiting area project with Mimar Sinan University. Between the CTC and all the other port sections, which work in container operations, Interviewee 6 mentions that he could easily say that collaboration between them is quite high. He continues that instead of seeing it as a competition, it is more likely a high collaboration between sections unless if there is a lack of communication between sections.

Interviewee 7 mentions briefly that they believe that there is enough collaboration between the organisations.

Interviewee 3 suspects that there is enough collaboration because it is a commercial business. He quotes "Falmouth do not want to see the cruise ships are going to Fowey and the Fowey does not want to see china clay coming here does it? So, collaboration, as a certain level there is collaboration, but I suspect in terms of commercial collaboration, there must be very little." Quote from Interviewee 3 shows that conflict of interest between the port organisations is one of the reasons why there is not enough collaboration in the industry, which

automatically affects the proactive partnership option negatively between port organisations.

It is believed that there is not enough collaboration between organisations mainly because of competition and rivalry between ports. He mentions that due to be a government port, there are always limitations which is placing as a code under the governance theme. For instance, Interviewee 5 cannot examine another random port and collaborate with them without getting approval from the headquarters.

Interviewee 1 claims that there is a school of thought that they could collaborate more and amalgamate some of the services and he thinks they could actually look at this as a business. They need a lot of detailed knowledge about the business to try to manage or it fails. And even in FHC where they are trying to address their financial concerns, they found they could not do it as FHC. He mentions that collaboration is very difficult and where they work in little ports, they have not been very successful in getting any sort of collaboration except on very specific projects. In terms of borrowing power support; they have got the ability to borrow commercially anyway for investment so it is not certain the ports are able to help each other in this. During the collaboration, difficulties will arise because of the two towns would be the main stakeholder units for the ports. They have very little in common with each other and would be afraid of losing out to the other in terms of the benefits of the collaboration. Interviewee 1 quotes "In a way we are all geographically unique, which is why we exist in the first place." He continues that it is not just about the fear of competition; it is about the difficulty of geographically based entities to collaborate effectively. They come up with a fact of there is sort of geographic rivalry before they start and that almost initially means that collaboration will fail unless they got something like Cornwall Council

which manages a number of ports. Interviewee 1 thinks that the collaboration side of it has been effective because when they took on the Knowledge Transfer Partnership (KTP) graduate, she was able to discuss the theory of consultation and how to value stakeholders and their influence and to adopt techniques which would attract stakeholders. This situation and having a student visit to compile his research report, have been valuable experiences and which show how cost effective, academic resources may be used in assisting the future growth of the port.

Poole Harbour Commissioners have a number of different types of stakeholders, some of whom contribute financially while others make no financial contribution. There are commercial port customers and in addition, Brittany and Condor Ferries, Channel Seaways and Channels Perkin. The local residents of Poole, who benefit from and have an interest in Poole Harbour, do not have a financial stake. Environmental organisations such as Natural England, the Dorset Wildlife Trust, Environment Agency Wessex Water and the local authorities are a further separate stakeholder group. In addition, a number of commercial organisations which are not port users but exploit the Harbour from a commercial perspective form another group of stakeholders. Government involvement is dealt with by the Department of Transport which is the official authority for the Harbour's activities. Interviewee 2 mentions that the BPA has over 100 member ports across the United Kingdom, not just in England but in Wales, Northern Ireland and Scotland. The BPA ensures that there is a substantial amount of communication between the smaller ports and small to medium size ports within the United Kingdom. The BPA host a number of different events, regional events. The Harbour Master representing the BPA, attends events to meet and discuss relevant matters with Harbour Masters from other ports around the United Kingdom and its Southwest

ports to proactively generate partnerships. Members of the Southwest Ports Association and Regional Ports Associations communicate to discuss the common challenges which they face in their regions. Interviewee 2 continues that there is a resource issue so there is only so much money available to enable the collaboration between ports and the European Union and the European Commission. Collaboration between ports and the European Union and European Commission tries to enhance that, and Pool Harbour Commissioners have been involved with port projects with other French ports, Irish ports, Spanish and Portuguese ports as well. This is beneficial as a way of learning about different port structures and acquiring new information. He finished off by saying that he is going to Dover next week and he is able to visit any port within the region, as there is active personal contact between them and himself.

Port Akdeniz aims to continuously improve by learning from each other through collaboration. The Interviewee 4 responded with a 'no' when asked whether he thought that there are enough successful collaborations between Turkish organizations and the port industry. According to Interviewee 4, the problem is there that chambers and associations do not put themselves in a right position. Also, he mentions that the oriental working culture (cross-cultural) in Turkey is one of the reasons why collaboration does not work. Therefore, oriental working culture (cross-cultural) and organisational culture are the codes under the culture theme. Due to over-capacity, tough conditions and having container liners, ports focus more on short-term plans rather than developing projects, which impacts negatively on possible collaboration. He finished his comments by saying that China's bigger role leads to investments increasing in Turkey and reducing China's costs and increasing their trade volume at the same time.

Summary of the key findings for this subchapter, Interviewee 2 argues that partnership should not have to be financial support only, there are other way of partnerships. Interviewee 8 supports this argument with mentioning that city can be a good partner for port organisations for mutual grow and also having partnership with a Softech company is beneficial for their organisations. Interviewee 6 holds the view that universities can be potential proactive partners for port organisations and Interviewee 1 supports this idea with pointing out that partnerships between universities and port organisations more cost-effective option. Interviewee 2 discusses that partnership organisations between different countries is beneficial in regard to examining different structures and widening their knowledge. Interviewee 2 argues that associates are crucial in terms of partnership and Interviewee 4 agrees with this argument with one condition, which is that associates, and chambers need to set their position appropriately in the industry.

On the other hand, Interviewee 3 claims that finance-oriented business is a reason of lack of collaboration in the same region. Interviewee 1 supports the argument from a different perspective that geography and its limitation is another issue to consider regarding collaboration, where ports are settled in different geographical locations with different requirements. Interviewee 1 continues that this issue leads to a scenario that very little common interests between ports. Interviewee 5 argues that competition and rivalry between port organisations is another reason that there is lack of collaboration between port organisations. Interviewee 4 points out that oriental working culture (cross-cultural) in different ports whether in same country's port organisations or port organisations in different country is another reason to find a common ground between port organisations to collaborate. Interviewee 1 examines this area from different

aspect and mentions that ports do not have to collaborate with another port because they can get investment from outside of the port industry.

5.2.10 Change Management

No data is gathered in terms of change management during the interview with Interviewee 8.

TCDD Haydarpasa Liman Isletme Mudurlugu is seeking a new business. In terms of cargo, they never had a huge number of cargoes. They were a container port but as he mentioned earlier the increase of private ports number around them especially in Gulf and Ambarli region lead seeking new businesses. With the sea border gate certificate, they serve the Ro-Ro and Roll on – Roll off Passenger Ship/Ferry (Ropax) type of ships. In 2017, to deal with the disadvantage of being a municipal port, a fixed exchange rate system for customers was established to help them predict the future more clearly.

No data is gathered in terms of change management during the interview with Interviewee 7

Interviewee 3 says that his organisation provides several services and no one else wants them to provide different services, they do not change, which is why they are kind of different when compared with other ports. It is not easy for them to make decisions by themselves due to the port operator who has the biggest right to call. If it was decided by the port operator to construct a car park, or housing estate, then consideration would need to be given as to how to reorganise business to accommodate fewer ships. This situation is a significant example to show how governance type can affect the port organisation's planning either short- or long-term perspective. Interviewee 3 continues that certain technological developments do take off and he knows with them in Australia now some ports are using equipment developed in the United Kingdom to track and

automatically take containers from piles to the store and to lorries without any human intervention at all.

Interviewee 5 mentioned that his organisation has its own management system. Research was done to examine international ports in order to become a self-reliant port. However, this did not proceed because it is a public port. Hence, the attitude of different governments in different countries on industry structure, as exemplified by the TCDD Izmir Alsancak port, is another code underneath the culture theme. There has been no increase in the number of employees because the port is in the privatisation process. He states that if the government requests that they use 10% of their profit to fund their investments, government support will not be required. However, approval from the headquarters in Ankara is necessary, which involves a long bureaucratic process. This approval process is a constant difficult challenge for the organisation.

Interviewee 1 mentions that developing an integrated management system would be beneficial but involves a substantial amount of work as procedures now have to be entirely re-written and all documents are to be reviewed. Managing the system is time-consuming and there is little to be gained from the process. What has been beneficial is that now marine operation meetings are held every two weeks, when a fixed agenda is followed, and this has improved the flow of information. He continues that this improvement is vital and relevant to the organisation as the external environment is changing so rapidly.

One of their businesses is a pilotage business and one of their businesses is yachts and moorings. Those businesses are so complex because even if ferries are straightforward to manage, business between businesses is complex to scope, due to conflicting interests and lack of time to pay attention to certain issues. Interviewee 1 quotes "So we broke it down, split off those into individual

business arms, introduced more management and management panels looking into what ideas they have for development, testing those ideas, doing justifications and the justification for that investment they made to the board." Lastly, Interviewee 1 mentions that they have made the effort to go up and arrange appointments for the shipping ministers to explain their concerns around how these activities, which are the activities due to EU requirements, impact their business and this has been a successful move.

Poole Harbour Commissioners are looking to grow business going forward and their employees and stevedores agency staff effectively transfer from bulk cargo to ferry operations or depending on the cargo, to cruise ships or the container work that they do. He continues that there is a trend that they have seen in the United Kingdom over a number of years, which is smaller ports and harbours being redeveloped for leisure and warehousing and he can see that trend accelerating going forward, so without doubt its more challenging for smaller ports to attract investment and that's partly to do with the economies of scale. Interviewee 2 continues "However there are challenges ahead for small ports, there is no doubt about that and in 10 years there will have been some changes and I think some casualties within the small port sector."

The Interviewee 4 from Port Akdeniz thinks that port management, which was the shining stars of the industry once, are losing their powers and are going to lose and he is expecting that there are some ports going to appear that they can call them 'ghost ports'. In addition, large companies the business world are starting to embrace other segments slowly. Clients are face challenges when numbers of their logistics participants increase, and clients have to be contacted individually. Port Akdeniz solves the issue by reducing client's these relevant departments to one department, managing the process can be much easier especially in this

fragile business environment, which can reduce client's logistics expenses and see client's fixed expenses. This a great approach to get example of removal unnecessary bureaucracy paperwork from the process. They are trying to give sea freight to their clients as general cargo, dry bulk. Interviewee 4 quotes "By aim of doing this is give our clients one respondent and keep them away on logistics risk and creating a new value-added service, which will help us to grow, and progressing on sustainability. I can say that this is our general approach in terms of our organisation level." He continues saying that government is being decisive on port tariffs and port charges seriously. They put financial sustainability first because of their short-sightedness and tendency to act spontaneously, without a clear plan. Lastly, he finishes his comments by saying that the whole world now knows that the USA cannot be relied upon to survive with this current situation, which gives them an advantage by putting China in a better position.

From the perspective of key findings, Interviewee 6 argues that high competition in an industry can be a reason for port organisations to change their management in order to survive. Interviewee 3 argues that if there is no demand to develop from stakeholders, community, there is no need to develop, automatically no need to change your management too in a scenario of being a small port organisation. Interviewee 5 argues that public ports do not have authorisation and do not have the flexibility to change their management through their decisions only. Interviewee 5 says that if higher authorisation tends to share their power with board of public ports, it would be more efficient and sustainable for port organisations. Interviewee 1 argues that dividing the port organisations into separate departments decreases the complexity of business management. Interviewee 6 argues that offering a clear future for their customers (a fixed

exchange rate system in TCDD Haydarpasa case) minimises the disadvantages of being a trust port.

Interviewee 4 points out that the trend which he mentions that major players in the industry and merging with smaller organisations This scenario is a struggle for smaller ones to survive. Interviewee 4 states that they are the only organisation which takes sole responsibility for all stages of the transportation of goods. This trend has motivated other organisations to follow this mode of operation.

Interviewee 2 argues that smaller ports have to change management in order to survive in highly competitive environment to adapt to warehouse, leisure. Interviewee 4 supports the argument with mentioning that if they do not change their management, 'Ghost' ports might appear due to loss of interest from customers.

5.2.11 Strategic Planning for the Future

Trabzon Liman Isletmeciligi A.S. organisation view Sustainable Port Management as embracing the latest technological developments to organisations in terms of capacity and profit perspective.

Port management systems should have long-term and short-term plans. Interviewee 8 holds the view that ports are the least affected by the financial instability. Because the companies that do business with ports, their incomes are with foreign currency and their expenses are with Turkish liras and this situation is decreasing the rate of the financial instability influence on ports. With their investments, they increased their capacity and put their organisation in a good position for the future business options.

Interviewee 6 mentioned that they have not experienced the impact of Brexit and Donald Trump's presidency in their organisation yet. But possible EU break-up

can affect the firms that export goods to Europe through their port in terms of container shipping, but this situation will not influence them significantly. He claims that the priority should be on long-term goals, but that market instability should be considered. For 2018, TCDD Haydarpasa Liman Isletme Mudurlugu is planning to build a larger passenger waiting room for cruise ships, increasing the debt for cruise ships to be berthed and scanning the sea for this berthing activity, which requires seven million Turkish. The rumours are that the organisation will close as a trade port to be turned into a similar project to Galata Port, there is a Haydarpasa Port project. Because of these rumours and project that has not happened for a long time, it worries our clients. It affects us to find a new client or lose our current clients. They cannot get enough investments for their technological developments due to uncertainty in Haydarpasa Port Project. This is a significant illustration of how long bureaucratic processes can affect the port organisation's planning schedule and also badly affect the relationship between organisations and their clients.

An innovative approach maintains the port's profitability under any market circumstances and especially in the top three ports in Turkey. Interviewee 7 continues by saying that when Kumport thinks about the increase in ship size to create a cost advantage and its operational requirement, long-term goals should be prioritised in terms of strategic planning for the future.

In terms of strategic planning for the future, Interviewee 3 would have to look at how they funded navigation aids maybe funding the pilotage service if someone retires and he or she has to recruit another person. Interviewee 3 quotes "Some years ago we might have to look to the business case for the office here perhaps, which we now own rather than renting space elsewhere but business plan I do not." Transforming small ports into private ports as companies, such as one that

installs a new power station whereby that company has to obtain the material and makes a berth to take coal or gas or wood chips for the power station, can be an option in terms of strategic planning for the future.

In order to maintain their market in world trade and also add value to the economy of the countries, ports have to meet the expectations of the trends in the shipping industry and have to be sustainable. Therefore, the aim is to increase the draft of the gulf due to the sustainability of the port to stay abreast recent trends and adapting to the circumstances. If they do not increase the draft, it would be a significant problem for the port in the future. Interviewee 5 reports on matters which have arisen in weekly meetings and meetings held at the end of the year in Ankara. These meetings provide them with the opportunity to discuss tariffs and any other topics relevant at the time. Reports are usually evaluated yearly. He says that possible EU break up would help them to increase their numbers of trade and he sees it as a positive change from the Turkey perspective.

Falmouth Harbour Commissioners are interested in trying to acquire deeper water to facilitate a cruise berth. They see that they have a very good reputation for cruise visitors, and they have small work cruise ships that come to that area. Also, they need a deep-water port; the main channel is only five metres depth. The tide may be used to provide larger vessels with entry, but there are limitations in terms of what can be done. Their tie to local commercial fleets is strong, but their aspiration is to change the harbour approach to cruise ship depth. Specifically, cruise ships will be encouraged to come into the area to attract more visitors and help boost the local tourism industry and consequently bring economic benefits to Cornwall as a whole. Substantial efforts have been made to create opportunities for others in terms of renewable energy FAB Test with a new license. So, they can test renewable energy devices and which means that

companies are headed devices built in Falmouth and it meant that their local services are used to go out and deploy these devices and all of that helps the economy to generate jobs.

The Interviewee from FHC quotes "I think the understanding of how to invest and how to grow in certain instances is not well understood and when you get down to micro port modes it is not understand at all. And so, if anything was going to be really done to really bring in reform into that sector, it could be around the ability to appraise investments accurately and provide support for development in a way that was going to more financially sustainable because most ports will get through if they were going to do it themselves." The sustainability management system does cover all of those areas and more importantly, it actually takes them towards recognising external standards on those areas because that's the only way that they can really demonstrate, meeting these objectives and accurately identify what they need to do next. He proposes that what helps is the clarity of thought regarding actions taken and who they will serve, fit in around the area of sustainability. He continues that the cost of these investments has been straightforward to calculate due to short-term expectations, but longer-term plans need to be established to anticipate the consequences if the boat is no longer fit to operate. They lose any residual value and they have got a lead-time before the vessel can come in.

Effectively that Master Plan is to examine the business, understand the trends that the business is facing and to propose projects, which Poole Harbour Commissioners are looking to develop over the next 20 years. They have got currently ferries running from Poole to France to Spain and to the Channel Islands Diversification is required in order for business to progress into the future. Ships are increasing in size and inevitably accrue economies of scale and so it was

concluded that a deeper and longer quay was required, 200 metres of quay, nine metres in depth. This development enables their business to have sustainable growth. They have aspirations in the short sea container sector and project cargo, making the new quay a significantly transformative project for Poole Harbour Commissioners. The intention is to increase business by about 50% over the next four to five years, and this project will enable them to achieve that goal. Interviewee 2 quotes "We are just developing our latest risk register. There are lots of different potential risks to the organisation. The principal one is a downturn in the economy, and I suppose that's a key one that all ports face. It is not so much funding because, we are now facing apparent uncertainty with Brexit, so if there is a downturn in the economy, we saw back in 2009 that this means less cargo coming through the port, less revenue coming into the organisation." That is key, however not much can be done as it is a macro project problem. Environmental legislation is important because the harbour needs to be dredged in order to transport ships through and environmental legislation may not allow the continuation of basement dredging. Further new projects may also be limited in some way by environmental legislation, making it a key issue for consideration. Marinas operate in the port and there are plans for a newly extended marina within the harbour, which is a focus for the marine leisure sector. The first priority is the south quay and then further phases in the Master Plan are to develop and deepen existing quays to accommodate increasingly larger ships. Interviewee 2 can see that the size of ships has grown phenomenally just within the last 20 years and predicts that this trend will continue, therefore it is imperative that ports ensure that they have the facilities to manage the expectations of their existing customers while developing their business into the future.

Managing today by thinking about the future is the brief explanation and the requirement of sustainability, strategies to create a future by considering and adapting the changing trends to progress in a beneficial way in terms of strategic planning for the future. Interviewee 4 quotes "As Turkey, there is a huge change in our region and if you ask how we are managing these strategies in terms of sustainability; we are really struggling with it. In terms of Turkey, economical and governmental fluctuations allow agenda to move to other subjects than economic development and sustainability, which makes our job much harder. Nevertheless, we are still proceeding." Even though the government does not have debt, they are struggling with the debt of private companies and it affects their long-term strategies in terms of progress. The process of creating the middle-term plan, writing these plans in reports, is more important. The primary intention is to apply these processes to actual projects.

From Port Akdeniz organisation's stance, Trump's election does not have much effect on them negatively but has a positive effect instead. This is due to Trump's recent policies which allow China to take a larger role and strengthen its position in the world. According to Interviewee 4 choosing an unreasonable person as USA president shows that the USA can be an unreliable trade partner despite once being the most reliable trade partner. He continues by saying that it is really hard to predict the effect of EU break up because of their micro sector and really hard to predict this macro change into this micro sector. Lastly, he mentions that the main issue here is not predicting European countries; it is predicting their country's future in terms of government policy, which is difficult for investors to understand.

Interviewee 9 summarises the strategic planning for the future with his quoting "Port management should have business plan at strategic, tactical and

operational level that provides flexibility against crisis as well as sustainable growth…"

In order to address the key findings, Interviewee 8 argues that getting ready for the future needs as an organisation is crucial. Interviewee 6 supports the opinion that reading the current world situation is crucial to position themselves appropriately, where Interviewee 7 and Interviewee 5 support the argument by adding organisations' preparations and their adaptation to any market scenarios to imply the importance of the strategic planning for future. Interviewee 2 argues that preparing port organisations with risk registers is significant for strategic planning for the future. From a different perspective, Interviewee 3 argues that employee recruitment cycle has a significant role for the strategic planning for future. Interviewee 3 continues that size of investments can be crucial for organisations in order plan their future strategically. Interviewee 2 supports the argument with mentioning about the funds that organisations are getting are important factor to plan the future. Interviewee 1 argues that creating opportunities for different industries can be beneficial for organisations in long term which can influence the strategic planning for future. Therefore, Interviewee 1 believes that reputation of the organisation is crucial.

Interviewee 8 holds the view that that developments in technology is a major factor and Interviewee 1 supports that argument by saying that port management systems are important to track the objectives and plan the most suitable subsequent actions. Interviewee 2 focusses on master planning and its importance for long term planning where Interviewee 9 adds that long term plans should offer flexibility when crisis occurs on the behalf of port organisation's benefits.

On the other hand, Interviewee 6 claims that rumours about port organisations have negative impacts in terms of strategic planning for future. Interviewee 4 adds that economical and governmental fluctuations are challenges when planning for the future.

5.3 Conclusion

Table 5.3.1 illustrates the answers of nine interviewees and their awareness related to the 11 pillars of the PSMS. Those pillars are Asset Management and Maintenance (AMM), Safety Management (SM), Environmental Knowledge and Awareness (EKA), Environmental Management (EM), Stakeholder Engagement (SE), Business Planning and Management (BPM), Effectiveness of Management Processes (EMP), Customer Service and Satisfaction (CSS), Proactive Partnerships (PP), Change Management (CM) and Strategic Planning for the Future (SPF). The sign of 'X' indicates that interviewees are aware about the pillars and give an answer on how they are managing the topics that related to the pillars. The underscore sign indicates that interviewees are not aware about the pillars and do not give an answer either due to their privacy concerns or nothing to say about the related pillars.

From the answers of the conducted nine interviewees, which is illustrated in Table 5.3.1, amongst the 11 pillars, stakeholder engagement, business planning and management and effectiveness of management processes are the ones that the nine Interviewees are aware of and could provide answers related to these pillars. On the other hand, fewer interviewees are aware of, with three interviewees who either did provide answers or were not aware of the pillar. Awareness of proactive partnership and environmental knowledge is less than that of change management, with two interviewees not providing answers or not being aware of the pillars.

From the perspective of interviewees, Interviewee 1, Interviewee 2, Interviewee 5 and Interviewee 6 are the most aware interviewees, who either aware or give answer about related 11 pillars of the PSMS, where Interviewee 9 is the least aware amongst them with not aware or give answer about five out of 11 pillars of the PSMS.

Comparison of the conducted interviewees in Turkey and United Kingdom indicates that awareness and the rate of answers about the 11 pillars of the PSMS is higher in United Kingdom than Turkey. Apart from Interviewee 3 on environmental management, all the interviewees from United Kingdom either aware or give answer about the 11 pillars of the PSMS whereas in Turkey, only Interviewee 5 and Interviewee 6 either aware or answer about the 11 pillars of the PSMS.

Table 5.3.1: Awareness and answers of interviewees related to 11 pillars of the PSMS. Source: Author

	Int. 1	Int. 2	Int. 3	Int. 4	Int. 5	Int. 6	Int. 7	Int. 8	Int. 9
AMM	X	X	X	X	X	X	X	X	_____
SM	X	X	X	_____	X	X	X	X	X
EKA	X	X	X	X	X	X	X	_____	_____
EM	X	X	_____	X	X	X	X	_____	X
SE	X	X	X	X	X	X	X	X	X
BPM	X	X	X	X	X	X	X	X	X
EMP	X	X	X	X	X	X	X	X	X
CSS	X	X	X	X	X	X	X	X	_____
PP	X	X	X	X	X	X	_____	X	_____
CM	X	X	X	X	X	X	_____	_____	_____
SPF	X	X	X	X	X	X	X	X	X

Several potential codes and themes are emerged during the analysing process of the gathered data from the conducted interviews (see Table 5.3.2). As it is needed to be names as the potential themes, they are 'Culture', 'Bureaucracy' and 'Governance', which are decided from the gathered data and also the selected codes from the same data. These codes, which are 'Oriental Working Culture (cross-cultural)', 'Organisational Culture', 'Cultural Attitude differences', 'Government Attitudes' and 'Government's influences', set underneath of the 'Culture' theme. 'Trust Port', 'Private Port', 'Public Port' and 'Municipal Port' are the codes that are set under the 'Governance' theme. Lastly, 'Long-time process', 'Industry structure' and 'Ineffective Management Processes' are the codes that are set under the 'Bureaucracy' theme.

Table 5.3.2: Potential themes and codes from the conducted interviews. Source: Author

THEMES	Culture	Governance	Bureaucracy
CODES	• Government Attitudes • Cross-Cultural • Organisational Culture • Government Influence • Cultural Attitude Difference	• Trust Port • Private Port • Public Port • Municipal Port	• Industry Structure • Long-time Process • Ineffective Management Processes

Bureaucracy emerges as an obstacle in both British and Turkish ports due to lengthy certification processes or paperwork procedures. Some ports like Port Akdeniz are trying to overcome this obstacle by removing other logistics organisations and providing the same service themselves to their clients. Bureaucracy is an significant issue in a port industry that volatile and in which shareholders desire rapid returns on their investments. Lengthy bureaucratic

processes during investment periods do not maintain stakeholders' interests or attract investors to the port industry.

Secondly governance emerges as another potential theme for the PSMS. It is observed that each interviewee mentioned that every port has its own unique characteristics and priorities. As a further step in order to modify/update the PSMS, each pillar might have different priority rates depends on which type of governance model is applied to the organisation. For instance, from the interviewees who are employed by private organisations, put stakeholder engagement at their top priority but on the other hand, trust ports put adjusting budget and their infrastructure first regarding their priorities. It is mentioned by Turkish interviewees that trust ports in Turkey have more limitations than the British ports by giving some examples about the how the process works. Government has a significant role on trust ports in Turkey which makes it difficult for employees to solve short-term problems due to time consuming bureaucratic processes and the need to gain approval from headquarters.

Lastly, culture emerged as a potential theme for the PSMS with its four codes from the gathered data. Firstly, general manager mentions that Turkish port industry has its own way of oriental working culture (cross-cultural), which makes is hard to collaborate between the organisations in the port industry, where United Kingdom has relatively better collaborations amongst the port organisations, which leads to the difference of cultural attitudes can influence the collaboration in terms of country perspective in port industry. Also, the role of Port Akdeniz in its region shows that organisational culture by setting high standards in terms of sustainability from the environmental, financial and social perspectives, is important too to engage with local businesses to grow together. Lastly but maybe the most significant difference is government's influences in the port industry in

terms of being open-minded and having a more international approach to the industry and the issues needing to be addressed. In order to hold the control of the trust port organisations, on some occasions, efficiency or achieving sustainability goals are not prioritised.

From the perspective of the importance of culture's role in port organisations as it mentioned above, in the next chapter, literature of organisational culture and cross-cultural are presented respectively.

CHAPTER 6: REVIEW OF CULTURE

6.1 Introduction

During the analysis process, culture has emerged as a topic that could be considered to have an impact on the PSMS alongside bureaucracy and governance. The "culture" component is divided into two categories: organisational culture and cross-cultural. In this chapter, a literature review of organisational culture and cross-cultural is presented within a wider perspective that includes different industries aside from the shipping industry.

6.2 Organisational Culture Literature Review

Since social knowledge is generally contextually bound, Harris (1996) discusses that organisation-context-specific systems are most applicable in order to understand organisational culture.

Martin (1992: 3) states that "…[a]s individuals come into contact with organisations, they come into contact with dress norms, stories people tell about what goes on, the organisation's formal rules and procedures, it is informal codes of behaviour, rituals, tasks, pay systems, jargon, and jokes only understood by insiders, and so on. These elements are some of the manifestations of organisational culture. When cultural members interpret the meanings of these manifestations, their perceptions, memories, beliefs, experiences, values will vary, so interpretations will differ-even of the same phenomenon. The patterns or configurations of these interpretations, and the ways they are enacted constitute culture".

Schein (1991) discusses that the founders of the firm and filters go down throughout the hierarchy are the starting materials of organisational culture.

During the progress process, leaders of organisations are going to keep shaping the culture, which has to support to same way of organisational aims. Even though by definition that organisational culture is the recognition and sharing of the requirements and values of the organisation, among its staff members; therefore, "it may be directed, but it is not ultimately determined, from above" (MacIntosh and Doherty, 2005; 3).

Hofstede (2001: 1) describes organisational culture as "collective programming of the mind; it manifests itself not only in values, but also in more superficial ways: in symbols, heroes, and rituals". Schein (2004: 17) claims that organisational culture is "…a pattern of shared basic assumptions that was learned by a group as it solved its problems of external adaptation and internal integration, that has worked well enough to be considered valid and, therefore, to be taught to new members as the correct way to perceive, think, and feel in relation to those problems."

Chatman and Jehn (1994: 524), defined the organisational culture as "widely shared and strongly held values".

Organisational culture, which exists in a day-to-day environment, is a phenomenon that been seen and experienced by the staff who work in related organisation (Wallace *et al.*, 1999; Choueke and Armstrong, 2000). The most common referred definition of organisational culture by Hofstede (1980) and Schein (1997), who explain culture as consisting of separate levels, which are core values, norms, beliefs and values, behaviours and artefacts.

Schein (1986) says described organisational culture as a "deeper level of basic assumptions and beliefs that are shared by members of an organisation that operate unconsciously and define, in a basic taken-for-granted fashion, an

organisation's view of itself and its environment".

Organisational culture is a tool of values and beliefs created by leaders to lead the organisation, transformed into appropriate behaviours and reinforced through recompenses by managers and employees (Willcoxson and Millett, 2000: 94).

Hofstede *et al*. (1990: 311) found that "…shared perceptions of daily practices to be the core of an organisation's culture employee values differed more according to the demographic criteria of nationality, age, and education than according to membership in the organisation per se." in their twenty organisational culture studies.

Organisational culture is inclined to change slowly over time. Kotter and Heskett (1992) mentioned that culture is an evolving structure depends on the turnover of group members, changes in the organisation's environment of market and society's general changes.

The organisational culture's anarchist perspective indicates the impossibility of influencing cultural change through rigorous efforts to change (Weick, 1991).

Smircich (1983) researched the main titles/subtitles of organisational culture and two main issues emerged. First issue is the independence of organisational culture as a variable, which has influence on structure and technology and secondly observing it as a root metaphor.

According to Wallace *et al*. (1999: 548) more than one culture is involved in all organisations. These are: Formal culture (idealised statements about what beliefs and behaviour should be; typically manifested through mission/vision statements, policies, procedures and rules), informal culture (actual beliefs and behaviours), informal character or culture is the key to understanding organisations.

Internal integration and coordination are the function of organisational culture summarised by Furnham and Gunter (1993). Internal integration occurs as new members socialise in the organisation, setting the limits of the organisation, and identifying a feeling between personnel and organisational commitment.

Balzarova *et al.* (2006: 97) noted that four elements determine organisational culture:

- People. Abilities, needs, values, and expectations of employees.
- Process. The behaviours, attitudes, and interactions that occur within the organisation at the individual, group, and intergroup level.
- Structures. The formal mechanisms and systems of the organisation that are designed to channel behaviour toward organisational goals and fulfil member needs (examples of these include job description, job evaluation system, organisation structure; policies; selection systems; control systems; and reward systems);
- Environment. The external conditions, which organisation deals with, including its market, customers, technology, stockholders, government regulations, and the social culture and values in which it operates.

In terms of ISO 14001 requirements, many researchers mention that organisational culture plays a major role in the transition beyond the conformity paradigm (Daily and Huang, 2001; Strachan, 1997; Raines, 2002).

Howard (1998: 233) mentioned, "Values are both more accessible than assumptions and more reliable than artefacts" as a fact of recognition for the organisational culture measurement, which leads to an emphasis on values (rather than assumptions or artefacts).

According to Hellriegel *et al.* (1998) the areas of routine behaviour, norms, values, philosophy, rules of the game and feelings constitute organisational culture.

Smircich (1983) researched different perspectives of organisational culture noting that it spans both what an organisation "is" and what an organisation "has".

The organisational culture role can be separated into two different roles, which are the organisational culture functions and the influences that organisational culture has on different processes in the organisation (Martins and Terblanche, 2003: 65).

The dimensions of culture identified are (Mathew, 2007: 684):

- Empowerment;

- Agreement (on issues on the basis of mutual give and take);

- Integrity or core values;

- Knowledge sharing or organisational learning;

- Concern for employees and trust;

- Mission (vision, strategic direction and emphasis on goals and objectives)

- Customer focus

- High performance work orientation.

The qualitative study shows the ways in which various perspectives of organisational culture are inclined to affect productivity. The qualitative data analysis indicates that the importance of mission leads to a common understanding of the vision and business's strategic directions and their operational aims. The data analysis says that the people-oriented perspectives of culture such as concern for employees and improvement on trust are the

affective disposition of the staff. Empowerment and professional freedom play a crucial role in terms of organisational culture in the research data. These aspects help employees to approach more freely during dealings with customers, colleagues and officers to be reported by them, which leads to improvements in terms of execution and more-timely project closures. The qualitative data gathered also indicates that organisational culture is created by and emphasises high work performance and that there are several systems like performance-oriented pay and recompenses, which tend to strengthen this emphasis. The qualitative study points to that there is a solid relationship between organisational culture and quality. The qualitative study based on interviews and observations provides perspectives into the process whereby culture can influence the operation and observance of quality. The qualitative data analysis indicates that there is an extensive belief between the employees that organisational culture is branded by a concern for the employees, adherence to integrity, trust, high performance work orientation and sharing of knowledge (Mathew, 2007: 684).

According to Denison (1996), there are obvious differences between organisational climate and culture in the academic literature. Organisational culture is discussed and examined to signify the deeper and more basics aspects of organisational life even though both of them symbolise the same phenomenon.

Human resource management may be influenced by cultural variables that can be established at three different levels. Organisation where organisational culture or the internal work culture functioning within, is interpreted as a model of shared managerial beliefs and conjectures (Schein, 1992).

Organisational culture is a developing multifaceted phenomenon of social groupings according to interpretive methods (e.g. Waring, 1992, 1993, 1996a). It

does not belong to any group but is built by all the members of organisation (Glendon and Stanton, 2000).

Pool (2000: 33) during his research on the relationship between organisational culture and job stressors, found that to reduce the rising stressors in their working environment, executives need to work in a constructive culture. He continued that organisational culture –either passive or constructive- could obstruct job performance, job commitment and job satisfaction.

The organisational culture method/concept became popular in the late 1980's and early 1990s, due to an investigation into why American companies could not compete with their Japanese competitors. Organisational culture may account for organisational failings and, in certain situations, is acknowledged with bringing positive qualities (Ouchi, 1981; Barney, 1986; Shani and Lau, 2005).

The variation in philosophical suppositions on organisational culture, which lead to different methods in conducting organisational culture research, is the reason behind disagreements about the definition of organisational culture in the literature (Alvesson, 2002; Harris and Ogbonna, 1998; Martin, 1992). Due to a dispute in organisational culture's underlying philosophical assumptions, it is a complex social phenomenon that lacks agreement. On examining organisational culture closer, it is clear that point of view adopted influences the choice of methods applied in terms of sociological and technological interaction (Kayas *et al.*, 2008: 447).

Organisational culture is a tool that might establish an environment, which would stimulate motivation and creativity, which leads to higher productivity and quality (Mathew, 2007: 679). The influence of organisational culture even extends to the techniques that quality enterprises intend and apply, which backs up the Bright

and Cooper's (1993: 25) case that "culture purists" connect a crucial role to organisational culture in the internalisation and application of quality plans (Mathew, 2007: 687).

There is a controversy surrounding about the major influence of organisational culture on quality. Typically, the connections of culture with Total Quality Management (TQM) extended to a culture-TQM approach, which examined how national culture impacted on quality due to characteristic differences of cultures in terms of nationality. Because the human element has a significant role in safeguarding quality in knowledge organisations, software organisations can be influenced crucially by organisational culture in terms of quality enhancing (Mathew, 2007: 681). As an instance, an annual staff survey been conducted in software companies, where there was great interest from staff, shows that organisational culture can play a significant role in increasing productivity by promoting innovation and creativity (Mathew, 2007: 678).

Practitioners are getting closer to understanding that, even though with the best-laid plans, organisational culture should be placed alongside organisational change (Robbins and Smith, 2000; Castka *et al.*, 2003).

Organisational culture gives a shared system of meanings, which establishes the fundamentals for communication and understanding each other mutually. If there is a failure to fulfil these purposes in an acceptable way, the influence of culture on an organisation's efficiency may decrease considerably (Furnham and Gunter, 1993).

To achieve success as an organisation, organisational culture seems to play a significant role. Innovation should be involved into the organisational culture and management processes by successful organisations (Syrett and Lammiman,

1997; Tushman and O'Reilly, 1997). Organisational culture has a major place at the centre of organisational innovation (Tushman and O'Reilly, 1997).

To promote creativity and innovation, Barret (1997) and Robbins (1996) proposed that an organisational culture should support open and transparent communication, which if settled on trust, will have a positive effect.

Regarding family-friendly policies, organisational culture is playing a crucial role in ensuring effectiveness when examined in a previous case study research in the UK (Bond, 2004: 3).

Organisational culture study indicates that culture leads and shapes employees' behaviours and attitudes (Hofstede, 1980; Handy, 1985; Schein, 1985; Burnes *et al.*, 2003), which indicates that culture might also have influence on business performance (see Figure 6.2.1 in order to see elements and relationship of culture-performance).
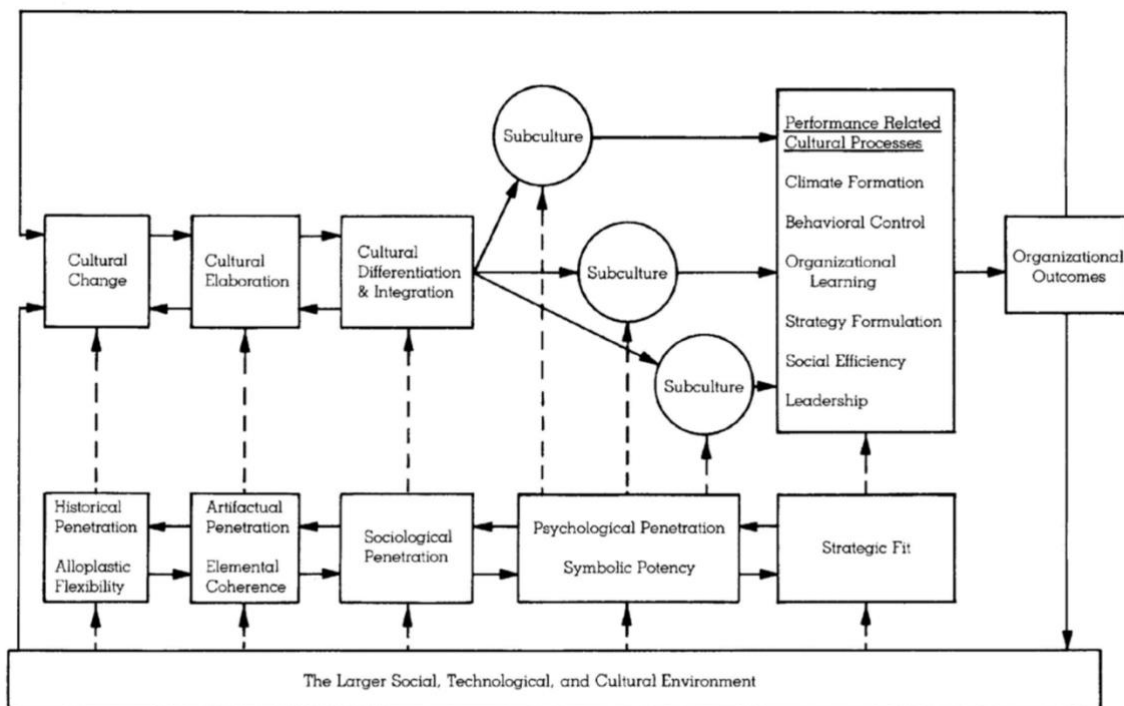
Figure 6.2.1: Elements and relationship of culture-performance framework. Source: Ojo (2014: 6)

198

Jaques (1951, 1965) argues that organisational culture could be a serious obstacle to productivity if it does not correspond with the organisational environment and structure.

Franco and Bourne (2003: 704), highlight how organisational culture plays a crucial role by not imposing a punishment when people make errors and how it encourages and opens an option as a discussion and analysis during performance measures. It is a mandatory condition for success.

Boersma and Kingma (2005: 131) analysed the relationship between ERP technology and organisational culture and from their research, they claim that the relationship between ERP technologies is two sided, and they both affect each other in different aspects. Organisational culture helps to develop ERP technology whereas ERP technology influences the organisational culture.

Numerous studies focus on the difficulties of changing organisational culture where culture is deeply established in the organisation's fundamental norms and values (Molinsky, 1999; Turner, 1986). Change cannot be imposed from above. Therefore, this would indicate that changing managerial support is not enough to achieve change in terms of organisational culture.

Denison (1990) discovered that certain types of culture could influence organisational performance, whereas Van der Post *et al.* (1998) identified crucial relationships between organisational performance and organisational culture.

To motivate employees, there must be a match or relationship required between organisational culture type and organisational commitment type (Rashid *et al.*, 2003: 724). Organisational culture has been seen as a core phenomenon, influencing the behaviour and attitudes of employees, which eventually affects

organisational performance (MacIntosh and Doherty, 2007: 45). Accepting and perceiving the organisation's values and assumptions by members, decides the organisational culture's strength in terms of guiding and managing behaviour of members (Doherty and Chelladurai, 1999).

Organisational culture has a significant influence on individual employee attitudes and behaviour, and on organisational performance and effectiveness (e.g., Chan *et al.*, 2004; Egan *et al.*, 2004; Goodman and Svyantek, 1999; Hofstede *et al.*, 1990; Lund, 2003; MacIntosh and Doherty, 2005; Smart and St. John, 1996; Weese, 1996).

Recently, it is said that organisational culture has an influence outside of the organisation. Kowalcyk and Pawlish (2002: 172) says "the primary effects of organisational culture are internal, in that the beliefs, knowledge, customs, and values are what bind organisations together". They indicate that the external perspective of culture can impact a company's image/reputation in the market.

The influence of organisational culture on company performance has been examined in many studies (Denison and Mishra, 1995; Flamholtz and Kannan-Narasimhan, 2005; Marcoulides and Heck, 1993; Petty *et al.*, 1995; Yilmaz *et al.*, 2005). A common view about organisational culture is that it has a crucial influence on business and operational company performances.

Waring (1992, 1993, 1996a) assumes that organisational culture exists as an ideal that can and should help organisations to manipulate and serve corporate interests in terms of functionalist approaches.

A study from Deshpande and Farley (2013) is an exception because they examined the impact of organisational culture fit in the supply chain performance

area. They found a crucial connection between organisational culture variables and outcomes of supply chain performance.

6.3 Cross-Cultural Literature Review

According to Hofstede (1998: 16), there are three main questions that have to be asked in cross-cultural research studies: ''what are we comparing? Are nations suitable units for this comparison? Are the phenomena we look at functionally equivalent?''

Graen *et al.* (1997: 162) note that comparability is the main area that has been detailed essentially in terms of cross-cultural research, in which etics and emics are the main focussing points and they continued "Emics are things that are unique to a culture, whereas etics are things that are universal to all cultures. Emics are by definition not comparable across cultures."

Research from Brislin and Yoshida (1994) and Kohls and Brussow (1995) indicates that cross-cultural training should include the following topics:

- General and country-specific cultural awareness

- Area studies, history, geography, politics, economics

- Frameworks for understanding and valuing cultural differences

- Planning for a successful international assignment

- Intercultural business skills for working effectively in the local environment

- Understanding cultural variations for those with regional responsibilities

- Business and social customs in the host country

- International transition and stress management

- Practical approaches to culture-shock management and lifestyle adjustment

- Information on daily living issues • Special issues: partners and families

abroad

- Repatriation as a pre-departure issue

Graham *et al.* (1988) and Graham (1983) indicate that several companies from different countries, which are Japan, China, Korea and America, have different negotiating strategies. Besides, differences in these cross-cultural strategies influence the procedure and results of negotiations. In a similar way, Clark (1990) claims that national characteristics of behaviour are exclusive and reliable over time.

A cross-cultural training program has been classified into six categories by Tung (1982) depending on, `the rigor with which the program seeks to impart knowledge and understanding of a foreign country'. These should include:

- Factual information about geography, climate, housing and schools
- Cultural orientation, providing information about the cultural institutions and value systems of the new country
- Cultural assimilation training, consisting of brief episodes describing intercultural encounters
- Language training
- Sensitivity training to develop attitudinal flexibility
- Field experience, where candidates can undergo some of the emotional stress of living and working with people from different cultures

Harrison and Hopkins (1967) examined the training programmes, which are used for preparing people to live in another country. Reasons why the "university method" is convenient for teaching this topic include:

- The university model assumes passive rather than active learning

- This method traditionally involves trainees in problem-solving types of activities, where the instructor provides well-defined problems.

- In the classroom people are encouraged to be rational and un- emotional, whereas in real life sojourners have to confront situations that are charged with emotion, and they need to develop ``the emotional muscle'' which is needed in intercultural interactions.

The university model usually requires participants to study material and produce an analytical report, what Trifonovitch (1977: 46) called a "paper culture", whereas in intercultural interaction people need skills to interact with people, or a "people culture". Even though there are criticisms about the university method, it is still popular due to its being simple, flexible, inexpensive in most people's experience. Besides, officials can use technological instruments such as video films, slides to present cultural differences (Bhawuk and Brislin, 2000).

The first books on cross-cultural study established the foundation and helped culture to be assimilated and experiential training techniques to develop in the 1970s. Due to publication of books, journals and the development of a culture-general assimilator, which used a wide theoretical typology, the cross-cultural training field reached maturity in the 1980s (Bhawuk and Brislin, 2000). These situations have led to integration and systematisation.

A first issue is to decide whether organisations in different countries and regions have different member behaviours such as different characteristics and patterns, or whether these conditions interact within cultures but differently between cultures. As a second issue, researchers have to decide whether differences are because of culture differences, and this is decided by whether there is rationalism

in theory for expecting the differences (Dickson *et al.*, 2003: 732).

Researchers have found that, when emotion is expressed and recognised by a person that has the same ethnic, national and regional grouping, in-group increases occur in recognising the emotional accuracy (Dickson *et al.*, 2003: 736).

Smith *et al.* (1996) discovered two comparisons, which are conservatism vs. egalitarianism, and utilitarian involvement vs. loyal involvement, by using the data, which represents 43 countries. However, clear identification of a third dimension was not made. Therefore, there are still some issues about the way of applying the dimensional method to culture, which automatically influence the application of methods to the domain of leadership. Sampling representatives from various cultures instead of two or three is a recent trend in emerging cross-cultural leadership studies. Global leaders must have high levels of cultural flexibility and ambiguity tolerance as it is illustrated in Figure 6.3.1. As job descriptions include complex international and various cultural responsibilities, low levels of ethnocentrism need to be maintained. Dynamic cross-cultural competencies are playing a significant role in terms of job performance between global leaders (Caligiuri and Tarique, 2012: 619).
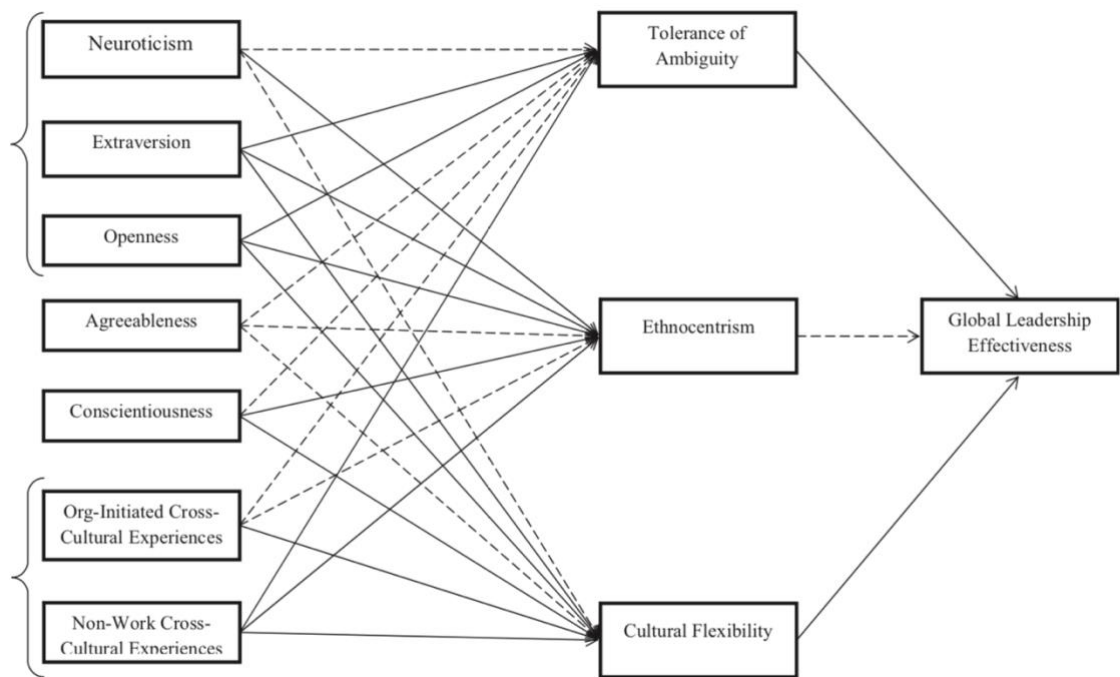
Figure 6.3.1: Mediated model predicting supervisor ratings of global leadership performance. Source: Caligiuri and Tarique (2012: 613)

Hall (1959) underlined communication; misrepresentations in communication between people is the main reason for cross-cultural misunderstandings.

Written communication is preferred by the classroom method rather than verbal communication, however the main mode of communication for guests is oral and nonverbal. Therefore, Harrison and Hopkins (1967) strongly argue against the classroom technique, which is processing a traditional teaching approach. Meta-analysis, building theoretically meaningful models and training materials are the methods that were used by researchers to focus on the evaluation of cross-cultural training programmes in the 1990s, to improve criterion procedures that can be used in the examination of several training programmes.

Twenty-nine studies, which examined the effectiveness of different training programmes were reviewed by Black and Mendenhall (1990). Conclusions from those studies are:

1. There were positive feelings about the training they received

2. Improvement in their interpersonal relationships

3. Changes in their perception of host nationals

4. Reduction in their experience of culture shock

5. Improvement in their performance on the job.

Self-development of trainees, the perception of trainees, the relationship with host nationals, adjustment during sojourn and performance on the job are the variables of interest, which have been used to examine the effect of cross-cultural training in 21 studies of meta-analysis (Deshpandey and Viswesvaran, 1992). The result emerged that cross-cultural training has a positive influence on those variables. In general, field studies have indicated a positive influence of cross-cultural training on most of the variables, mentioned earlier (Triandis, 1995).

According to Selmer (2001: 51), "Cross-cultural training should be timed with motivation to learn which may make post arrival training a more effective alternative to more traditional, pre-departure training".

The difficulty of training people in terms of knowledge base to understood ethical norms such as 'compassion' is discussed by Brady (1990). It might be more difficult where norms have been valued dissimilarly in different national cultures. In practical terms companies could usefully develop:

- Peer discussion groups to address issues such as pilfering, taking gifts and reporting others' violations of company policies, in order to gain some consensus and to make explicit commonly held views in these areas, particularly bearing in mind that attitudes and behaviours may differ between national cultures

- Regular or ad hoc stakeholders' discussion groups including suppliers and

key customers as well as internal stakeholders including top managers, and home-country and host-country managers, to gain valuable input and to take ownership of output

- Appropriate information and decision-making systems which facilitate decision making in line with the output of discussion groups

During the ethical decision-making capabilities including sensitivity to cross-cultural differences, manager training is necessary. The development and maintenance of cross-cultural interpersonal interactions are damaged by ethnocentric attitudes noted by Thomas (1996: 217).

Parker and McEvoy (1993), Gregersen and Stroh (1997) indicate that the relationship between cultural distance and cross-cultural adjustment is negative. When the distance increases, the amount of cross-cultural training increases too and becomes crucial. This can be the answer to the question as to why researchers found different conclusions in terms of the cross-cultural effectiveness.

Managing change-personal-professional transition, managing the cultural differences and managing the professional responsibilities, shown below, are the cross-cultural program objectives that need to be focused on in order to succeed and prevent failure (Bennett *et al.*, 2000: 241).

1. Managing Change—the Personal and Professional Transition

- Grasp the impact of the change on the employee, family and friends
- Understand the cultural adaptation process and identify effective coping strategies
- Create a personal and professional action plan for managing change,

achieving goals, maintaining key relationships during the assignment and post assignment

- Recognise that repatriation planning is an integral part of managing their assignment

2. Managing the Cultural Differences

- Understand the meaning of culture and how it shapes people's beliefs, values, assumptions, expectations, and behaviours
- Understand and apply frameworks for analysing cross-cultural interactions and develop skills to reconcile differences
- Develop intercultural communication skills
- Acquire important information about the host country and recognise cultural differences between home and host cultures
- Gain practical information about daily life in the host country

3. Managing Professional Responsibilities

- Apply information and insights acquired in the program to accomplish the job objectives
- Understand how business and specific job responsibilities are handled in the country/countries, region/regions in which the employee will work

6.4 Conclusion

In this chapter, a literature review of both organisational culture and cross-cultural topics has been presented. This review shows that both topics are quite crucial to focus on and to reflect on, but it seems that most importantly adjusting the balance between them is the key ingredient to achieve the required expectations and goals for the organisations involved.

In the next chapter, a discussion draws together evidence collated from the literature reviews, and the primary and secondary data that was gathered, to address each of the research objectives to offer some recommendations for theory, practice and policy.

CHAPTER 7: DISCUSSION

7.1 Introduction

This chapter illustrates general discussions of the contributions, which this thesis makes, which are used to answer each of the related research objectives under the "discussion of findings" subtitle. Each of the research objectives are discussed separately with the data, gathered from the nine interviews conducted in Turkish and British ports. In the meantime, influencing factors are sought to modify/update the PSMS in order to make the PSMS a more worldwide port sustainability management system approach.

Lastly, the chapter ends with contributions of the thesis sections from the perspective of theory, industry and policy under the titles of implications for theory, implications for industry and implications for policy respectively.

7.2 Discussion of Findings

Objective 1: To investigate the need for sustainability planning in ports, including environmental planning requirements, governance and mission drivers and stakeholder influences.

Sustainability is becoming increasingly important in every industry, including the port industry. The trend began with environmental sustainability and has been followed by financial sustainability and social sustainability. From a port organisation's perspective, it has been realised that effective sustainability management is beneficial for their organisations if they focus on environmental sustainability. When examined from the customer and stakeholder point of view, in an attempt to maintain their high and secure reputation, they have become reluctant to work, collaborate and invest in port organisations which do not prioritise environmental issues.

Even though organisations aim to be environmentally friendly and reach their sustainability goals, financial concerns are still a significant motivation driver. Interviewee 4 explains that the financial concerns are important motivation drivers from the perspective of Turkey (for a detailed explanation, see section 5.2.3). Interviewee 5 states that financial challenges are related to insufficient infrastructure. Organisations may be reluctant to invest in achieving sustainability goals as they perceive this as costly and beyond their available budget.

Daily port operations require answers from port organisations in regard to environmental, safety and security issues while seeking the support of the stakeholders (Puig *et al.*, 2014: 124) and these issues are seen as the main mission drivers including stakeholder management. Port Master Plan can address the expectations of daily port operations (Taneja *et al.*, 2010: 223; Erdas *et al.*, 2015: 719). More efficient operations from the shipping and port industry are required by the global market in order to stay competitive in the industry (Bergantino *et al.*, 2013: 39). Increasing the importance of sustainability awareness and sustainability planning in terms of the environment, helped port organisations to realise that they can be competitive in the market while also achieving their environmental responsibilities, if the right competitive environment is in place. In setting the right competitive environment for organisations, legislation can present both the motivation and a tool with which to help the port industry reach its goals. New legislation, which will be created within a holistic approach regardless of port size and port governance, can offer a solution. One of the most important steps when creating new legislation is to find the trade-off point between financial and environmental sustainability goals.

Authorities formulate new legislation and restrictions applicable to the port industry because of concerns relating to sustainability and sustainability goals,

which need to be achieved by the market players. During the process of implementing legislation and due to the influences of regulatory authorities, port organisations come to understand that sustainability is necessary to improve and progress in the industry regardless of restrictions and legislation. Hence, some organisations aspire to set higher standards related to legislation and restrictions to reach higher sustainability aims and goals which they perceive will benefit their organisations. Caldeirinha *et al.* (2016: 18) claim that national laws and specific port legislation have a role in the port governance model mechanism and its evolution. Daamen and Vries (2013: 12) add governance procedures that are influenced majorly by laws and regulations, are one of the reasons that limit the effectiveness of sustainability management outcomes.

It is seen from the conducted interviews and literature research review, that the local community can have a positive or negative influence on port planning and strategic planning for future. Working with an organisation, which cares and prioritises environmental issues, ensures a respected reputation from the community and society for the organisation's customer and stakeholders. Moglia and Sanguineri (2003: 415) support the discussion with mentioning that the most powerful sources are the local port communities and the global players in terms of port planning.

One of the reasons for a lack of collaboration, relationship or partnership may reflect different visions and priorities between the port organisation and the local community. In order to guarantee a port's sustainable future and that of the communities around it, Slinger *et al.* (2017: 290) point out that local stakeholder inclusion in terms of port project planning, can direct port authorities to set up projects which are mutually beneficial. Stakeholder management practices, which prioritise establishing common goals and targets among various stakeholders

(De Langen, 2007: 459; Parola and Maugeri, 2013: 117), are the tools that have been used in order to create a successful relationship between port organisations and their stakeholders (Brooks and Schellinck, 2013: 87). It can be said that when the port organisation and the local community has a healthy relationship, partnership or collaboration, this creates mutual benefits. As analysed in section 5.2.11, Interviewee 1 mentions that exclusion of the local community from the strategic planning for a port's future is a mistake, where local community is a strong player and has a significant impact.

Integration of different industries' management processes are crucial to account for the latest trends. Taneja *et al.* (2010: 223) believe that port planning is multi-faceted and includes engineering, transport, shipping, nautical matters, safety and logistics are all included. Interviewee 4 supports the claim mentioning that they offer value added services, which include logistics, to their customers. To reach the worldwide sustainability aims and goals of the port industry, the relationships and partnerships port organisations have with logistics and supply chain organisations are important. Cordova *et al.* (2016: 76) support this by stating that main procedures are reinforced, and collaboration ensures exchange of information and knowledge between ports and supply chain organisations.

Some bureaucratic processes can take four years to conclude and during this process, organisations contact different authorities to obtain the required approvals for the processes. Shared authority between different organisations or departments as Interviewee 4 and Interviewee 5 mention in their interviews, is one of the reasons why the bureaucratic processes are so lengthy.

Objective 2: To analyse the commonalities of any sustainable development needs in ports.

Recent changes in the shipping industry mean that ship size is increasing continuously. Interviewee 2 states that the current trend is to build larger ships, and this automatically influences the economies of scale which leads Interviewee 2 to make a decision to build deeper and longer berths to facilitate the larger sized ships. Port organisations have started investments in infrastructure such as berth expansion, increasing the quay length and dredging to increase the depth of sea water in order to attract larger ships to their organisations. As analysed in section 5.2.4, the main challenge for the TCDD Izmir Alsancak Port Management is the insufficient port and dock draft. Interviewee 5 also explains the current trend of bigger ships in the market is an obstacle for the future of the TCDD Izmir Alsancak Port Management organisation (for a detailed explanation, see section 5.2.4).

Strategic planning, which is analysed in section 5.2.11, is crucial for organisations especially in the port industry, due to economic fluctuations. Interviewee 9 proposes that port management should have business plans at strategic, tactical and operational segments which can offer flexibility against crisis and support for sustainable growth while summarising the strategic planning for future. Casazza *et al.* (2019: 1349) state that environmental data is a great asset in terms of strategic planning. Interviewee 4 believes that strategic planning should be managed today by thinking about the future and the organisation's future. In the port industry short-term situations can affect port organisations significantly and they should prepare strategic plans to minimise losses arising from short-term situations.

Depending on the country in where a port is based, government influence is variable. Wu *et al.* (2016) mention that influence of local governments on port

investment is a topic that needs to be studied. Some governments such as the United Kingdom tend to delegate authority to the industry by encouraging a free market structure, however some governments as in Turkey, are reluctant to allow the industry total control. Gilman (2003: 275) mentions that regulatory framework is more challenging after port policy is lined with transport policy by the government policy from the sustainable development perspective. Establishing the sustainable transport is the main priority for government to achieve. In port designing process, port organisations need to follow transport policy rather than a port policy, which pursues port sustainability, while meeting environmental restrictions at the same time.

Even though authorities and governments are setting the standards for sustainability by creating regulations and legislation to increase awareness level and make port organisations follow these practices, some large port organisations are setting their standards higher than the standards that governments and authorities have established because they recognise the importance of sustainability for their organisations. Interviewee 4 adds that aiming for environmental sustainability is beneficial for their organisation in terms of a decrease in expenses. Due to achieving the environmental legislations rapidly and experiencing the benefits of it, Interviewee 4 mentions that as an organisation, they are trying to set higher new standards and pursue those standards in order to be more sustainable. Corporate strategy is a crucial step to increase the level of port developments and can raise standards, which is beneficial for the whole port industry to assist them in offering better services to their clients and to the organisations with which they are connected. Consequently, smaller port organisations can model themselves on the larger

players' corporate strategy, which can positively affect the entire industry in a snowball effect.

Port organisations have mission statements on their internet site to explain their aims and services and how they plan to achieve these aims. The disadvantage of some mission statements is that they are on internet sites as a theoretical statement and are not applied in practice.

A clear masterplan allows port organisations to track their planning and provides them with an opportunity a chance to act if the development plan is not going well or is off track. Apart from a couple of port organisations that offered interviews, the rest have not recognised the importance of master planning for their organisations in terms of long-term planning and development processes. Interviewee 2 mentions that a very extensive consultation process was followed, with over 90 meetings and public meetings, displays in local libraries and shopping centres, open evening meetings, and three different versions of the Master Plan were drafted before the final version was published.

Local communities have an influence on port organisations. Moglia and Sanguineri (2003: 423) believe that the local port community and the major players are the most influential sources on port organisations. As reviewed in section 2.6, Rothenberg (2017: 120) and Jansen *et al.* (2018: 925) discuss that inclusion of stakeholders' concerns regarding port management and port planning has been a topic of focus which is wider than simply focusing on the environmental perspective as it also includes social and cultural point of views. Healthy communication between the port organisations and the local communities are crucial for the port organisations. It is seen from Interviewee 1 interview that local communities are not always keen to improve and may resist change. They are satisfied with the status quo and prefer to maintain current

conditions. When the port organisation aims to develop and improve, but a local community is reluctant to change, the situation automatically makes relations with the local community an issue for the related port organisations.

Objective 3: To compare the characteristics and management processes of any existing systems available to assist port sustainability planning (including PSMS).

PSMS is a self-assessment system that is designed to assist smaller ports in CAD to ensure more sustainable maritime operations and development helping them to survive and grow by safeguarding vital commercial revenue streams. PSMS invites Harbour Masters to select scores to rate the sustainability of their organisation after undertaking a self-evaluation procedure using a bulls-eye chart. The aim of updating the PSMS is to adapt it to any port in the world regardless of its size, governance and ownership type in order to assist port organisations to self-assess their organisations in terms of a holistic approach to sustainability management.

ISO 14001 is an International Standard of worldwide acceptance based on the concept that better environmental performance can be achieved when environmental aspects are systematically identified and managed making a major contribution to Sustainability, through pollution prevention, improved environmental performance and complying with applicable laws (Da Fonseca, 2015: 39).

The EMAS scheme is a public standard designed by the European Commission in 1993, which became available to non-European Union (EU) organisations in 2009—and has been adopted by more than 3,000 organisations (see ec.europa.eu for more details), operating in approximately 8,500 sites (Testa *et al.*, 2018: 50).

Although most requirements of the two standards are the same, EMAS is generally considered as more ambitious than ISO 14001, since it introduces additional and more stringent requirements regarding, for example, employee involvement, demonstration of full legal compliance, environmental reporting, and dialogue with external stakeholders (Heras-Saizarbitoria *et al.*, 2015).

ISO 14064 outlines a process for monitoring, managing and reporting CO_2-equivalent (CO_2-eq) emissions at the organisational level. This standard allows companies to monitor both the direct and indirect emissions from processes under their control (see www.iso.org for more details). The standard also calls for reporting on actions taken to reduce GHG emissions (Scipioni *et al*, 2012: 95).

SDM is a system designed for environmental management assessment. The SDM allows users to see their organisation's improvement using a self-evaluation service periodically. Apart from the self-evaluation service, the SDM helps its users to check compliance in terms of environmental legislation. The SDM offers a comparison between the related port organisations and European benchmark from the perspective of environmental performance. In addition, it is a system that helps organisations to suggest their strong and weak sides and potential opportunities in terms of environmental management.

PERS is an environmental management system which focuses on reviewing the legislation and following the policy statements and registrations procedures of the port organisations in terms of legal requirements and performance indicators. PERS allows its users to focus on their documental responsibilities and resources related to an environmental point of view for their organisations.

Objective 4: To synthesise current sustainability practice in a theoretical sample of ports.

Cultural and geographical differences might be the key variable in order to settle security in port organisations. Private security firms are also necessary in Turkish port structures because the border structure in Turkey is slightly different from the European port structure as it includes a border check area in the port land area rather than out of the port area. New practices depend on the border checking area in order to develop port security and security management.

Terrorism emerged as a potential threat to port organisations during the interviews and ports devise solutions for different terrorism scenarios to prepare their organisations in terms of risk management. Apart from terrorism as a threat to the port organisations, natural causes can also be a threat, therefore port organisations plan their risk management strategies by evaluating the potential damage to ports due to of natural causes.

Developing best practice is a desirable goal for port community members (Cordova *et al.*, 2016: 82). In order to develop best practice, collaborations with different industries are created with the purpose of exchanging knowledge between industries. Robinson (2002: 241) and Zhang *et al.* (2014: 367) discuss that isolating port industrt from other transport applications is not beneficial to the port industry, whereas Esmer and Duru (2016: 222) discuss that inclusion of logistics activities into the port industry inescapable. Port organisations seek ways to serve their clients with added value services and the current trend is to include logistics and supply chain processes, handle those operations for their clients and foster enhanced loyalty and a secure, long-term working relationship with their clients. Wilmsmeier and Sanchez (2017: 182) mention that new

governance models need to answer the changes in the port, logistics and shipping industry.

Montabon *et al.* (2007: 1000) indicates that port organisations have started to address their environmental concerns for the purpose of finding their organisations in a better position in the industry. Interviewee 4 mentions the advantages of managing your businesses with environmental sustainability, including minimising expenses and avoiding government penalties.

Carpenter *et al.* (2018: 546) explain that ports have collaborated with local companies in order to transform waste into a resource from an environmentally sustainable perspective. Interviewee 6 explains that TCDD Haydarpasa Liman Isletme Mudurlugu has an agreement with Istanbul municipality about waste management, whereas Interviewee 7 adds that Kumport aims to distil their waste from its source, while simultaneously addressing the control of greenhouse and harmful gases.

Objective 5: To assess the attitudes of sample port authorities towards PSMS along with their requirements for sustainability planning.

It is observed from interviews with the sample selected interviewees that their attitudes are diverse. Most of the interviewees have their own port sustainability management systems and this condition makes them reluctant to use the PSMS because their authorities are not open minded, which is quite usual in the shipping and port industry.

It is observed that the selected ports in Turkey are not aware of the PSMS therefore, their first attitude towards it was sceptical. After the interview period, Interviewee 4 was interested in the PSMS and requested to know about the outcomes of the thesis, once it is complete. Other selected interviewees from Turkey were not interested much due to several reasons. Firstly, due to

organisational structure, sustainability management systems have been created to address the needs of their organisations, which highlights the uniqueness of each port organisation. Secondly, the governance model plays a crucial role in determining attitudes towards a new system, on this occasion towards the PSMS as revealed by Interviewee 5. In this case, Interviewee 5 needs approval from headquarters to make any changes and this can involve lengthy bureaucratic processes for which there is no time available due to more urgent priorities.

From the perspective of the interviewees in the United Kingdom, there is more awareness the PSMS, compared to the Turkish interviewees. Interviewee 1 quite aware about the PSMS and his attitude towards it is positive on the whole. However, it was mentioned there is still room for improvement, for example the PSMS has too many themes, which negatively affects its usefulness. In another interview, one of the interviewees is not familiar enough with the PSMS to make a judgement about its effectiveness. Lastly, as Interviewee 5 has faced the obstacle of a lengthy bureaucratic process in order to obtain approval from headquarters, Interviewee 3 has experienced the obstacle due to his organisation's governance model, where the upper organisation has all say and Interviewee 3 does not have the authority to make decisions. Despite of the fact that Interviewee 3 does not have the right to call decisions, he is aware of the PSMS and he believes that PSMS does not fit to their organisation. Interviewee 3 believes that the PSMS should be more generic in order to apply to all port organisations.

Objective 6: To evaluate the influence of governance systems and other factors on the requirements for PSMS, and its design and implementation.
In order to make the PSMS more applicable worldwide, the influence of cultural differences cannot be ruled out in terms of sustainability management in port

organisations. Cross-cultural influences play an important role in multinational organisations and global players of the industry (Caligiuri and Tarique, 2012: 619), or when the port organisation opens a new branch in a new country, which is culturally different to the organisation's original founding country. In addition, Interviewee 4 mentions why collaboration does not work and identifies the oriental working culture (cross-cultural) in Turkey as a major factor. The influence of culture on port sustainability management can be examined under two sub-titles, which are organisational culture and cross-cultural. Each port organisation has its own unique approach to organisational culture in order to achieve the highest efficiency in its actions and services.

Interviewee 5 from TCDD Izmir Alsancak port discusses that bureaucracy, which needs approval from the headquarters for every step of the process including bureaucratic paperwork process is the reason for a lack of collaboration between port organisations. Port organisations believe that bureaucratic processes are unnecessarily long and automatically affect the investment time, ranging up to four years in some situations. Interviewee 4 supports the idea, mentioning that if the bureaucracy does not become clearer, a new investment nearly takes 4 years. Interviewee 6 from the TCDD Haydarpasa Liman Isletme Mudurlugu explains that a long bureaucratic process is one of the reasons why port organisations only focus on obtaining the required certifications but nothing more. The chambers and associations within the port organisation structure, favour and work more closely with port organisations than government which results in lengthy bureaucratic processes. One of the reasons for the long delay is because it is unclear what the authority structure is in order to obtain all the approvals required. During the process, organisations have to contact different departments to obtain the approvals, whereas it can be shortened by gathering all the

authorities within a clearly structured "one stop shop" and by eliminating unnecessary authorities.

Each country has its own port structures, and each port is unique in terms of its character. Therefore, it is a hard task to design a sustainability management system for ports and the PSMS is not a universal sustainability management system. In order to make the PSMS universal sustainability management system, modifications are needed. These modifications can involve either removing or adding conditions or drivers to the PSMS or re-grounding the current PSMS pillars to suit one selected country and its ports.

Ship sizes are increasing constantly. Interviewee 2 sees that the trend of ship sizes has been to be built on a larger scale over the last 20 years. This trend still continues, making it a priority for ports to focus on adapting their facilities to handle larger ships. To keep pace with developments, port organisations have invested in the ship berth, quays or dredging to increase their water depth in order to attract larger ships to their organisations. To accommodate recent developments, port organisations should act carefully due to environmental legislation, especially regarding dredging operations and should prioritise environmental sustainability in the early stage of a project to obtain the requested documents and approvals.

The port organisation's attitude variable depends on which governance type they represent. Most of the private port organisations have their own sustainability management system but are interested to examine the PSMS in their organisations due to perceiving the PSMS as a low-cost consultation service, which attracts port organisations. On the other hand, in port organisations, where they have to obtain approval for their decisions, they are reluctant to test it, as they do not have the authority to make a decision in their organisation. They

accept the mission, which is decided by the upper body of the organisations. Lack of independence is one of the most significant challenges facing municipal ports. The dialogue between the municipal port organisations and the upper body causes a problem with efficiency in terms of port operations and short-term solution reactions. From the trust port perspective, ABP has its own methodology and system in the United Kingdom, which can lead to a statement that inertia makes innovation difficult from the municipal and trust port organisation's point of view.

7.3 Implications for Theory

As is mentioned in section 2.7, major trends and challenges facing the port industry are obstacles to creating a 'one size fits all' single port governance model (Brooks *et al.,* 2017) and port size is one of the crucial variables in this sensitive equation. In the same section, it is mentioned that port size can have an impact on choosing the governance model nationally or locally depending on their sizes (Brooks 2017: 169; Debrie *et al.*, 2017: 121), which is another example of the importance of port size in terms of determining governance models for port organisations. Apart from being a significant factor for determining governance models for port organisations, port size plays a crucial port in terms of the success rate of an EMS. As Kuznetsov (2014: 70) mentioned in section 3.3.1.2, larger sized ports have better conditions to perform better environmental performance. It is seen that Turkish ports put short-term planning before long-term planning due to the factors that they face including different problems and issues in terms of geography, terrorism and the country's general financial condition in worldwide rankings. Therefore, even though long-term planning and master planning seem more logical for the organisations, due to the conditions in the country, port organisations are facing too much pressure from their stakeholders, legislation

224

and financial fluctuations. In order to test the impact of long-term planning and masterplans on port organisations, the effects of short-term drivers need to be removed to allow organisations to focus on their long-term planning and masterplan. Master planning emphasises the importance of long-term planning for port organisations. In order to succeed short-term drivers should be minimised. Or to gather more reliable data in terms of master planning, short term factors affecting port organisations need to be minimised by setting the right legislation and conditions to assess the longer-term data more precisely.

Thematic analysis is a qualitative analysis method that has been used for analysing nursing disciplinary data. But because it is flexible and allows researchers to add or remove conditions from the existing systems thematic analysis, it is appropriate not only for nursing disciplines but also in sustainability management systems in the port industry. Thematic analysis helped during the evaluation to determine whether the PSMS could be adapted more widely. During the process, a couple of potential new pillars may appear, or current pillars may need to be removed if necessary. Thematic analysis offers this flexibility to researchers as it did during the process of analysis, which demonstrates that it is a valid technique and trustworthy technique for future research.

It is seen from the data gathered from the interviews concerning the PSMS, that even though it is a good reliable sustainability management system for smaller ports in CAD, it is not a universal sustainability management system because each country has its own unique characteristic port industry structures. Therefore, to adapt the PSMS to suit a more worldwide perspective, new potential pillars can be tested by re-grounding the potential 12th pillar as the segment required to make the PSMS a universal sustainability management system. In addition, the thematic analysis qualitative technique is a reasonable technique to be used for

225

analysing related data, gathered from port authorities in order to re-ground the potential 12th pillar.

From the data gathered, it is seen that culture can be a significant driver in order to decide the 12th pillar and therefore, the relationship between the culture and the port operations management process can be tested and examined on selected ports in selected countries as a sample for future projects. It is also important to not only focus on the positive side of cultural influences on port operations management but also to examine the negative consequences of cultural influences on related port operations management procedures. It will be quite important to evaluate many ports in different countries to understand and set the standards in terms of cultural influence on the port industry.

7.4 Implications for Industry

The interviews and literature review data provided evidence that there are benefits where the PSMS can be useful for the port industry in order to solve the related issues. First of all, the PSMS is an open access sustainability management system, which allows port organisations to help themselves in evaluating their organisations. The PSMS allows organisations to self-assess their actions as an open access sustainability management system in terms of port operations and sustainability. Secondly, as is mentioned in section 3.7, port management bodies recognized the cost problem of the majority port sustainability management systems during the application of sustainability management systems to their organisations. Additionally, several drivers and motives (limited resources, employee training, internal examinations, plan development) that caused port organisations cost or expense are identified in section 3.2, 3.3.1.2, 3.3.1.4 and section 3.7 (Venus, 2011: 560, Puente-Rodriguez *et al.*, 2016: 460, Gadenne *et al.*, 2009: 58, Kuznetsov, 2014: 309,

Kuznetsov, 2014: 79). Due to economic fluctuations in the shipping and port industry, port organisations are thinking twice about investing their capital in the right investment in order to save them from unnecessary investments. As a result, it is certain that there is a need for a free port sustainability management system for port organisations and the PSMS can be the answer for the port industry, which is unstable and experiences financial fluctuations approximately every seven years.

The PSMS is a self-assessment sustainability management system that is designed to assist smaller ports in CAD. It is a verified management system that has been used and received positive feedback from the port organisations where it has been applied. Being a verified sustainability management system automatically makes the results more reliable and trustworthy. The updated PSMS aims to serve the industry with the same reliability and the trust as a sustainability management system.

The PSMS is a well-known sustainability management system for smaller ports. The adapted version of the PSMS has a purpose to serve more ports reliably and more port organisations in terms of port type, governance and port size. Updating the current PSMS to adapt it more globally will play a significant role in standardising requirements, needs and areas that need to be addressed. Depending on the geographical location and the country of a port the potential pillars can show variability due to the priorities and the conditions.

The PSMS is a self-assessed sustainability management system which reveals to port organisations which areas of their organisations need improvement and in which areas they are performing well. One of the advantages of the PSMS over other sustainability management systems is that it is a system that needs a minimum of compliance to test it. The PSMS does not require prior preparations,

which is convenient. Where ports must prepare systems prior to application in their organisations, expenses rise which will influence attitudes towards the sustainability management systems that ports plan to use.

The struggle to design sustainability management systems for the port industry arises because it is difficult to generalise the standards or criteria of the system for all ports around the world as each port has unique characteristics and therefore, focus on different needs, areas and priorities. Due to this obstacle, it is a challenge to set a clean benchmark or platform, where all the port organisations compare their performances against other organisations, viewed as competitors or rivals. In addition, it can be beneficial to incorporate their role-model port organisations' improvement and development processes into their own development and improvement plans. The PSMS aims to offer this clean benchmark/platform to the port industry and seeks a way to update itself to serve its users better.

The PSMS was originally designed for and grounded in smaller ports in CAD. To adapt the PSMS to become more widely applicable, five interviews are conducted mostly in medium size ports; the modifications are grounded in five ports. Although re-grounding in Turkish ports underpinned PSMS involving, later expansion would involve several countries to increase the reliability of PSMS in more ports globally.

7.5 Implications for Policy

It is noticed from the conducted interviews that there is a missing element in terms of regulation and legislation. Seeking new standards and regulations for the port industry has become necessary. Hence, interactions between the port industry and the logistics and supply chain industry are increasing. Port organisations are examining logistics and supply chain organisations in terms of their operations

and approach to the problem. It is becoming difficult to think about the port industry without including logistics and supply chain organisations in the port industry. Interactions between these three industries are increasing in terms of management processes and operations to improve these processes. Therefore, in order to improve and develop new regulations and legislation holistically in the port industry, integrating supply chain regulations and legislations virtually can be a helpful option for the port industry authorities, which set regulations and legislations.

It can be seen from the conducted interviews and literature review, spreading the latest standards in the port industry seems to be an issue and there is no clear structure to follow. Hence, dissemination processes need to have a clear structure for port organisations and authorities. New beneficial solutions can be found through collaboration between official authorities and port organisations.

Even though official authorities devise legislation and regulations, it is not enough to only reach the required standards. At this point, collaboration and communication between the port organisations can play a significant role for the purpose of reaching the required standards. Related regulations and legislation can be spread by the communications between the port organisations in order to increase the awareness level in terms of the latest updates.

The conducted interviews reveal that there are some related regulations and legislation in terms of sustainability. Governments or superior authorities are setting the regulations and legislation on the behalf of port organisations. If legislation and regulations are missing, much of it remains theoretical or not easy to track by port organisations. Therefore, authorities, which administer regulations and legislation, must review the appropriateness of penalties for not achieving the expected standards.

Setting new regulations and legislation is not enough to reach requested sustainability levels in the port industry. The authorities in a certain proportion of cases should evaluate port organisations. Therefore, tracking the organisations and monitoring regular reviews is crucial for the port industry in order to create a healthy connection between the authorities and the industry in term of achieving a constant increase in sustainability.

The major players in the port industry seek constant improvement and development. Therefore, they are formulating their own standards related to sustainability management practices higher than the average level of standard setting. In order to increase the level of the standards of sustainability management practices in the port industry, government and major players need to collaborate to identify beneficial actions for both sides.

In terms of regulations and legislation, several certificates are requested from the port organisations such as ISO14001 or ISPS. It is seen that port organisations tend to extend their certifications with more certificates related to port operations and sustainability management. Certificate ISO14064, is related to GHG regulations, and has recently become available to port organisations. This extension shows whether a port organisation's attitude is positive; attaining a certificate testifies to putting in the effort required for achievement. Given the recent trend of applying logistics and supply chain management principles to port management, port organisations might consider working towards certifications designed for logistics and supply chain organisations.

It is noted from the conducted interviews that the main issue for the port organisations in terms of regulation and acquiring certificates is not their reluctance. Port organisations are aware of the importance of the regulations of acquiring relevant certificates and they tend to follow the regulations to obtain

these. The reason why port organisations fail to acquire certificates is the amount of time required. Consequently, port organisations remain at the minimum level of compliance set by regulators.

7.6 Conclusion

This chapter provides answers for the research objectives with discussion of the 11 pillars of the PSMS from the data gathered from nine port organisations in Turkey and the United Kingdom and discusses the commonalities and differences between these ports. Factors potentially impacting on the adaptation of the PSMS into a port sustainability management system suitable for ports worldwide, have also been considered. Lastly, the implications for policy, theory and industry are mentioned in the discussion chapter.

CHAPTER 8: CONCLUSION

8.1 Introduction

This chapter presents the main conclusions drawn from the findings which provide answers to the study's research objectives. The chapter continues with details of the contributions to knowledge section, before finally explaining the study's limitations and requirements for future work.

The original aim of the thesis is to check the suitability of the PSMS as a sustainability management system for any port in the world, while designating the needs and requirements of the PSMS. Various issues have been identified which show that the original aim of the thesis is not feasible. Firstly, it is not feasible to collect enough data from port organisations around the world and analyse it, in order to update/modify the PSMS to create a worldwide port sustainability management system. Secondly, even if there was an opportunity to collect enough data from port organisations around the world, the planned time period of the PhD is not sufficient to conduct and analyse the collected data. Lastly, it has emerged that the PSMS needs constant modification depending on which country it is being applied, to meet the expectations of that country's port industry.

Due to the issues mentioned above explaining why the original aim was not feasible, setting a new aim for the thesis is needed. The new aim of the thesis is to examine the suitability of the PSMS in ports, beyond Cornwall, Devon and the United Kingdom by selecting Turkey as a case study country. Due to the issue of the insufficient time period, the new aim of the thesis focusses on sustainability awareness in selected port organisations and their awareness and attitudes towards to the PSMS in order to modify or update the PSMS. Nine interviews were conducted (three in United Kingdom and six in Turkey) via phone call, email exchange or face to face depending on the interviewee's suitability. The collected

data is analysed by using thematic analysis. The main findings from the analysis of the interviews are discussed with the literature review, to assess whether opinions in the literature support or challenge the topics related to the study's findings.

8.2 Conclusion of Findings

Objective 1: To investigate the need for sustainability planning in ports, including environmental planning requirements, governance and mission drivers and stakeholder influences.

There is a need for a holistic approach to sustainability awareness, including financial dimension, social dimension and the environmental dimension.

Unclear legislation and overly complex processes generated by legislation are the main issues that port organisations pointed out. Port organisations, which seek to secure or increase their market positions, must apply new legislation and restrictions with a holistic approach not only environmentally within the context of their own operations and port structure in terms of sustainability.

Local communities and stakeholder influence on port organisations are undeniable whether it is positive or negative.

In terms of port industry evaluation about sustainability goals and aims, different related departments of logistics and supply chain industries are involved.

Bureaucratic processes are an issue for the port organisations.

Objective 2: To analyse the commonalities of any sustainable development needs in ports.

Insufficient infrastructure emerges as a common issue in both Turkish and British ports under the topic of sustainable development needs in ports. In order to stay strong in the port industry and match the latest trends (increase in ship size), port organisations are focussing and prioritising their infrastructure developments.

Lack of long-term planning, which is flexible to manage daily services and operations in order to solve short-term problems, is another commonality for both port industries. Port development needs clear and long-term planning because investment and development periods do not offer short-term returns.

From the perspective of the Turkish port industry, complex government structure emerges as an obstacle for the port organisations.

Objective 3: To compare the characteristics and management processes of any existing systems available to assist port sustainability planning (including PSMS).

The difference between the PSMS and other sustainability management systems is that the PSMS has a more holistic approach in terms of assessing financial, environmental and social sustainability whereas other systems focus mainly on environmental sustainability.

There are issues that make the PSMS not applicable for the port organisations around the world. Due to uniqueness of the ports, different priorities are set for each of the port organisations which can be influenced by the culture of the country in which they are based. In addition, there are differences in government influence, geographical location and a variety of governance models used in order to meet the expectations of the port organisations. All these conditions make the PSMS not applicable to the port organisations around the world, unless the modifications are done depending on the country where the PSMS is to be applied.

Objective 4: To synthesise current sustainability practice in a theoretical sample of ports.

Turkish port organisations prioritise short-term planning over long-term planning due to their particular challenges. Additionally, Turkish ports are focussing more

than British ports on security by employing private security companies and investing in high-definition security cameras.

Environmental sustainability is beneficial (minimising expenses, avoiding government penalties, collaborating with local authorities and creating a good reputation in the community) in order to get a better position in the industry.

Stakeholder influence is an undeniable factor for port organisations.

Lastly, port organisations discern the importance of the sustainability in terms of financial, environment and social factors. Therefore, they plan to reach their sustainability goals with different sustainability priorities and in different time periods.

Objective 5: To assess the attitudes of sample port authorities towards PSMS along with their requirements for sustainability planning.

The sample selected interviewees hold diverse attitudes. Each port has its own sustainability management system. Sustainability management systems have evolved within port organisations, which serve their unique needs. Consequently, they do not find it necessary to seek out new sustainability management systems, neither do they have time for this activity.

The governance model has an impact on the attitudes of the port authorities. Being a free tool with no payment required for the PSMS's services attracts the interest of port authorities, whose organisations are not flexible regarding financial resources. Being unique as a port organisation and having different priorities between organisations have a negative influence on attitudes of the port authorities towards the PSMS.

Sampled interviewees in Turkey are not aware of the PSMS, therefore, their initial attitudes towards the PSMS were sceptical. After the conducted interviews, a slight increase in positive attitude from the interviewees is noted. From the United

Kingdom perspective, interviewees are aware of the PSMS, which is expected as the PSMS was created in the United Kingdom. Attitudes towards the PSMS are diverse amongst the interviewees in the United Kingdom. On the one hand, there is positive attitude towards the PSMS, as it is a free tool to self-assess port organisations. While on the other hand, there are negative attitudes towards the PSMS due to it not fitting into their organisations or not being generic enough to apply.

Objective 6: To evaluate the influence of governance systems and other factors on the requirements for PSMS, and its design and implementation.

Due to the unique differences between each port and country, different modifications are needed to update the current PSMS. Hence, before assessing the port's performance in terms of sustainability in a different country, small modifications are needed to add/remove items to an updated PSMS.

Importance of some pillars from the PSMS 11 pillars is greater than the other pillars because of the different priorities.

Culture is one of the influences that needs to be considered in order to make the PSMS a more worldwide approach to port sustainability management systems for port organisations.

Bureaucracy is mentioned in sections 5.2.5, 5.2.7, 5.2.8 and 5.2.10 as an obstacle by interviewees in their responses to answer different pillars of the PSMS.

The governance structure of a port will influence the PSMS pillar priorities and assist in providing a better self-assessment for the port organisations.

8.3 Contributions to Knowledge

The thesis offers some contributions to knowledge, which will be elaborated on in this section. Firstly, sustainability awareness is evaluated in selected Turkish

port organisations with the addition of examining the attitudes of the interviewees towards to the PSMS. Evaluation of the sustainability awareness in selected Turkish port organisations with the addition of interviewees' attitudes towards to the PSMS contributes to the awareness level of the PSMS in the Turkish context and it is one of the first steps to make the PSMS a worldwide approach to port sustainability management system. Additionally, the areas that PSMS need to modify depend on the applied country (Turkey in this case) are exposed.

Secondly, in order to make the PSMS a worldwide sustainability management system in any port in the world, the influence of culture has been revealed in this thesis. It is seen that before applying the PSMS to the port organisation in the sample country, the 11 pillars should be re-grounded by considering the characteristic of the sample country in order to offer more reliable assistance to the port organisations.

Thirdly, the thesis contributes to knowledge by revealing that priorities of the port organisations vary depending on their governance type. For the purpose of offering a clean benchmark and more reliable self-assessment to the port organisations, the importance of the PSMS's pillars should be adjusted, according to the governance type of the port organisation in which the PSMS is to be applied.

Lastly, the thesis shows that government structures and their influences on the port industry can affect port sustainability differently. In terms of Turkey, long bureaucratic processes, which influence some of the 11 pillars of the PSMS negatively, due to complex government structure are major obstacles from the perspective of port sustainability. Additionally, lack of independence on decision making processes in municipal ports in Turkey is another issue in terms of achieving efficient sustainability.

8.4 Limitations

In the research, PSMS is the only sustainability management system that focussed on the potential updates in order to expand its suitability. The motive for the research is to expand the PSMS internationally from a system, which is designed for smaller ports in CAD. Therefore, the PSMS is the main sustainability system to focus on. Other systems such as ECO, ISO14001, SDM, EMAS and PERS are mentioned briefly for the purpose of comparison with the PSMS and each of these systems is examined briefly.

The research is conducted in a specific time period. Available time is a limitation, especially when evaluating long-term sustainability. Due to the length of the PhD, it is not possible to test and evaluate data that are gathered from organisations, authorities in terms of long-term sustainability in shipping ports. Therefore, the results and analysis part are driven by short-term sustainability.

A further limitation is the limited sample size. The PSMS is designed to self-assesses specifically smaller ports in CAD. Due to receiving positive feedback and numerous hits on the journal paper that was published, research is undertaken to assess the scope for applications to more and larger ports, globally. For that purpose, interviews are conducted in Turkey and the United Kingdom, but the limited sample size is a limitation in order to update and adapt the PSMS internationally, as the interviews are conducted in small and medium size ports in Turkey and the United Kingdom. This condition denies direct application of the PSMS to large ports and limits the PSMS in terms of being a clear benchmark to the industry to any size of ports.

The interviews for the research are conducted in Turkish and British ports. During the sample selection, the focus is on choosing ports with unique differences from other ports, in which to conduct interviews. This filter narrowed the options

specifically during the sample selection for Turkish ports. Therefore, five different ports and one academic lecturer from 9 Eylul University have been used for the interviews. Even though each of these has a unique difference from the other ports in terms of ownership, size, and governance, the sample size is still limited. One of the reasons for the limited choice of regions and countries such as Turkey and the United Kingdom is because of networking and the port industry's attitudes to academic research. Regarding sample selection a snowball technique generated a low rate of return of the questionnaire. Because of individual networking, research is limited to Turkish and British ports. The reasons behind adding a Turkish context to the research are; firstly the market structure differs between the Turkish and British port industry, which offers a comparison of the influence of government in two different market approaches. Secondly, Turkey and the United Kingdom have different levels of development and their priorities can be compared in terms of external influences such as economical, geographical and political issues. On the other hand, comparing only two countries to update the PSMS is not adequate enough to make the PSMS a clear global benchmark.

Lastly, the Brexit negotiation is a limitation for the research. Due to the time taken in negotiations related to Brexit, this has influenced the port industry in many ways, including finance, structure. Unclear and unfinalized Brexit negotiations, at the time of the thesis, made it difficult to make generalisations about British ports' standards in terms of sustainability management. Current Brexit negotiations can be read as the end of the globalisation era so if a new era is beginning in the industry, it might need to set other priority filters or variables.

8.5 Recommendations for Future Work

Several ports agreed to participate in interviews in order to update the PSMS and to share their attitudes towards the system. To this end, nine interviews are conducted with the port authorities including three in the United Kingdom and five in Turkey, to examine sustainability awareness levels. However, three years of PhD study is not enough time to evaluate the results of long-term planning in the selected sample ports as panel studies. Therefore, in order to achieve more detailed progress on the PSMS update, panel studies can be undertaken in future work by looking at the previous sample ports case studies and continuing with panel studies to observe the changes, both positive and negative, over a long-term period.

The current thesis focussed only on British and Turkish ports and did not include any detailed research into historical case studies. Hence, historical case studies could be undertaken in order to see the progress of the sample ports over the longer-term. This approach can yield data related to sample port progress and allow researchers to examine the sample ports for longer time of periods in terms of long-term sustainability planning and management.

The nine interviews conducted with port authorities are undertaken with sample ports that are either small or medium sized ports. Therefore, the potential updates for the PSMS are grounded in data that is gathered from the sampled small and medium sized of ports. In order to update the PSMS to create a more worldwide sustainability management system with a more holistic approach, large sized ports should be included too. Hence, in future research to achieve this purpose, large sized ports can be selected as sample ports around the world to update the PSMS via considering the large sized ports needs and requirements. In addition, sampling the large sized port would allow researchers to the examine the

attitudes of large sized ports towards the PSMS, which would help in understanding what is missing in the current PSMS in order to adapt it to large sized ports.

The PSMS was originally designed for and grounded in smaller ports in CAD. To adapt the PSMS to become more widely applicable, five interviews are conducted mostly in medium size ports; the modifications are grounded in five ports. Although re-grounding in Turkish ports underpinned PSMS involvement, later expansion would involve several countries to increase the reliability of PSMS in more ports globally.

To achieve the aim of the research objectives of the thesis, the interviews conducted represented different services that ports could offer. The selected sample ports serve the container, dry bulk and cruise sectors. Therefore, the data gathered from the selected sample ports to update the current PSMS does not include all port types. In future research, types of ports other than container, dry bulk and cruise ports, can be selected as sample ports to examine their needs and requirements for sustainability management systems, which automatically offers an opportunity for future researchers interested in updating the PSMS to offer a universal sustainability management system. For the further research, ports could be examined and selected as sample ports, which serve Liquefied Natural Gas (LNG), Liquefied Petroleum Gas (LPG) and chemical ships to update and adapt the PSMS to meet their needs in terms of sustainability.

In this thesis, only two countries are selected as sample countries, namely the United Kingdom and Turkey. There are several reasons why these countries are selected such as their geographical, financial, cultural and politics differences. In order to create the universal version of PSMS, this exploration should be extended to different countries and different regions, which might have different

governance systems and other factors that can be observed to update the PSMS with richer data gathered by increasing the number of sample ports across the world. It is quite important to keep the less developed countries in the equation in order to update the PSMS. To see the attitudes of less developed ports towards the PSMS may be an avenue for future research.

Sustainability management is becoming increasingly important and future research, involving the selected sample ports, may study sustainability management in terms of short-middle-long term planning and try to understand the needs of each planning period and how it can be developed to suit the port industry.

Current trends in Turkish ports are more short-term planning oriented due to the political and financial conditions that the country has been experienced. It is understandable why organisations are focussing on short-term planning rather than long-term planning even though they are aware of the importance of long-term planning in terms of sustainability. Due of the mentioned conditions, the importance of master planning remains as theoretical for most Turkish ports. Therefore, as a future research topic, master planning in Turkish ports as a means of long-term planning may be a useful topic to study.

This thesis started before the Brexit negotiations that the United Kingdom has undergone, in the era of globalisation. Therefore, the mind-set of port organisations that offered interviews, is to answer the questionnaire from a globalisation perspective, which is the current condition in the world and also in the port industry. Mission drivers and motives are all related to the era of globalisation. Due to Brexit and the current trends, which perhaps point towards an era of regionalism very different to the recent era of globalisation, future

research might aim to assess the influence of regionalism in the port industry specifically on sustainability management system.

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APPENDIX A – Full Interview with Falmouth Harbour Commissioners

R: First of all, I would like to ask some basic information such as number of employees, turnover of Falmouth harbour. Of course, you do not have to give this information if it is confidential.

INTERVIEWEE 1: One of the things about our port is being a trust port. So, we are not a public authority. We do not see any government or local authority value, but we are respected to run along the same lines as a public authority. Anybody should be able to read within reason what we do and how much money we make and how we spend it because it does not belong to anybody in particular. It is sort of in trust for the nation if you like. So, on that basis we are very free to talk about what we do. We turn around 3 million pounds a year and we employ around 25 people on a full-time basis, 6-7 people on a seasonal basis and another 6 marine pilots who are contracted to us and who just work for us. It is not very big in terms of business but the scope of what we do is very large. So, I have to have people who are capable of driving pilot boats and putting pilots on-board at sea, and at the same time we have to have people who understand environmental legislation capable of working as part of the environmental management community. At the same time, we have to have maintenance crew capable of maintaining our infrastructure - the key infrastructure that we have, so there is quite a lot to it. To manage the harbour, there is everything from tiny boats right up to ULCCs, which come into play if ships catch fire or something. We have to have everything in place to provide flexibility and versatility really in terms of how we focus our resources.

R: Could you please state the mission statement of Falmouth harbour in one sentence in a simple and basic way?

INTERVIEWEE 1: Well yes, actually it is not mine. I'll get you a copy from any of our reports, which has actually all the official statements and will not let me misquote them. It is important to realise that although the harbour master for a lot of the time satisfies the port management, it is not his port. In my case I am accountable to the Harbour Board Commissioners, and they are employed to manage the ports strategically. So, whilst I might draft all of these documents, they will sign them off and it is them who really maintain and improve the harbour to try to pass it on in a better condition than they inherited it, taking into account external changes that take place.

R: As I understand from the Trust ports that I read about, even if you make profits, you have to spend those profits on new technological developments or some infrastructure in your area.

INTERVIEWEE 1: We have to make profits: there is no safety net. If we do not have enough money to operate our organisation, there is no government funding; there is no local authority funding or any handout. So, you have to make profit of use reserve profits. The difference between trust ports and private ports is that a private port will seek to make so much money every year to return to their shareholders. In the trust port any services we make are invested back in the port and maybe we will buy a new pilot boat, or we are looking to maintain the operations. Sometimes you would say that the investment case for this is not very good. I mean it is going to take 20 years for us to get our money back if we invest in a pilot boat and carry on writing in down at the same level. To support a pilot boat, you take a very long-term view and that's one of the advantages of the trust ports because there is investment that you never make in a private port. Because we are set up by statute, we believe that we will be here in 50 years' time. So, you are operating always with a long-term future which is quite often the case

with trust ports. As a private port we could increase our value until we might receive an offer of a take-over, make a fortune and retire. So, there is a different way of working there.

R: As we talk about the stakeholders, who is your biggest stakeholder, or do you really get enough investments for developments?

INTERVIEWEE 1: The thing is that everyone regardless is a stakeholder and influences what we can do. The population of Falmouth is interested in what we do, we spend money on communicating what we do without press releases and we try to be as open about what we do as an authority can be. We have this bunkering operation in Falmouth, we provide the pilotage for that, and we provide harbour environmental regulation. They would regard themselves as a big stakeholder and a lot of the money that comes to Falmouth Harbour is raised through harbourages and pilotages associated with bunkering. Falmouth Docks regard themselves as a large stakeholder, because we charge harbour dues to ships to go Falmouth Docks and provide regulatory regimes around that. The good side is that you are actually doing something of value. We sponsor the red arrow displays once a year. Just bring some visitors into town, there is no direct payment but in terms of an investment back to the town and to serve the stakeholders to be part of the community it is a very good thing to do. We regard it as a good value exercise. Being seen to support the town is a big part of why the harbour exists, but it is separate. You are trying to recognise that the people in Falmouth have a legitimate interest and legitimate right to benefit. It breaks down when it comes to an individual basis, and it becomes very complicated. If somebody uses the car park, they say that they have got a ticket; they say they are stakeholders and you could not give them a parking ticket. And you end up with this sort of central mass of stakeholders you can satisfy pretty well. But you

have extreme individuals outside that you can't satisfy at all and giving them answers generates the correspondence and complaints to the department set up to sort out these things. It is a difficult balancing act, because if you ignore them and get on with providing services, they make so much noise you end up having to respond which diverts you from activities which are more central to what you are trying to do. When we go back to Andrei's work, a lot of ports find that quite difficult. They actually get skewed towards the interests of particular stakeholders because they felt that they make so much noise they could not afford to ignore them.

R: From the local community view, do they prefer a local person as a stakeholder? Or is a person from other areas preferred? I know that local people have some sympathy for stakeholders from their town. Do they judge locals equally or do they prefer locals?

INTERVIEWEE 1: If you talk with the community in terms of their aspirations for the harbour, realistically they do not much mind where you come from. It is a job you do and, in many ways, you have trouble convincing everybody you are impartial if you are very close to the local community. So, in some respects coming in from outside and not being part of that community is helpful. Obviously as time goes on you become part of it anyway. It is difficult not to be identified with any particular interest.

R: As a port, what new business would you like to develop? I know that you offer pilotage and bunkering services. Have you any new development plans?

INTERVIEWEE 1: We are very interested in trying to get deeper water to get a cruise berth. We see that we have a very good reputation for cruise visitors, and we have small work cruise ships that come here. We can see that by having facilities for large cruise ships to come here we would get a lot of economic benefit

for Cornwall for the local area. Also, we need a deep-water port; the main channel is only 5 metres depth. So, we want to use the tide to get the larger vessels in, but we are limited in what we can do. We are too tied really to local commercial fleets, so our aspiration is to get the harbour approach to cruise ship depth. Specifically, we want to encourage cruise ships to come in to attract tourists and visitors.

R: I assume that you used the PSMS from Kuznetsov's thesis?

INTERVIEWEE 1: There was no PSMS before Andrei's thesis; we were very closely involved in the way in which it developed. Originally Andrei's idea was that there would be a tool kit for helping people with the answers to difficult problems they can't solve. And of course, as you go on you find that the knowledge does not exist really, and you can't have one solution for all these different ports which all have different problems. So, he moved away from that towards a more diagnostic tool. And what he did analyse is what keeps harbour masters awake at night. And then he used that as an indicator for ports to identify their responsibilities and tried to subdivide that into systematic approach management. And actually, it worked pretty well; I mean if you ask anyone what sustainability is, they assign the same pillars to it. And well actually I think Andrei's sort of thesis identified something more or less central to sustainability in smaller ports. So, I think it was really useful to expand our thinking. When we start to score ourselves against those, you realise they apply not just to us but to everyone - they all have areas that they do well in but also some score very badly. You can look at that identity which shows the personality of the harbour master, what he was comfortable with, what would he be interested in and what are our priorities in terms of those particular responsibilities. We are actually looking again at the skills sets so that we have both the governance level, because if you

got have not anybody in the port who is interested in maintenance and engineering, nobody is going to ask about challenges and no one is going to make sure that your organisation has a policy and develops properly in those areas. So, looking at the skills set and also the skill set in the organisation, do we have enough people who really understand the issues around all of these problems? And so, I think we used it, not so much as an exercise to say "yes, we are doing great". It was an exercise around actually this is a pretty accurate analysis of all the skills that you need to run a harbour and how we got them and how we are going to maintain them was the sort of question that we are going to ask ourselves. Because that was more relevant going forward than to just say "we score really well: that's great".

R: Do you think that it is really possible to score well on every pillar in PSMS or is it just deciding your priorities for your individual ports?

INTERVIEWEE 1: I think there has to be some system of priorities, but I think you have to be aware where things are going badly wrong for ports and harbours. It is where you have not given any attention to an issue, and where the job is just left to continuing practice where problems arise. Because things are difficult for one person to pick up, they are ignored. So gradually you narrow the focus about what you do but all those other rules and requirements are still there. Something is going to go wrong where the skills of the organisation do not match the environment and its areas that they ignore where they then suffer problems. So, I do not think you could do everything you want but I think you have to be aware of where the holes in the wall are going to develop, if you want to try to manage effectively.

R: As I see it PSMS is a really good system as a starting point. PSMS emphasises the broader perspective but if you are managing things specific to Falmouth

surely you need some more individual requirements? Surely you pick 4 or 5 pillars from PSMS and decide that these are our priorities, and we are going to get high scores from these pillars?

INTERVIEWEE 1: But actually, that's why the scoring system is very handy. Because actually you could say that because a pillar appears to be our weakness, we are going to put resources over the next 2 years into improving this and then gradually you start to expand that pillar, so you start to do better all around. And I think again that is a very useful aspect of it, because it was a good assessment of your strengths and weaknesses and where you may need to put resources. So, you can't really afford to ignore anything. You can postpone dealing with some of it, but you really need to have your overview of system needs to insure you can get around to everything eventually because otherwise there will be a leak.

R: Can you tell me the three biggest concerns of port managers? It can be general, or it can be specifically for Falmouth.

INTERVIEWEE 1: I can tell you about our prime concerns. The issues we face are primarily financial and, in the past, we never really had major financial problems here. It is all to do with a circumstance where our costs have crept up because of pension fund requirements. And at the same time our commercial income stream has gone down substantially, so we have enormous challenges in terms of finance. Due to slow business growth and a poor market in our core business, we can only look for other areas where we can grow the business to compensate. We have to have reserves to invest but obviously we have to invest them wisely because it is not good investing in something that is not going to give us enough of a short-term boost in order to balance the books. So that's where we started to become very interested in business planning and investment

appraisal for the port. The other concern is that we are concerned about the age of some of our assets. We are operating very old craft, but we just have to accept the fact that our financial situation is not that good. We need to invest in new boats because otherwise our efficiency is going down and it is important that we can do the job without putting people at risk that we wouldn't want to. So, we had to invest in our assets, so we have found a way and again in part, this was clarity of thinking that was helped by the sustainability system that Andrei developed. We fully acknowledge all the other things and we would love to be more popular in the community and we would like to have more to spend on stakeholder engagement. We have to have limited aspirations because there are other more important things, so we go back to the major priorities. And it probably is not a bad thing once in a while for the ports to have to really focus on their business because ultimately that's what funds everything else. You can't become very complacent and wasteful about how you deal with your resources if you are not under pressure to be efficient and to grow.

R: From your point of view, what are the missing things in PSMS? You mentioned it is really useful as a starting point to look wider but of course nothing is perfect.

INTERVIEWEE 1: In terms of its completeness, I think the way it was applied was a good way of assessing the problems in the industry from an individual harbour master perspective and then collating them down into a number of things. I thought that there were rather too many themes, but Andrei liked the eleven pillars. I would have liked slightly fewer to do more compression, but Andrei was very convinced that he had found the right form.

R: It is already a complex process and if you are just making it more complex with e.g. 15 pillars it is getting more complex and it does not help that much. Am I right? It could be simpler maybe?

INTERVIEWEE 1: It could do with another stage of compression in terms of managing at the higher level but then again in order to make real progress you probably need to look at actually expanding some of those things as well. So, I mean I would take the initial model as a starting point which could be more compressed but actually the next logical step in my view is the pathway to performing against the recognised standard in all of those areas which is a really hard thing to do.

R: For the smaller ports, do you think that it takes a really long time to get benefits from this system? To use the system, you have to collect data and you have to get the results of it and apparently smaller ports do not have the knowledge or finances. Is it really suitable for smaller ports or do you think that it is more suitable for the bigger ports like container ports?

INTERVIEWEE 1: I think the container ports would have to establish that this model includes all of their concerns. If you look at some of the commercial ports and their stakeholder engagement, sustainability has not been a priority and sometimes there is a major rift between the ports and their supporting towns. But by and large the larger ports have systems in place and a lot of specialists in order to show that they manage well. I think that where PSMS comes into its own is where it falls to smaller ports to actually make sure that those who are responsible for governing get a holistic view of all of the issues that they need to deal with. In terms of whether it actually assists with the data they manage and how you find time to improve when you are so busy dealing with the day job, then that's a good question. It is quite a challenge for everybody and I think you almost have to put resources into improvement and that's a hard thing to do, to identify realistic improvements in a legitimate way, argue whether stakeholders like what you are doing, and your way of doing it. If you invest more to improve, the danger

is that you will not improve, and you will end up having to settle for a model which is only relevant in that particular time and with those particular factors and as the external environment changes, the model fails to adapt. So, either way, you do have to look at: these are the rules, and how do you make a continuous effort to improve all of those areas. And it may not be that you are able to make very large improvements if you are a small harbour with limited resources. You probably are not going to make a substantial change. But if you look at medium sized improvements, we were determined that we ourselves will now develop an integrated management system, which aims at continuous improvement in our ways, which was a very challenging project. Nobody really wants to do it. It has been nice to have but the work is enormous because you are now having to rewrite all your procedures and actually document from scratch what you do and have all documents up for review. It takes an enormous amount of time to just manage the system and you can't really gain anything from doing this. It detracts from what you do. But actually, what we found was the facts that it makes us have a marine operations meeting every 2 weeks and we go through a fixed agenda and the information flow improves. Not only that, we make a list of things we need to do and then monitor every 2 weeks how we are getting on. So, you are affected by this improvement because you are not leaving it for 3 years because it is far too difficult. So, you are managing in a much more coordinated way and your progress is surprising because you are actually concentrating on improvement as opposed to just finding resources to deal with the status quo. And so, I have started to think very recently that this improvement is vital to the organisation and actually although whatever success you may celebrate at the time it will always be relevant at this time because the external environment is changing so rapidly.

R: Can we say that this kind of sustainability management system requires you to have meetings every 2 weeks to improve yourselves in a sustainable way?

INTERVIEWEE 1: We do not have them; these meetings are to discuss marine operations, but we also have a goal of continuous improvement. That way we manage our leisure operations, for health and safety, and for environmental management. So, we are trying to integrate the system, I mean either way we have 4 subjects which we brought this down to: health and safety, empowering safety, environmental management and quality. So, it is in line with ISO standards which it does take as its basis if you go and look at that, and superimpose on it safety, that's the system that Andrei came up with. The sustainability management system does cover all of those areas and more importantly it actually takes you towards recognising external standards on those areas because that's the only way that you can really demonstrate, meeting these objectives and accurately identify what you need to do next.

R: Your new business development plan is trying to develop berthing and how you can find enough resources for it. In your business development plan berthing is a new service: how can you fund the investment to make it real?

INTERVIEWEE 1: In terms of the dredging, we can't provide the investment ourselves. The only way this can be done is with assistance in the public sector. So, in the case we have amassed this is beneficial to the county. Falmouth is a port for the people in Cornwall. It does not have a very long future if 5 meters is the depth of its approach channel. So, this is actually what is necessary in order to stimulate the economy of Cornwall and so we have spent a lot of our resource trying to persuade local authorities to come with us on this and provide investment funding to assist what are primarily environmental hurdles. In the old days we underinvested in dredging channels and dumping spoiled. Then you look at

setting aside 3 million pounds for commercial investment by Falmouth docks. Now you are looking at a cost around 20 million for the same work so you can possibly get a return in terms of a commercial investment. So, you have to look at working with the public sector closely and see what you can get with that.

R: Do you believe that there is enough collaboration between the smaller ports? Or do you believe that three similar smaller ports could form one board of members to control them from above?

INTERVIEWEE 1: It is a difficult one actually. There is a school of thought that we could collaborate more and amalgamate some of the services and I think you could actually look at this as a business. You need a lot of detailed knowledge about the business to try to manage or it fails. And even in Falmouth Harbour Commissioners where we are trying to address our financial concerns, we found we could not do it as FHC. One of our businesses is clearly a pilotage business and one of our businesses is clearly yachts and moorings, things like that and they were so complex even if there are ferries straight forward to businesses, but they were so complex to scope. You could not actually go to the board and say we must do this because there was not time with the overall board brief to the whole organisation to really give that the attention needed. So, we broke it down, split off those into individual business arms, introduced more management and management panels looking into what ideas they have for development, testing those ideas, doing justifications and the justification for that investment they made to the board. So, in a way, even one port is too large if you really manage your business well if you really grow that business. So I think the big problem is when you start to look at small ports most of the time all they have got in common is the fact that small ports, one will undertake fishing, one will be a yachting, car park business or these sorts of things. And actually, people who are running those

businesses are very knowledgeable about that one sector but not better at anything else. And so you end up, it wouldn't be straightforward; you could put governance in attentively for those ports, provided that you are allowed a certain freedom of movement in terms of how to manage those particular business aspects. And that's the trick; because it gets it right where government manages effectively all the accounts, so there is open transparency in the businesses which have been well run in terms of what they achieved. But at the same time if you lose the feel for running the business at grass roots level, and then the business is likely to come unstuck. So, it is very difficult and where we work in little ports, we have not been very successful in getting any sort of collaboration except on very specific projects. Falmouth docks and Cyber lets us dredge a new channel and we can scope the project that we can both put resource into and try to achieve something. But how would we run the port more effectively? They do ship repairing and dry docking, which means that they know nothing about what we do such as the control of navigation and pilotage. So, there is no point in trying to suspend our skills. And it is exactly better to try to be more focussed on those business areas.

R: Rather than collaborating generally, as I see it all smaller ports have funding problems in investing in developments. Instead of generalising that collaboration, is it possible to be specific to focus on maybe creating the capital and then to decide the priorities of for instance Falmouth, Fowey and Plymouth. After collaborating financially could they then decide that it is ok for Falmouth to make an investment, and then pool the funding and spend it on one port or another?

INTERVIEWEE 1: It is interesting that what you are proposing is a sort of bank for development as much as anything else. Not somewhere where it going to be development fund, competition for that development fund and return base on the

best use of that money. It would be quite an interesting concept. The trouble is return. If you say well actually, let's assume there are three trust ports, let's just pool our resources and let's try to manage jointly and look at where the best investment will come. Instantly, you have a problem that each perceives their funding to be the others'; where does the money belong; where does it come back to, and the investment. You deal with far more investment opportunity in Plymouth because you have got a city with 350.000 people in the hinterland and services for five ports. So, when you get down to Fowey, you've got no roads coming out of Fowey particularly providing business for a very small community. Then again it becomes a very difficult thing to say they have parity in this relationship, because they wouldn't have and so I can't see how the actual entity itself would successfully collaborate because ultimately everything will come back to the stakeholders' perceptions about whether they are getting good value from this collaboration. They would never see it as fair. The alternative would be to try to put some facility of banking into an investment fund where there was money for investment on a better basis and returns went back to bank but interest and the reserves of those ports which are trying to grow by creating money to investment in port projects. I mean no one has ever come up with a proposition around that. I suspect there again the politics around losing control of one's own reserves where they perceive that the resources of the business are scarce will be a hard one to sell.

R: It is really hard to balance the stakeholders so if they pull the money and invest in another port, stakeholders would get upset.

INTERVIEWEE 1: We never rule out that's what would happen if firstly we would say give us a million pounds to build a marina in Falmouth. We put in GBP 350.000 each and we want to take a million pounds out for that to help us. So,

you could see that there will be so many tensions about doing it. In terms of borrowing power support; we have got the ability to borrow commercially anyway for investment so it is not certain the ports are able to help each other in this. I think the understanding of how to invest and how to grow in certain instances is not well understood and when you get down to micro port modes it is not understand at all. And so if anything was going to be really done to really bring in reform into that sector, it could be around the ability to appraise investments accurately and provide support for development in a way that was going to more financially sustainable because most ports will get through if they were going to do it themselves.

R: Do you think that one of the reasons why collaboration is not working well is because of the rivalry between two ports? They might lose their clients, if I am a harbour master or manager of the port, if I am good at dredging and berthing and if I am going to collaborate with the same local port; I will be really concerned about whether it is going to be better than me or am I going to lose my clients kind of thing.

INTERVIEWEE 1: That happens; if you study the large ports, they are mostly worried about that. The United Kingdom major ports group is obsessed with unfair competition and the fact that someone might steal their businesses away. That becomes a much lesser effect when you start coming down to the profile of areas because actually, we do not really compete with Fowey. They will take cargoes from China Clay who have cargoes of stone and different areas, but could we work with them? It is another matter. Difficulties will arise because the two towns would be the main stakeholder units for the ports. They have very little in common with each other and will be afraid of them getting more out of the collaboration than this town would. And so, I think it is not just about the fear of competition, it

is about the difficulty of geographically based entities to collaborate effectively. In a way we are all geographically unique, which is why we exist in the first place. And that is absolutely unique when you have done some work around transport policy in the United Kingdom and I was invited to speak on ports and listen to the people with airports, roads and rails and they just look completely different. They tried to transfer systems because the entity does not matter. Where your airport is, is what matters. Who you serve, what routes you can get? That's what is important. If you go to rail service, all you are trying to do is connect the bases. You are not working on the basis that one particular base should be better connected than another. You are interested in how you can make money by connecting things. And the road is the same and you end up with a port in a strange place with hundreds of years of history. We have got an activate setup of harbour commissioners. There is no equivalent in airports or other businesses where everything is that historic and moves and sails to steam transport modes. There is just no equivalent and so what you end up with it is really difficult whenever you try to collaborate. You come up with a fact of there is sort of geographic rivalry before you start and that almost initially means that collaboration will fail unless you got something like Cornwall Council which manages a number of ports. So, they stripped out the layers of governance in those individual ports because they have their own purpose anyway and they say we can govern them essentially because the issues they have got are similar enough that we can make decisions on a central basis. If you go to ports and ask them if they think that they are being well served that's now much better than when District Councils were looking after us. But there have been economies through that process but in terms of rolling it out we have looked at joint operations for little ports and it is so difficult because effectively even if you got

302

something like a pilot service, well we have a pilot service, Fowey has a pilot, Plymouth has a pilot service; this can't be sensible. I mean there ought to be some way to rationalise this, but the reality is that we could not get a pilot boat for shipping to Fowey to them. We can't guarantee that there was a rainy afternoon if the weather is bad; you got 30 miles passage to make. And so everything about their income comes back to what is reasonable, what is practical in these circumstances. It means everything has to be much closer together.

R: About the new business development, did PSMS help you to decide that berthing investment?

INTERVIEWEE 1: I think it has been a long-standing scheme anyway – it certainly preceded the work done by Andrei. I think what helps is the clarity of thinking around you what is to be trying to do and who will it serve by doing it and where it fits within our sustainability. In a way putting all that resource into investment that primarily get a boat ship for the Falmouth Docks. It is argued about how much that's actually worth to us if you look at that perspective. But if you look from the perspective of this is business for the port, which is business for Cornwall, which is long-term employability, it is everyone's children's jobs. You have got a much more sensible argument and you do need to give some serious thought to what are you trying to do, why are you trying to do it? Because otherwise if it is just for short-term commercial game, we have never bothered and that's why really a lot of people can't really understand the sector they are in because they can't really understand why it is not just the short-term commercial game that we are interested in.

R: Is this berthing business development your only option or did you select it from amongst other options? Was there any development business before this or did you approve this as the best for Falmouth?

INTERVIEWEE 1: I think we did the port master plan study that we contributed to and that came up with a number of schemes in terms of work around and improving facilities in Falmouth Docks. Refreshment of the oil tanks there, improvement on the jetty, some dredging works for the berth improvement. All of these works have taken back, so there has not been works involving dredging. They weren't our direct interest but actually they came out of a joint master plan, we said the port needs to go somewhere and they studied what the benefits of investment were and so it was a joint approach in terms of the whole port to get in the joint master plan. In terms of the work, dredging was the most difficult because of the environmental sensitivity and so that came out as a very strong option and in terms of economic output. And that's what we have really prioritised. There are other investments but in terms of Falmouth Harbour Commissioners, there is nothing on that scale that it is going to make such a difference we can possibly bring out.

R: What is your environmental responsibility? Is there anyone to manage it like specific title for that or just the board of member's decision?

INTERVIEWEE 1: In terms of the dissertation so we have environment, we have Special Area of Conservation, which includes all the port limits. We have special ejection area for berth, which includes all the port limits. So, there has been various attempts to bring other designations which we have been bluntly opposing because of the restriction of board activity, but within that we have duties around ensuring our activities do not have impacts on particular sites. It is complex. We actually do employ an environment specialist although they have also been employed in terms of our system managers as well so we could buy the role in terms of both managing environment but also looking at the quality integrated management thent system responsible for that. So, we absolutely need

those skills, we also need our networks, I mean track associations and we try to get the port's perspective into government before they get made and they fix these targets. Because quite often we have been led in the direction that we must have more designations because the EU requires them which makes us have all designations and so we have to this bit and this bit without real world understanding of what the consequences of it could be. I mean I have met the last 3 shipping ministers as a tiny port in Cornwall. We have made the effort to go up and arrange appointments for the shipping ministers to explain our concerns around how these activities impact our business and we have been received well for doing it. So, the part of the organisation's resource has had to become much more outfacing and had to become more prepared for the national scale in order to protect this interest, and that is unusual. That's been changed since I have been here the need to do that. So, we do not only have to employ people locally who understand what the issues are, but we have to prepare to go out nationally.

R: You have someone to manage the environmental responsibilities, so I assume you have an environmental management system for that? Tell me about it?

INTERVIEWEE 1: It is interesting because environment is actually managing our environmental activity. It is because our activities are settled. We run office, we run boats. And because our environmental impact is not that great, we are a small business which has policies around trying to minimise our use of resources. commercial with a there is used for the business but why are they getting more complicated see impact of the marine operations on the environment and so we end up with ship goes to anchor or ship close to tank cleaning or sort of vanities tanks we have to give thought to what those operations what the impacts of those operations even though they are not our operations. They are happening within

the area that we are with we responsible. So, the environmental management system is quite in a way our system is quite limited but marine safety management system actually includes quite number in environmental impact. So, we assess the risks to the environment and sometimes assess the risks for the safety.

R: Looking at the long-term for your fleet, how long does it take or after how many years should you renew your fleet for pilotage? Can we say 20 years more or less?

INTERVIEWEE 1: We would like to get 20 years, but all of our boats are 30 years now. And that's the real problem to us specially to replace it now because we are struggling financially to justify doing it and so it again that's all part of really thinking through what we are doing. Because in the past, it has been ok to cost these investments because of short-term expectations you could sort it out but you really need to be planning a long time ahead of you what are the consequences if the boat is actually no longer fit to operate. You lose any residual value and you have got a lead time before the vessel can come in. It has a very negative impact on your operations. So it is not just the cost of the investment at the time, it is actually how you manage that investment, how you plan for it and so it is one of the things we really consciously have been trying to improve now looking at the business planning aspects and with the business plan. We start by saying, during these 5 years, this asset will need to be replaced, this asset will need to be replaced and so we have to provide for that investment and that becomes quite difficult.

R: I just attended one of the conferences, lecturer showed us a picture about the container ports, and it seemed really empty and the topic of that conference was about the technological developments - great for employability. In his conference,

he said technological development in not always helpful for creating jobs for local people. Do you believe that in same way? Because about the container ports, he showed a couple of pictures and said that we are now using these people as an employee but after 10-15 years, they are going to be replaced with machines and that we are not going to need those people anymore. So, it is a kind of concern for them. Do you believe that view?

INTERVIEWEE 1: There is definitely something in there. I have not seen so much more automation around the container business. They took worth tonnes of ships so that will be interesting, and they are talking about generally speaking there are major savings if you can take out your labour cost if you can labour intensive industry. We are the other ends of the table in terms of small ports and the scope of things we do. We do not have many people working on the same things even if you buy technology that was going to take all of the money from our visiting yachts in the summer that will only effectively change 3-4-5 seasonal members to staff we required, even if we achieve that which probably we could not so I think we have much less of those drivers when you are dealing with the sort of relatively wide range of activities and level of intensity of activities. But obviously it comes into its own way of talking about high activity of the same type on a large scale because then your investment becomes justified where I really can't see that we would be able to look at it all the time. We put a barrier up instead of supervising the slip by taking the money could be a barrier over the access card that would save us money with a better service and by and large it is not. We are still looking at whether we can cover all of this. You could actually have one person sat in office for the three facilities instead of 3 people out there and probably that sort of investment will come in time but it is not going to be a sort of major threat with this level of this type of port though.

R: Could you tell me about the communication capabilities of Falmouth Harbour? How does the system work? Is it enough or does it need developments on the technological side? Do you need high level technology to run smaller ports?

INTERVIEWEE 1: Ours is a very basic system. We have looked at what we ought to be so the home vessel traffic services here to manage the shipping instead of pilotage might be all costs associated with the pilot boat trying to get a pilot out to all those ships. When someone in the office gives advice, but actually you always come back to the fact that some ships will need pilots, you can say that you end up having to provide that resource anyway so then if you have to put another resource in place and you say we need 6 people to be employed on a roster basis in a mainly separate unit that we are just giving radio advise then that becomes a very big investment and if you look at how many shipping movements we do, that has an additional charge all the shipping could not really justify. And so, although if we were finding ourselves 500.000 movements. Because they strike all over the southwest approaches and we suddenly become a new Aberdeen. All of those economics change because lead increases, the revenues are there but our ability to survive at the moment depends on us being able to operate as flexibly as possible. And so, something like our pilotage system where it is going to be self-employed part of the fees if they do not work, they do not earn. So, we do not have the overhead of the salary cost. And for our boats we have made everything as lean as we can in order to fund the service because we are going to have very tight periods. Sometimes it means we are going to get very busy periods that people are stretched but balance is out you got to be careful about over- committing resources.

R: I think it is my last question. Is it really hard to create jobs for the local people if you are managing smaller trust ports?

INTERVIEWEE 1: Hmm… I do not know. I mean I think since I've been here, we probably added 10 people to the staff.

R: Its nearly 25 per cent of the whole staff.

INTERVIEWEE 1: Yeah probably… When I have started, we would have the full-time staff maybe 13-14 people, now 23-24. So probably about 70 per cent in terms of employment. So I do not think in that sense, it is not that difficult, it is not a major expansion but in terms of small mission of we have and the fact that we need to provide good service and the fact that we need to grow and develop and that creates opportunities for employment that we need to bring in people with new skills in order to meet the range of responsibilities that we have. That's all good for employment. So, I would say, probably we have done well over the years in terms of growing and creating employment opportunities for ourselves. We have also tried very hard to create opportunities for others in terms of renewable energy Fab Test with a new license. So, they can test the renewable energy devices and that's meant that companies are headed devices built in Falmouth and it meant that their local services are used to go out and deploy these devices and all of that helps the economy into generating jobs. So, I think in terms of the value that we add because we have not just looked at what is good for our business. We have looked for what is good for other business. Then we probably have got a good record in terms of creating jobs and employment.

R: Do you believe that the smaller ports are attractive enough for investors? Can you give me 2-3 reasons why investors should invest in smaller ports?

INTERVIEWEE 1: Hmm none already… I think, we have spent a lot of time looking at business growth and where and how we could invest. And although the terms ports and harbours are used interchangeably there is a difference. Most of the United Kingdom (especially south west ports) sorts of ports are more

harbours in the sense of their sheltered places where many things happen. They do not offer large industrial complexes or even small industrial complexes, trading with the world. So, in terms of getting investment, there are places that are good at it. I mean Plymouth has Cattewater where they have got a port in a city. Draws lots of good in and sends lots of things out. They are new trades that come on the back of that. And the investment opportunity is relatively good. If you look at Fowey, it is much more difficult. Yes, you've got people, boats, and so many boats you can get in, there are so many facilities you can provide, what is worth investing in? What could you do anyway unless you are landside? How much marine improvement can you actually make? And that's because we have that problem to a certain standard. We have invested in an extension in our marina, which is only relatively small investment, but it was done on the basis of fact we assets the market, we thought we would get a good return on the investment. And then we planned that kind of growth. We reviewed a lot of schemes before we decided on where we are going to put the money. And so, to get a positive return on investment in ports, it is quite often not the exciting or dramatic or big schemes and the smaller port is less likely going to be a big scheme where there is going to be transformation or development. The population does not like it; those ports tend to be valued for what they are. In some way, almost for the living museums in terms of what use they are like Boscastle and a lot of ports on the north coast. It is a very quiet little town and they have got a few boats swap lines on the harbour but actually that's it and if you said well we could sort of knock down those ports to form one new marina, you would have absolute outrage on your hands because this what the local population value it for. Becoming a tourist community with rich people's places in town makes it hard for locals to buy things; rather there are lots of boat on the coast of Cornwall and owners need facilities

for their boats. So, it is not straightforward. And there are good examples of ports offering an exciting opportunity for making good financial investment decisions but in the small port world, it is quite rare for them to involve transformation. It is much more about some organic development that the things you are doing anyway and trying to improve the way you relate to the market and create small improvements in that opportunity.

R: Is Falmouth Harbour a great way to make investments to improve their reputation for the local people? For instance, I am an investor and I would like do a job in Falmouth; it might be construction or another type of section but I would like to make an investment to improve my reputation for the local people and do you believe that the Falmouth Harbour can influence local people.

INTERVIEWEE 1: Not really. I think you get almost cross over to the charity sector when you said people have given you money to achieve because of the benevolence on their part. It is not really investment; there is no return for them to do that. The likelihood, which is having realistic return on money, comes in that way. As it is not scrutinised in the way of investment, or what level of return to generate. Someone would like to say I give you a million pounds, so you can put a small building with a shower block. It is fantastic but does not charge fees for using the shower, there is no money to maintain it. The investment is effectively wasted; it is not a business decision. It may improve the attractiveness of the port; there may be indirect benefits. Quite often you see the public sector putting investment that way because it triggers return somewhere else, but you do not often see that type of investment from private systems where they can't get some return in terms of the type of port. We are so cosmopolitan, so abroad that no one would benefit that much from that sort of reputation that wouldn't be at all necessarily seen to be serving a particular small community who would value it.

R: These were my questions to ask. Thanks for sparing time for this interview. Is there anything that you want to recommend to me to make this topic look more interesting – perhaps concerning governance or financial issues?

INTERVIEWEE 1: The small ports are interesting. They are very diverse, and the trouble is that where you try to sort of put systems in place, it is very difficult for the systems to reflect or accommodate all of the different participants. If you look at Andrei's system; it is a classic of a very broad system that offers something for everyone and when we were doing that it was pretty close to a free for all. It has to be seen to be of service to illustrate so this is necessarily going to have to be broad. So, I think if you wanted to summate those concepts forward where do you go from here in terms of what is it for. Things around governance models and how to improve and how to improve the skill set for investment within ports and business growth. You may get somewhere with it. You probably come up against the powerful ports; you just do not see the lean and our really interesting cooperating that for study. So, it is quite difficult to resource, there is obvious next step in this. I mean, where do you think that you like to get, what particular aspects would interest you?

R: I am more interested in finance. Maybe on the stakeholder side or the management of the harbour in a financial way because it is simple if you do not have enough funds or resources: the system is not going to work. So, you have to make it work by stakeholders maybe by investments or try to create your own resources and the struggle is that smaller ports are not really suitable for those things as I see so far like creating more resources. But I think that if it is going to have a huge impact in ports, there's going to be difference in the financial approach. Right now, I do not think that the environmental improvements will be really beneficial to the smaller ports. I think the main struggle is about the funding,

312

resources maybe using government funds, but I am not sure, United Kingdom has lots of smaller ports and it is not an easy thing for the government to share a resource for it. So, these are my readings so far, but I have not decided yet.

INTERVIEWEE 1: But initially the idea of the government funding or proposing a fund for investment and a loan fund for investment is something that has never been tried or really looked as far as I know. Actually, you could see where it is you can get ports to collaborate if the government would look at it as a way of encouraging development within the small ports sets. And that would be quite a smart move because what you end up with is someone specialising in investment appraisal around these grants. Because I mean grant is such that it is given away too freely, the level of return is usually insufficient, but not if you are looking at the mechanism for encouraging ports to help themselves. So, if there is a loan fund available, the interest rates are not too high but there is a sort of comparison we can make with commercial loans, it would also to have a great understanding of the port type infrastructure that it might invest in. Then potentially there is something in that. Whether or not you can get a thesis I have no idea, or whether anyone has tried that or if there is any data on that. So, it is a difficult one to actually do as an academic exercise.

R: Talking of the academic approach, do you really believe that the university has the right qualifications to help industry, because I do not think believe in that way?

INTERVIEWEE 1: Well… That's a very good question. In the past, no one seemed relevant to the academic disciplines in ports and when we have started first with John, we did know about knowledge transfer partnerships. And this partnership is actually bringing the university in support of a graduate who is going to work here who was going to take a structured programme in order to try to achieve a particular objective about assisting Falmouth Harbour

Commissioners. It was born out of the environmental stakeholders and the way we were managing the harbour and it was really to try to get a new beginning by someone who was going to be approaching it in a way that they were relating. And we are all sceptical; we knew that there is not going to be anything-magic coming out of the thinking with the university. They have got no detailed experience about how these things were.

R: From my view university is just really studying or focussing on the theoretical area. It is not the real industry: they just learn from theory and talk about it. For instance, last year one of my lecturers said ok he just spent maybe 40-45 minutes talking about ethics. On paper, in real work ethics are really important. As a shipbroker, I worked in Istanbul as an assistant shipbroker and if you are making money from Ukraine or that area, the bribe is an obvious thing. He has to be ethical but after their degree a student is expecting the same thing from the university but when they realise facing the real industry cut down their performance that they are not ready for that real industry. I believe that the university should explain the real industry more than in a theoretical way.

INTERVIEWEE 1: I think you are right in terms of the ability to translate theoretical learning into the business world. But I suppose if you go back to qualifications of what we did for seafaring, they taught you something of ships on the sea but it is the experience you have got on the ships that actually informed your view about the difference between the job and how that was going to work. I suppose it is always a dilemma. I think that the collaboration side of it has been effective because when we took on the KTP graduate, she was able to get going sat down in isolation away from the newspapers and away from the local pressures and talk about the theory of consultation how to value your stakeholders and their great importance to actually look at who we should try to influence, and what

techniques to use to get to them, and then to try it. That was all tremendous from our point of view because we wouldn't have those ideas without it and so although on the one hand, how could it be possible as the university knowing nothing about what we do, to come and tell us about how to improve our operations. It was a collaborative approach. We worked with a graduate based here but they had regular site visits and regular work at university as well and the output was really good from that and I think it changed us as well because we started to "see again" speaking the language. At the start we did not speak the language and we did not think it was important to speak the language. So, once we got away from everything, it could be solved at the coalface, to take a step back and look at how we might develop some ideas that might be more useful. That changed the whole organisation as well. I mean next door, there is a guy called Alex who works for the local University of Exeter Business School. We have commissioned him now to do a stakeholder engagement plan for those who want to do work experience. And so, taking him on for 3-4 weeks, hanging around and meeting our stakeholders, researching the organisation to make up the plan and then writing for us a plan about how we go forward with his technological engagement in the structure forward. That is useful because it is not about, I can tell you who the stakeholders are, and I can tell you about in the past how we have tried to please the certain sectors. We had never said we have analysed it; this is the plan; we are going to stick to the plan and therefore we should get the best output in terms of balanced management for our stakeholders. And so, we have recognised the use of having someone from an academic background who is using a theory to come up with these answers. He is going to give us better results than just of doing on the basis of "well yesterday he rang me up and shouted at me", "let's

see what we are going to do that does not happen again" which is your instinct and again it has become a driver for a lot of the small port management as well.

R: Do you think that PSMS is really for the shipping industry? Because the shipping industry is really changeable, can you make a plan for the next 7-8 years but after 3 years something happens, and you have to change everything. So, is it useful to use long-term management systems?

INTERVIEWEE 1: Yes, if you adapt them. And that's the point because if you have no business plan and you just accept that the business model is going to change, you have got no control. Probably what happens is when you have a downturn you wouldn't be able to react to it because you are waiting for the next upturn because you can't do anything else. Whereas actually by saying well we need to have a plan for the organisation, we need to have mid-term plans. It does not commit you to following that plan through, but the fact that you have written a plan, and you have said that we assume that we are going to get a million pounds in commercial shipping revenue this year, we actually only get GBP 750,000. So, our financial projection is going to be a problem and what is it that we can do in order to try to manage that problem? Shall we just wait, and hope things improve, or shall we adapt to it? We are going to need to get more from our commercial and our leisure side and therefore we prepare to invest more of our reserves. Schemes which we previously thought were essential to balance our commercial income now become unaffordable, and it becomes more justified to put those resources into the leisure side. So, I think it is helpful to exercise discipline.

It is not about having individual people with the right stuff because that's what the whole industry is based on. They have people who have been at sea; they must know something about ships. They sit in an office and they have gone on in whatever direction and they always resort to whatever direction they went. Was

it the right one, no one achieved anything better if they do things another way, and that's really how the industry is growing up? If you can command discipline you can take away from the individual management and a sense of direction that people.

Then there are potentially great achievements because in my job I am expected to take the business plan to the board and show them what we are going to do about the fact that we are having a downturn in commercial shipping. Very few of my colleagues will be doing that because they have never written a business plan and they have never been told to have to write a business plan and use other information that is available. And so, although our position in terms of the problems we face, we have a problem in deposits, we have a problem in income for this year but there is no panic in the organisation. We know what we need to do to get over this. There is a measured approach that we review our business plan in June, we need to have a couple of options to increase investments increasing performance or to make savings. So, we are doing it in a very logical and structured way because there is better understanding of how everything is being covered. And part of that was the work that Andrei did because unless you have got some measure of the scope of what you do, you never know where you are leaving the backdoor open by then going in a particular direction. So, I think, I have got my name now on 4 or 5 academic papers of various types as collaborator in some work but actually that particularly is not that important. What has been important is the fact that I can talk to university professors about the way our organisation works, and we can look at how we are resourced; you have done this by asking me these questions. You challenge my way of thinking. When we know that a student is coming and doing his report, he challenges and modifies the culture that we have got and this is real progress for us and it is

much more cost effective to do it this way and to grow our organisation by using academic resources who want to work with us. If I employed a consultant, he will have his own ideas that were probably born out of the fact that he has done something similar somewhere else. Then he will write his report and charge a lot of money for an initiative that will not be sustainable in long run.

R: Thank you so much for sparing time to have this interview with me.

APPENDIX B – Full Interview with Poole Harbour Commissioners

R: First of all, thanks for sparing this time for me. As a start I would like to ask basic information about Poole port such as number of employees and turnover; you do not have to give any confidential information, but can I get some information as a starter?

INTERVIEWEE 2: Sure absolutely. Poole Harbour Commissioner is a trust port, I think you understand what a trust port is, but obviously different ports have different characteristics and different priorities. So, Poole is probably what you would describe as a medium-size port, but we are a huge harbour, the largest harbour in Northern Europe, ten thousand acres but the port is only seventy acres of that ten thousand acres. So, as a trust port, we have statutory responsibilities to maintain the harbour and look after the harbour and try to achieve the right balance between the commercial activities between leisure activities and environmental sensitivities as well.

R: Is it okay to discuss your turnover?

INTERVIEWEE 2: Yes, it is about 11 million turnovers.

R: Is this your goal or…?

INTERVIEWEE 2: No, we are looking to grow business substantially going forward to get a new project that we start in the next month and the intention is to take that up to 15 million turnovers within the next 3 to 4 years. So, it is a major sort of expansion programme. I will give you all of our accounts for last year. The current year 15-16 is just been finalised at the moment but that would be published within the next month or 6 weeks - we can send you a copy for the accounts for the last two years. We put all those on our website.

R: Yes. Before I came, I looked at your website and you have shared that information.

INTERVIEWEE 2: Indeed. We try to behave as a trust port which can only be open, and we are not going to hide anything.

R: Is that one of the requirements of trust ports - to publish more than private ports?

INTERVIEWEE 2: I think we are probably a bit more transparent than some of the private ports perhaps, but they might disagree with that.

R: I read your mission statement from your website, but could you please say more in a simple way or just a version of your own in one sentence or maybe two?

INTERVIEWEE 2: Okay. Our mission statement is to manage the asset of Poole Harbour, which we think is a jewel on the south coast and our intention is to hand it on to future generations and to enhance facilities while ensuring that we carry out all of our statutory and environmental duties as well. So, we are looking to grow business going forward in a sustainable way.

R: As I understand from the trust port mission, even if you make some profits, you have to use that those profits to invest in new technological developments or some infrastructure in your areas?

INTERVIEWEE 2: Well, the Trust port model means we do not have any shareholders. So, any profits that we make are re-invested back into the business. So, they are re-invested back into Poole Harbour Commissioners and that enables us to do a number of different things. A year ago, we bought some land for Poole Harbour and we have turned it into a nature reserve, but we are also looking to develop the commercial quays as well. So, we re-invest profits back into the business for the benefit of our stakeholders.

R: As we are talking about the stakeholders, who is your biggest stakeholder? Do you really get enough investments for those developments from stakeholders?

INTERVIEWEE 2: Okay. We have a number of different types of stakeholders. Some of them contribute financially but others make no contribution financially. So, for instance we behave as a commercial port. We have all of our commercial port customers and we have companies - Brittany Ferries and Condor Ferries, Channel Seaways and Channels Perkin so we have a number of commercial organisations that use the port. But we also have a lot of marine leisure activities within the harbour so anybody who has got a sailboat is a stakeholder. We liaise closely with yacht clubs and mariners and other marine leisure organisations. We have got the local residents of Poole who obviously benefit from Poole Harbour and have an interest in Poole Harbour but not a financial stake. We have got the environmental organisations such as Natural England, Dorset Wildlife Trust, Environment Agency Wessex Water and the local authorities as well. So, they are another separate stakeholder group. There is a number of commercial organisations that are not port uses but exploit the harbour from a commercial perspective so that's another group of stakeholders. We have got government as well, so we report back to the Department for Transport. So we think probably something like 200 different stakeholders within Poole Harbour, all with a different view or different angle on what they are looking for as a stakeholder and a job of Poole Harbour Commissioners is to try to manage the harbour and the port taking into account all of the overall needs of the stakeholders. Not everybody is going to be happy, but we have to take decisions for the greater good of Poole Harbour and that's what we are trying to do.

R: I think you mentioned that you have a new business that you would like to develop and that you said that you are going to start next month. Could you please give me some details about the plan and how you manage this new business?

INTERVIEWEE 2: Okay. About 6 years ago the government asked all major ports and trust ports - and Poole Harbour is a major port within the United Kingdom port sector - to develop a Master Plan. Effectively that Master Plan was to look at the business, understand the trends that the business is facing and to propose projects, which we were looking to develop over the next 20 years. So, we went through a very extensive consultation process with over 90 meetings and public meetings and the displays in local libraries and shopping centres, open evening meetings, open meetings and we went through 3 different versions of the Master Plan before publishing the final Master Plan. That was about 4 years ago and the major project concluded that we were very dependent upon the ferry trade. So, we have got currently ferries running from Poole to France to Spain and to the Channel Islands. What we needed to do is to diversify the business going forward. Ships are getting bigger and inevitably accrue economies of scale and so we concluded that we needed to build a deeper and longer quay, 200 metres of quay, 9 metres in depth and that was the way that we can grow our business sustainably going forward. In order to do that we had to do a major environmental impact assessment because of the environmental sensitivity within Poole Harbour. Once we completed that, the application went to the Marine Management Organisation (MMO) and they had to approve the Harbour Revision Order to gain the planning permission for us to proceed with that project. So, we have got that all in place for the project and we should be starting work on it next month. So, it has been a long process but as from next month we start

construction of the new quay and that will be complete in June 2017 and that will really enable us to bring in bigger vessels and the intention is to bring more cruise ships. We already handle a number of very small cruise ships but with the deeper and longer quay, we can get bigger cruise ships in. Regarding yacht transportation, Sunseeker are a big employer in Poole but all of the yachts go to Southampton for export principally because we do not have the facilities in Poole currently. With a new quay we expect all of those yacht transfers to take place through the port.

R: Poole is going to be next centre if it happens right?

INTERVIEWEE 2: Absolutely. But we've got bulk carrier customers as well, so we've got existing customers who want to bring bigger ships in. New customers also want to bring bigger ships into the port. So, a new quay will enable us to develop that side of the business. We have aspirations in the short sea container sector and also project cargo as well so the new quay will be a really transformative project for Poole Harbour Commissioners going forward and we are looking to grow business by about 50% over the next 4 to 5 years and the new project will enable us to do that.

R: Before we start to talk about PSMS, could you tell me how many people work at Poole Harbour officially or do you also have some part timers?

INTERVIEWEE 2: Effectively we've got about 100 full time employees. We also have got an agency stevedoring agency that we can call on so when we are busy, they provide us with additional staff, but it depends on the ports, its variable demand. In Poole Harbour, we see a peak in the summer because of all the ferry activity so Brittany Ferries and Condor Ferries you know the busiest time is over the summer months when people are taking their holidays. So, we probably call on the stevedoring agency more in the summer than we do during the rest of the

year but effectively that process enables us to ensure we do not have too many people on our books. It is almost on a day-by-day basis actually. But we also outsource a number of activities such as our security for instance - its handled by a security company but we have about 100 full time employees within Poole Harbour Commissioners.

R: Have you used, or have you heard of the Port Sustainability Management System?

INTERVIEWEE 2: I am aware of it. We probably need to learn more about it; so, I do not. You can enlighten me on what that means.

R: Following Kuznetsov's thesis about PSMS, I think the shortcoming of the thesis was that he tried to generalise ports. So, he used eleven pillars to determine and assess current performance. You can input your own data to assess your results to see if you are efficient or how you can be more efficient. When you have eleven pillars, it is really hard to be good on every pillar. So, as I see from the other articles every port tries to decide their priorities and picks 3 or 4 and tries to be best at those and then tries to be best at the other pillars too. So, he tried to make it more general but that may not be a realistic goal.

INTERVIEWEE 2: I am aware of it, but we do not use it directly anyway.

R: What about your sustainability concerns? Can you tell me the three biggest concerns for the industry? They can be general or specific to Poole.

INTERVIEWEE 2: We are just developing our latest risk register. There are lots of different potential risks to the organisation. The principal one is a downturn in the economy, and I suppose that's a key one that all ports face. It is not so much funding because, we are now facing apparent uncertainty with Brexit, so if there is a downturn in the economy, we saw back in 2009 that this means less cargo coming through the port, less revenue coming into the organisation. So that's a

key one, but there is not a lot we can do. It is a macro project problem really. In terms of the organisation, there are other challenges that we face; space is one of them. So, we have got about 70 acres of port land, but we are now severely restricted and that is having an impact on what new business we can bring into the port because we cannot grow the port because of the environmental legislation.

R: That restriction limits your options.

INTERVIEWEE 2: It does, and we have to be selective in terms of which businesses we focus on and which businesses we do not have room for, so space is key. Environmental legislation is important because we have to dredge the harbour in order to bring ships through and with environmental legislation, there is uncertainty whether we would be allowed to continue basement dredging, and whether we would be allowed to go ahead with new projects so environmental legislation is a key issue as well. And there are other risks such as terrorism, we have to have plans in place to ensure that we are prepared, and the organisation is at a high level of readiness for incidents. It could be an accident on a vessel, it could be a fire, it could be an explosion, there could be a collision between vessels - so we have to put a lot of resources into ensuring that we mitigate those risks as much as we are able to.

R: Do you believe that there is enough collaboration between smaller ports?

INTERVIEWEE 2: I would say so and I was chair of British Ports Association for 2 years. The BPA does have over 100 members ports all around the United Kingdom not just in England but in Wales, Northern Ireland and Scotland as well and the BPA does ensure that there is an awful lot of communication between the smaller ports and small to medium size ports within the United Kingdom. They host a number of different events, regional events as well but I have a harbour

master and the harbour master attends other events talking to harbour masters from other ports around the United Kingdom and its Southwest ports driving the region which effectively look at all of the ports in the southwest of England. There is a Southwest Ports Association, Regional Ports Associations, we are members of that, so we are talking to other ports within the region and we all face common challenges really. So, I think there is an awful lot of communication, but the British Ports Association is central to that offering access as a listening post and it then disseminates information back through to all of its members.

R: What could be done better?

INTERVIEWEE 2: Improvements… Let me think …

R: I have not written this question; it has just come into my mind…

INTERVIEWEE 2: It is interesting. I mean obviously there is a resource issue so there is only so much money available to enable the collaboration between ports and the European Union and the European Commission. It tries to enhance that, and we have been involved with port projects with other French ports, Irish ports, Spanish and Portuguese ports as well. So that helps because when you are going into other ports with different structures you are learning what we need to do, and you pick up information. I am little bit concerned with the Brexit maybe that sort of facility will be withdrawn going forward but generally speaking, I think it works very well and we have a number of informal visits. I'm off to Dover next week and I can go and visit any port really within the region because we have got the personal contact so generally speaking, I think that's pretty well covered within the United Kingdom anyway.

R: Do you believe that rivalry between smaller ports affect this collaboration?

INTERVIEWEE 2: Not as much as you would think. Obviously, we do compete with other ports from Poole's perspective - actually our main competitors are

Portsmouth because that's a big ferry port and we obviously live off 'ferry activity' here as well. In terms of bulk cargo activity, it is probably Southampton which is obviously a major-major port. We do not compete that much with other ports in the Southwest of England because of the nature of the port and partly that's because ships of a certain size can only go into ports and harbours, which have to have facilities to handle those vessels. There are not many ports in the Southwest of England which can handle the size of ships that Poole can. So that access is a bit of a filter I suppose but generally speaking, as I said through the BPA there is a surprising amount of communication bearing in mind that we are all potential competitors.

R: About your new business plan and the quay project. Is it the only plan or is it the best option for you? Were there any plans for it?

INTERVIEWEE 2: Effectively there are a number of phases for the business plan and the first phase is the construction of that south quay. But then the next phase is what we got planning permission for through the Harbour Revision Order Act to deepen other existing quays in a field part of the port to create more land. We need to create another 6 acres of land for the port and we also have a project to develop a marine centre where we currently run marinas within Poole Harbour. So, we are not just a cargo port but relating to operating marinas, we have plans for a new extended marina within the harbour, which is obviously a focus for the marine leisure sector. The first priority was the south quay and then we have other phases in the Master Plan which are to develop and deepen existing quays going forward because ships are getting bigger every year. I used to be a shipbroker in the city, used to run businesses in London and New York as a shipbroker. I was then managing director of the ship owning company and I can see that the size of ships has grown phenomenally just within the last 20 years

and I can see that trends will continue so it is very important the ports ensure that they have facilities to enable them to manage the expectations of their existing customers but also to grow the business going forward. So, we have got a number of different phases in our Master Plan. The south quay is the first phase.

R: What is your environmental responsibility? Is this something you manage or is there someone specifically dealing with and handling environmental management?

INTERVIEWEE 2: I have a harbour master, but he is partly involved in that but what we have is a harbour engineer and we have specialists on our board, environmental specialists in marine environmental issues and we are very clear about our environmental responsibilities going forward. This changes because there is new legislation, environmental legislation coming through, a lot of it from Europe, but I chair the what is called the Poole Harbour Steering Group and that effectively deals with all of the statutory environmental organisations within Poole Harbour so that would be Natural England, the Environment Agency, local authorities, Wessex Water and Marine Management Organisation. So, we have developed what is called a critical management plan for Poole Harbour and that zones activities in different parts of Poole Harbour and as I said last year, we were instrumental in setting up a new marine nature park in Poole Harbour. So, the organisation is very clear about its environmental responsibilities. It is a challenge keeping abreast of new environmental legislation and new environmental initiatives, but we attempt to do that with the resources that we have got in the organisation.

R: I just attended a conference about container ports and the lecturer showed us a picture of container ports. It was a really empty place from the point of view of the employee. He said that technological developments are not always useful for

employees. He mentioned that maybe 20 years later, the technological developments might take people's jobs. So, do you believe that technological developments are not always really helpful for employees?

INTERVIEWEE 2: Certainly, I am aware in container ports, a lot of it is very mechanised now and the models have changed really dramatically over the last 10 or 15 years within container ports. Within our organisation, we only do a very small number of containers currently. We are looking to grow that going forward and our employees and stevedores effectively transfer from bulk cargo to ferry operations or depending on the cargo, to cruise ships or the container work that we do. So it is not such a big issue really within Poole Harbour Commissioners but inevitably yes if you look at how many stevedores were employed in the port 30 years ago, the number has reduced dramatically and that's part of the improved systems and the efficiencies that have been introduced amongst ports throughout, not just in the United Kingdom but Europe and the globe really.

R: Do you believe that the smaller ports are attractive enough for the investors? And if you believe that could you give 3 or 4 reasons why it is attractive for the investors?

INTERVIEWEE 2: Okay. I think small ports do have a challenge and that's as I said partly because they tend to be very draught restricted and they have tended to have smaller port estates and as ships are getting bigger it is my view that a lot of small ports would be significantly challenged going forward. Some of them I think will cease to handle port traffic because they just do not have the facilities and obviously investors are not likely to invest in ports, which have those restrictions. So I think it is very challenging for ports, there is a trend that we have seen in the United Kingdom over a number of years, which is smaller ports and harbours being redeveloped for leisure and warehousing and I can see that trend

accelerating going forward, so without doubt its more challenging for smaller ports to attract investment and that's partly to do with the economies of scale.

R: One of the interviewees mentioned that the smaller ports are trying to survive instead of grow. He mentioned it is a really challenging year for them because of the oil price and different type of issues that they have faced so it is really hard for investors for their facilities or harbours to invest.

INTERVIEWEE 2: I know Falmouth, but I can't talk on behalf of Falmouth. Poole, we have not had any problems getting the funding for our new quays because we have a vision, we have got a Master Plan, we have got a business case, which is accepted by the providers of the finance. However, there are challenges ahead for small ports, there is no doubt about that and in 10 years there will have been some changes and I think some casualties within the small port sector.

R: About the PSMS, do you believe that it is really for the shipping industry? Because the PSMS is more like a long-term system and as we know the shipping industry is not that stable in the long-term. There is no stability in the industry.

INTERVIEWEE 2: Well without a doubt in the shipping industry we used to go through from a ship owning perspective or from a broader shipping perspective. We used to go through 7-year cycles, peaks and troughs and that 7 years now those cycles are much more concentrated, so you see an awful of the volatility within the shipping industry. I must be honest I probably need to do some reading on PSMS, and I could not really comment on its effectiveness going forward. I probably need to do some reading up about that particular structure.

R: From my point of view, it might be useful to discuss your long-term goals but as you said the shipping industry is really volatile so your goals might change - but I do not think that it is really useful for that.

INTERVIEWEE 2: But it is very important to remain adaptive because things can change within a very short space of time and that can have a major impact on particular sectors. So, when you look into investing in a particular area…

R: These are the questions that I want to ask. Is there anything that you want to recommend or make suggestions that make my topic more interesting? It might be like a government point of view for the sustainability management systems or it could be on financial side. Do you believe that this topic could be interesting?

INTERVIEWEE 2: I am a little bit uncertain of exactly what your project is. We talked about it today, but I mean superficially really. In terms of assisting going forward, it is fair to say that in the United Kingdom the government is happy to let ports and shipping be led by the market. So, it does not have a very coordinated approach really to port development and the development of shipping. It leaves the market to make decisions about where the market wants to go. Some other EU states are much more driven by the government; we are not in that position really within the United Kingdom. Obviously, there are differences between the 3 types of models in the United Kingdom: there are trust ports, municipal ports and privatised ports. Maybe it might be interesting to trying comparisons between those 3 sectors. I think we all face common challenges, but we all have different approaches really and obviously if you are a privatised port, your main driver is return to shareholders. We are driven really by enhancing the harbour and looking after the interests of the stakeholders whether they are financial stakeholders or not. So that might be one aim. Municipal is probably a mixture of the two maybe - I do not know. It might be interesting to try and draw comparisons between those 3 ownership models. If I think of anything else, I can let you know that's just the initial thought anyway.

R: Is there anyone that you recommend me to have an interview with that might add some value to my point of view? Maybe another perspective that as I said before I went to Falmouth and I will go to Gloucester next week and I will have several interviews in Turkey for comparing the countries or government or private ports. I looked at your background, your CV; you had been a really in good positions so I thought that maybe it could be really helpful.

INTERVIEWEE 2: What I would recommend is that you contact BPA and talk to one of their directors and I give his details or Richard Balentine and they can give you an overall perspective of the British Port sector but we are also members of the European Port Association (ESPO) as well. So they will give you a very good overview of the United Kingdom and European port sectors and I think they would be very helpful if they were prepared to talk to other thing, I would be surprised if they will not but obviously be interesting to see what your thesis looks like. I do not know when it will be published…

R: I hope its end of 2018…

INTERVIEWEE 2: 2018 right and okay but that might be an interesting approach; obviously we are in the Southwest, you seen this document, have you seen this document before? That gives you a director of all the ports in Southwest, some of them very small, some of them are very large, and some deal with leisure, some deal with fishing, there is huge variety of different types of ports really but its interesting times at the moment.

R: Thanks a lot for your time again. These were my questions to ask and I hope that it will be really beneficial for both sides.

INTERVIEWEE 2: I wish you well…

R: Thanks. It was really helpful.

APPENDIX C – Full Interview with Gloucester Harbour Trustee

R: First of all, thank you for your sparing times for me have this interview. Can I get some basic information about this organisation such as how many employees do you have as a full time, how much do you earn per year or what is your goal about it as a revenue? Can you give me some information briefly what is this organisation about?

INTERVIEWEE 3: So, this organisation is what is known as a conservancy body. It is also a trust port, as supposed to private port or local authority port and our jurisdiction extends for some distance from Gloucester, the top of the river seven down towards the boundaries with the Bristol port company which is seaward of the second seven crossing. So, as a conservancy we deal with the provision of pilots for ships and we provide on the way of safety navigation aid, voice beckons, lighthouses and we also have interests in environmental matters of course. Because like many estuarial ports, this is has made European and domestic environmental designations. So, we currently expect to see approximately 400 commercial ship movements a year through the harbour area almost all of which come to the port of Sheerness. Additions to that there are maybe 200 marine aggregate dredging movements; dredging, which takes place within the harbour area and they take up sand from the seabed and takes it to Avon mouth, Chepstow you port. In terms of income from that our income from harbour dues, which include charge for providing navigation aids, using office and pilotage services is approximately 450k to 480k maximum 500k pounds a year.

R: I know that I can look to your site about your mission statement, but can you tell me more basic about your point of view? What is the mission statement of this organisation? Maybe in one sentence or two… As I saw your state of mission

that you are trying to concern with safety about navigation, by concerning environmental. Am I right?

INTERVIEWEE 3: Yes. Cost effective and economical service and we do not as a trust port we do not aim to make a huge profit.

R: It is my next question. As I understand from the trust port version, even if you make some profits, you have to spend that profit to the new investments or some improvements about your infrastructure.

INTERVIEWEE 3: For sure. Exactly. So, we look ahead several years and we think where we need to make improvements and then we set the harbour dues accordingly to bringing money to do that kind of work.

R: About the stakeholder part, financial way, who is your biggest stakeholder, or do you really get enough investments from the stakeholders?

INTERVIEWEE 3: This concern is really funded by, we need to have ships to continue to income here so that we can levy charges and they can pay for the services. So, the biggest stakeholder I would guess would be Sharpness Dock Limited, which is the reason we are here historically over 100 years ago this body was set up to provide navigation, aids and services to help ships come to this facility to the docks here to discharge and operations.

R: Do you have any new business plan to develop or how you are managing if you have one?

INTERVIEWEE 3: The business plan is such is really to make sure we set the charges, appropriate to what we think the level of trade would be and business plans.

R: Is there any new business plan that you try to make like another service that you can serve to the companies.

INTERVIEWEE 3: Not really. No. We would have to look at how we funded navigation aids maybe funding the pilotage service if someone retire and we have to recruit another person maybe. Some years ago, we might have to look to the business case for the office here perhaps, which we now own rather than renting space elsewhere but business plan I do not.

R: So, it is kind of limitation by your contacting with like a bigger company or funding company. Am I right? Can you do new business plan individually or should you report to the company that okay we are planning to make this plan?

INTERVIEWEE 3: No. We do not have to. We do not own anything, why we have no business plan because we do not own the docks; we do not own any facilities at all. I mean the only thing we this building. Our responsibility is literally the water out there and nothing. We provide services. And no one else wants us to provide different service, we do not change, which is why we are kind of different in the any other ports you are going to talk to.

R: About the sustainability subject, have you heard, or have you read something about the port sustainability management system? My colleague did his thesis about it.

INTERVIEWEE 3: What was his name? Was he the Greek man?

R: Andrei Kuznetsov

INTERVIEWEE 3: No.

R: It is basically trying to generalise the priorities of each smaller port, he made it with eleven pillars, and you can revaluate yourself to decide, okay am I good at this or not?

INTERVIEWEE 3: We have heard of it and it was not appropriate to our operation here. I think that system should be more identically. As it stands it is not suitable for every port.

R: It is kind of long-term plan and the shipping industry is not that available to see that long term plan. And as I see that smaller ports trying to survive instead of growth, which affects long term planning.

INTERVIEWEE 3: Maybe. Falmouth clearly wants to expand. Poole is expanding. Here, and I could perhaps talk about the small port here, many of the small ports have physical constraints, which in our case for example, it is the height of tide here. The area access to the port here is limited by the tides. It is also limited by the very old infrastructure in here small. The dock is not very deep for example. So, there are limits on the size and number of ships that can come here. There is also obviously the constraint about the investment port company on loading and discharging equipment. I thought ports would have different constraints weren't they, different issues. So as also the geography, the top of the Bristol Channel is a long way from many places that still certain trades come here specifically because they have the facilities here.

R: From your point of view, could you please tell me your three biggest concerns that you are facing right now?

INTERVIEWEE 3: It concerns for us would be tide generation schemes in the estuary, which could might affect the tide levels available for ships. The general increase in sizes of ships, there are no longer, lots of small ships. Trend is getting bigger ships because of the economy of scale with larger ships. For us, main thing is for us would be port operator continues to want to operate his port and track ships here. If he decides tomorrow that he wants to make a car park or housing estate, then we would have to think very hard about how we reorganise our business to accommodate very few ships.

R: As I mentioned about the PSMS briefly, what are the missing things?

INTERVIEWEE 3: It has been a long time since I looked at it and when I did look at it, I found very little of it as of any use so interest to us, so I did not look much further so I can't answer your question.

R: About the collaboration, do you believe that it is enough collaboration between the smaller ports?

INTERVIEWEE 3: I suspect. There is very little collaboration because it is a commercial business. Falmouth do not want to see the cruise ships are going to Fowey and the Fowey does not want to see china clay coming here does it? So, collaboration, as a certain level there is collaboration, but I suspect in terms of commercial collaboration, there must be very little.

R: In terms of the financial funding problems, does it make sense to three ports are gathering their capitals, investments together and then make more bigger investments each port in order? For instance, first here and then Poole and then Falmouth or those smaller ports have that enough funds to make that to make those investments in a long term?

INTERVIEWEE 3: I think it depends on the kind of port. If it is a trust port then traffic generated is usually, I am trying to think some other ports, which if you take the municipal ports, small ports that run by a local council, they have issues because they are generally small, the taxpayers are their local residence, they are paying a lot of money to have a port there, they probably have issues getting funding. I know on the south coast; people get funding from Europe for if you like introducing new ice making equipment for fishing ports. Or Poole might get some funding to introduce a link span or passenger loading equipment and okay they are providing services that great deal of use to a lot of people, passengers and fisherman. Here, a lot of the cargoes are perhaps not quite as high profile if you

like so I am unaware in this area of any need for funding for very much. I do not know how it works honestly do not.

R: About your new business, for instance you have a new business development plan. Would you like to PSMS to help you to decide it?

INTERVIEWEE 3: No. It is not for us.

R: As this organisation, what is your environmental responsibilities? Is there anyone to manage it in an environmental way for instance environmental specialist, who is really expert about environmental legislation?

INTERVIEWEE 3: They (Poole, Falmouth) need it because they have lots of development, plans and projects for expansion, building work that kind of thing. We do not have a great deal to think about anymore. If we need expertise, we get it in from someone else, we use consultants for that purpose really. The only we have been interested in environmental matters is when we were responsible for authorising or licensing aggregate dredging activity, so we had to get involve then. We might have to get involved in environmental assessments if someone else came along and wanted to build a quay or something or facility in the estuary. It might be tide power scheme for example or something like that. For our normal activities is nothing something we need to consider.

R: I just attended one of the conferences. Basically, it is about the container ports. He just showed us a container port picture that has quite few people in the area and he said that not every time technology is really good for employment. He said maybe 20 years later; the machines can take some jobs. So, do you believe that from that point of view that technological developments not always really helpful to create more jobs for the local area or for employment?

INTERVIEWEE 3: Certainly, technological developments do takeaway and I know with the in Australia now some ports are using equipment developed in this

country to track and automatically take containers from piles to the store and to lorries without human intervention at all. So, she is very clever.

R: About your navigation services, could you tell me about the communication capabilities that how does the system work? And does it need any developments to provide better services?

INTERVIEWEE 3: No. For us, I do not think there is any need for extra communication. All the things that assist the aid navigation, they are all clearly marked on charts and we arrange for the maintenance of them ourselves. Our communication is fine I believe. I do not think there is anything I can add unless misunderstood your question.

R: About the smaller ports funding, do you believe that smaller ports are attractive enough for the investors? Why would investors make investment on the smaller ports?

INTERVIEWEE 3: I think an investor would come to a port if they had guaranteed of ten year guaranteed key space for, they could establish their warehouses or facilities at. There are lots of ports, this one included, have lots of space because it is empty. And of course, that must be attractive but of course these small ports must have good access to the road network and the rail network. Possibly processing facilities for good import, it or export it but I suppose that small ports remain small ports because of their location. They do not have great access to other areas of the country. And small ports have developed to serve small communities, have not they?

R: Yeah. I am from Istanbul, Turkey and now trending thing is about the private companies are including small ports into their organisations and they turned small ports to be their individual private ports and it is just next to their facilities. So maybe it could work in here too?

INTERVIEWEE 3: This happens in some areas. Maybe somebody installs a new power station that they have to get the material in, so they make a berth for taking coal or gas or wood chips for the power station but in some areas and I am thinking of Boston on the east coast. They have extended railway links into the port to coke with steel in ports. So, I guess investment for a small port would have to come from individual interests. And economical way to bring the goods in and out of an area I am guessing.

APPENDIX D – Full Interview with Port Akdeniz

R: First of all, I would like to ask some basic information such as number of employees, turnover of port. Of course, you do not have to give this information if it is confidential.

INTERVIEWEE 4: Our turnover is really low. I will send you the numbers. Turnover is one of our performance criteria and we are checking regularly due to human resources efficiency productivity. (Numbers that I got from 2016 annual reports; 3.8 million total cargoes, 500.000 TEU and 5 million dry bulk and general cargo capacity, revenue at Port Akdeniz, Antalya increased by US$ 3.4 million, or 6.8%, from US$50.0 million in 2015 to US$ 53.4 million, attributable to US$ 2.1 millions of project cargo revenue in 2016.)

R: Could you please tell about your role in this organisation and your background briefly please?

INTERVIEWEE 4: Business development and trade are the main areas that I am spending most of my time.

R: Could you please state the mission statement of your organisation in a simple and basic way?

INTERVIEWEE 4: Our mission statements and goals are:

Best Operating Model: Create the best operating model for ports and continuously improve this by learning from each other

Best Partner/Service Provider: Be the best partner to cruise lines, firms, B2B partners.

Best Customer Experience: Provide the best customer experience, both in port and on land

Best Expansion Capabilities: Achieve the best M&A and induction capability in the sector, and the best value creation program for the public

R: What does 'Sustainable Port Management' means from your perspective? Could you please tell me briefly?

INTERVIEWEE 4: I believe managing today by thinking about the future is the brief explanation and the requirement of this, strategies to create future and considering and adapting the changing trends to progress in a healthy way. This can be financial trends, can be government trends, political trends, environmental trends; I am thinking in a wider perspective. But in general meaning if you ask me what sustainable port management is; I would say managing today by prediction expectation of the future. Planning the current environment, organisation, resources, commerce in terms of expectations of the future and creating a strategy by considering these related topics. Unlike European countries, which are putting environmental sustainability first, we put financial sustainability first because of our short-sightedness and doing everything spontaneously not with a plan.

R: I am examining sustainable port management in terms of triple bottom line, which are financial-technological, environmental, social perspectives. Could you please tell me how you manage these perspectives of sustainability as an organisation?

INTERVIEWEE 4: We have to examine each of them separately. In terms of environmental sustainability, firstly we took over this organisation's 100 percent 5 or 6 years ago; I mean management part was taking over by company that I worked for. From that day till now, we aggressively to some developments to meet the requirements of government and now we are chasing the higher requirements than the government's requirements. Being responsible of a human being, we are trying to manage these businesses by consider environment and without damaging it too. We are really lucky in this topic that when you manage

your business with considering environmental sustainability, our expenses are decreasing instead of increasing. For instance, when you move to a new machine with less carbon resonance, your expenses are decreasing and also it allows you to avoid the penalty for not meeting environment requirement from government. For all these reasons, we have developed quickly in terms of environmental sustainability. These days, we are trying to specify new standards and try to meet those expectations. In social perspective, we are really careful to create healthy and sustainable relationships with our employees and our clients, but I am afraid this is the only thing that I can say in terms of social perspective at least for our organisation. You need to evaluate financial and technological sustainability together. Unfortunately, it is running by short-term plans due to investor's return period expectations. For this reason, I cannot tell much good things about financial and technological sustainability.

R: Could you please tell me which management system do you use as an organisation to have a more sustainable port?

INTERVIEWEE 4: We are not using as systems as you mentioned but I can say that we are using our system depends on the needs of our organisation.

R: As an organisation, what new businesses would you like to develop? Are there any new development plans to make your organisation more sustainable?

INTERVIEWEE 4: We have new development businesses; we are focussing and working on it. Without giving the details I can explain it with some headings. The number of organisations who work as liner shipping is decreasing to three, which is minimum number. Even I am expecting to those organisations disappear in between 5-10 years. In these days you can get some services for your organisations from ALIBABA. Maersk and other companies are selling their freights from ALIBABA. At this point, port managements, which were the shining

stars of the industry once, are losing their powers and are going to lose. One of the reasons of this situation is number of clients decreased; you are doing business with fewer clients, which are quite strong in the market. These strong clients want to get service from one port or one area for their services in terms of their consolidated company structure. This leads to a circumstance that we can call over-capacity. Hub-ports in Europe are feeling this pressure intensely too. I am expecting that there are some ports going to appear that we can call them ghost ports. Also, big companies in the businesses are started to embrace other segments slowly. They have started to capture other sectors too. They are starting to get involve landing and rail logistics seriously and they are trying to serve these services by themselves due to their financial concerns. As our organisation, even though we are not in the high-risk area; we are trying to integrate to the current trend. We are trying to integrate in logistics, storage, and transportation. One of our aims and goals is to become our client's important preference and their partners by integrating the latest trends and remembering that giving best performance on container operations. We are offering our service till the door of port in terms of import operations. Also, in terms of export operations; we are transporting their goods till to the port too. These two services that we have started to offer last 2-2.5 years. This year, we are trying to give sea freight to our clients as general cargo, dry bulk. By aim of doing this is give our clients one respondent and keep them away on logistics risk and creating a new value-added service, which will help us to grow, and progressing on sustainability. I can say that this is our general approach in terms of our organisation level.

R: Related to last question; could you please tell me how you manage those processes in a sustainable way?

INTERVIEWEE 4: Changing the nature of trade, there is always a change such as we talked before Trump became a president and cancels the transatlantic agreement. United Kingdom said that I am leaving from European Union. Also, China changes its development strategy from export model to domestic consumption model. World is changing its shell with an intense way in recent days, we are witnessing the history in a way. As Turkey, there is a huge change in our region and if you ask how we are managing these strategies in terms of sustainability; we are really struggling with it. In terms of Turkey, economical and governmental fluctuations allow agenda to move to other subjects than economic development and sustainability, which makes our job much harder. Nevertheless, we are still proceeding. If we return to the issues that make our jobs harder; even though volumes of export and import do not seem that bad, when we look the small organisations, which are out of the top 100 organisations, you can see the picture that how bad it is. Because even though the big organisations do not affect that much, small organisations, which are in the debt spiral, are really struggling with this situation. Even though government does not have debt, they are struggling the debt of private companies and it affects our long-term strategies with these extraordinary circumstances in terms of progress.

R: About your business plan or development, are management systems useful to decide what you are going to develop and useful to your business plan? If yes, could you please give me an example about it?

INTERVIEWEE 4: First of all, as an organisation, we put our customers, shipowners or exporter, importer first by seeking to add value activities for them. The aim of the seeking add value activities is that we determined some struggles that they are facing such as in logistics services. They are facing struggles when number of their logistics participants increase, and they have to contact with them

all one by one. If they reduce these relevant departments to one department, managing the process can be much easier especially in this fragile business environment, which can reduce their logistics expenses and see their fixed expenses. And this is our starting point; we are trying to integrate from this point. We have several plans for our clients such as give agency service, logistics service, storage service, border storage services, (it is only in Turkey as you know not in European ports). These are the areas that we want to serve our clients. This is our choice but also our obligation too. If you ask why it is our obligation, when we look Antalya region with a positive point of view, it has huge potential to develop and grow because it is one of the lowest levels in terms of logistics service. You can perceive the same situation negatively too; there is nothing around this region. We are trying to do business in this environment. That's why we are supporting the other partners as a biggest investor in this area to help them to grow too by considering not becoming monopoly in the region. This is our logic and approach to the circumstance.

R: Could you please tell me the three biggest concerns regarding to your organisation or your role in this organisation in terms of management? It can be general or specific to your organisation.

INTERVIEWEE 4: One of the concerns is unclear national shipping policy. Unhealthy ideas, structures and hypothesises in national shipping policy. Also, current masterplans for ports are not being followed. The segments of bureaucracy in terms of shipping and the need of minimising these related segments. There should be regional port authorities and from these associations, local organisations should be managed. Otherwise, a new investment, which is a sea investment on land, nearly takes 4 years due to this long bureaucratic

process. As a port business, you need to get an approval from museum directorate.

R: Do you believe that there is enough collaboration between the organisations in the port industry?

INTERVIEWEE 4: If you ask is there healthy collaboration between organisations, I have to say no. The problem is here that chambers and associations do not put themselves in a right position. For instance, chamber of trade seems an association of shipowners and does not help enough to the other segments in shipping sector. Shipping business has several segments and chamber of trade cannot embrace all of them; therefore, they are losing their influence on industry. Apart from that, organisations like TURKLIM, focussing the business developments to survive and does not spending they are to find a solution to the industry's problems unless it is a really big and common problem. Due to creating over-capacity, tough conditions in the competition and having container lines their own ports are the reasons that ports are focussing short term plans instead of developing projects, which influencing the collaboration between the organisations negatively. The first thing that Turkish port sector should do is that observing the European organisation's consolidation and adapting it to their organisations.

R: If you think that collaboration does not work, is rivalry between organisations one of the reasons for it?

INTERVIEWEE 4: One of the reasons of collaboration does not work in Turkey is that oriental working culture. If this core problem can be fixed, other secondary problems can be fixed too. If such associations like chamber of shipping and TURKLIM can take an effective role for the industry's benefits by minimising some bureaucratic obstacles and minimising other area's obstacles can be fixed

successfully. These are the problems that can be fixed but creating one terminology, idea, structure or creating common idea is the struggle for the sector in Turkey. In addition, this is situation is not only for port sector, in other sectors too relevant or irrelevant sectors in Turkey.

R: Do you believe that ports are attractive enough for investors? If yes could you please give me two or three reasons why investors should make investments to the ports?

INTERVIEWEE 4: Ports were the investments that got attention of investors most recently. But from an investor's eye, I cannot see that positive picture in Turkey. Because container volume is 9 million TEU and container capacity is 17-18 million TEU in Turkey. Still there are some projects and investments that focussing on increasing the capacity. Recently, government is being decisive on port tariffs and port charges seriously. Government interferes several prices especially last 1-2 years it is getting intense. Several ports do not give a good picture for the investors and it is been seen from the outside.

R: As we talk about the stakeholders, who is your biggest stakeholder, or do you get enough funds for investment?

INTERVIEWEE 4: It is really hard to say the biggest stakeholder or similar participants due to not being chosen by the industry in Turkey where the European countries choose but if you want me to give a name, I can say YILDIRIM holding company by their aggressive investments with the enthusiasm of getting bigger. If you ask my opinion about these investments in terms of gaining short-term gaining, I criticise some of their moves, some of their investments.

R: Do you believe that port management systems should put short-term goals as their top priority because markets are so unstable, or should they put long term goals as their priorities?

INTERVIEWEE 4: It is because of nature of trade unfortunately. This is the situation that occurs in every sector. In every sector, stakeholders want to increase and get bigger the value of their stakes in short time; therefore, top management of the organisations are focussing on short term aims and goals. As I mentioned earlier, in the Turkish working environment organisations, you are feeling this situation more heavily. Even in Europe have this short-term aims and goals, think about the situation in Turkey. We do not even focus middle term goals or aims, which puts us in a disadvantage situation. Putting millions of dollars on projects, which are not reasonable to invest, without having feasibility tests and changing management teams after the realisation of that there is not going to be a return from these projects are the proofs that we only focus on today and not planning tomorrow at all. As a matter of fact, when I said today it is next month, not even coming two years. We do not have a development plan for the next five years unfortunately in Turkey.

R: Related to last question, do you prefer to hold regular meetings every few weeks to improve yourself as an organisation in a sustainable way rather than rely on annual results of a sustainability management report?

INTERVIEWEE 4: In Turkey, companies are managed by the expectations of the biggest shareholders and investors, which is same in our organisation too. Because of this situation, the process of creating middle-term plan, writing these plans in reports, more important than that the making these processes real is the real cause. If you are asking me that are we doing these processes; yes we try to create those reports and plans at the organisations that we have 100 percent

control but if you ask if are we proceeding together by getting approval of stakeholder and investors with the help of board; it is a really hard question to ask.

R: How does your organisation factor in uncertainties relating to

Brexit

Trump's election

EU break-up into its planning?

INTERVIEWEE 4: Influence of Brexit on us, is not a big problem due to our trade partners. Point of my organisation view, Trump's election does not have much effect on us negatively but has a positive effect instead. Because Trump's recent approaches allow China to take a bigger role and stronger its position in the world. Choosing an unreasonable person as USA president shows that USA can be an unreliable trade partner once the most reliable trade partner. The whole world now knows that they cannot rely on only USA to survive with this current situation, which gives us an advantage by putting China in a better position. China's bigger role leads to investments increase in Turkey and reduce their costs and increasing my trade volume at the same time. It is really hard to predict the effect of EU break up because of our micro sector and really hard to predict this macro change into this micro sector. The main issue here is not predicting European countries; it is predicting our country's future in terms of government policy, which is really hard to understand by us as investors.

APPENDIX E – Full Interview with Izmir TCDD Port

R: First of all, I would like to ask some basic information such as number of employees, turnover of port. Of course, you do not have to give this information if it is confidential.

INTERVIEWEE 5: The official name of the organisation is TCDD Izmir Alsancak Port Management. I would like to say the average turnover of the organisation's last 10 years. It is more or less 100 million dollars. It might above from that number or under from that number depends on the daily updates and situations.

R: Could you please state the mission statement of your organisation in a simple and basic way?

INTERVIEWEE 5: Managing the facilities, which are given to us by the government, efficiently by considering environment and social sustainability and becoming an organisation that aims adding value to the economy of Turkey.

R: What does 'Sustainable Port Management' means from your perspective? Could you please tell me briefly?

INTERVIEWEE 5: Ports are essential for the worldwide economy. When we think that 90% of the world trade is transported with ships, ports are playing an essential role to by placing in shipping sector naturally. Besides, in order to get its market in world trade and also add value to economy of the countries, ports have to meet the expectations of the trends in shipping industry and have to be sustainable.

R: I am examining sustainable port management in terms of triple bottom line, which are financial-technological, environmental, social perspectives. Could you please tell me how you manage these perspectives of sustainability as an organisation?

INTERVIEWEE 5: Well… first of all ports should consider environment and social life and catch the latest trends and developments in the port industry to be more sustainable. To reach these goals, you need to make some financial investments. We thought to use windmill to generate our energy but due to environmental disadvantages such as being a safe port would not allow us to build windmills. We are very proud to say that our port is one of the safest ports in the world, but it also comes up with its disadvantages too like in this example.

R: Could you please tell me which management system do you use as an organisation to have a more sustainable port?

INTERVIEWEE 5: I would like to say we have our own sustainability management system for our organisation.

R: As an organisation, what new businesses would you like to develop? Are there any new development plans to make your organisation more sustainable?

INTERVIEWEE 5: I am afraid we do not have many projects that in progress right now. Izmir port is places in gulf and really close to the city. Deepening canal of berthing for ships, rehabilitation of the gulf and building the second container terminal are the projects that I can tell as the areas that we want to develop, and we are progressing.

R: Related to last question; could you please tell me how you manage those processes in a sustainable way?

INTERVIEWEE 5: Therefore, one of the biggest issues is draft problem. To solve this problem, government and local management developed a project, which is rehabilitation of Izmir gulf. The aim is increasing the draft of the gulf due to sustainability of the port for catching up the recent trends and adapt to the circumstances. If we do not increase the draft, it would be a big problem for the

port in the future. During progress of this project, we are sensitive to the environment and want it to be liable in terms of sustainability.

R: About your business plan or development, are management systems useful to decide what you are going to develop and useful to your business plan? If yes, could you please give me an example about it?

INTERVIEWEE 5: We have our own management system. We did some research and examined the international ports in order to become a self-reliant port, but it did not proceed due to be a public port.

R: Could you please tell me the three biggest concerns regarding to your organisation or your role in this organisation in terms of management? It can be general or specific to your organisation.

INTERVIEWEE 5: First concern is the insufficient port and dock draft. Ships are getting bigger and bigger every day and your draft is staying at same level, that's an issue for the port. We got the CED report from the republic of turkey ministry of environment and urbanisation due to scan the gulf and increase the draft of the gulf. Apart from this concern, we do not have enough employees to manage the ports efficiently. Port is on the privatisation process and we do not have any investments in terms of increasing number of employees. We have the same situation with our equipment. They are little bit old and they are not working with 100% during the operations.

R: Do you believe that there is enough collaboration between the organisations in the port industry?

INTERVIEWEE 5: I do not think so. As we talked earlier, it is not working mainly because of competition and rivalry between ports.

R: If you think that collaboration does not work, is rivalry between organisations one of the reasons for it?

INTERVIEWEE 5: When you look from our perspective, due to be a government port, there are always limitations. For instance, we cannot examine another random port and collaborate with them without getting approval from the headquarters. It is always in government's control and you have to ask for an approval from the headquarters. For these struggles, collaboration between us and around ports are not enough.

R: Do you believe that ports are attractive enough for investors? If yes could you, please give me two or three reasons why investors should make investments to the ports?

INTERVIEWEE 5: I certainly believe that ports are attractive enough for the investors. If you ask me why they are attractive enough, as I mentioned earlier that the importance of ports in the worldwide economy is well known. Port industry always develops and demanding industry in every period of time. Also, it is one of the quickest industries that you can get your investments return. For all of these reasons, I believe that ports are attractive enough for investors.

R: As we talk about the stakeholders, who is your biggest stakeholder, or do you get enough funds for investment?

INTERVIEWEE 5: This organisation is a public port. We are demanding our investments to TCDD headquarters and they are demanding investments to the finance ministry. We are getting some support but the way of how it is done is as I mentioned before by demanding. If the government says that use 10% of your profit to your investments, we do not need any support from the government, but you need to get an approval from the headquarters –Ankara- for everything. This approval process is a struggle for us. One of the issues that Turkey has, is the long procedure bureaucracy, which foreign investors and business world are complaining about.

R: Do you believe that port management systems should put short-term goals as their top priority because markets are so unstable, or should they put long term goals as their priorities?

INTERVIEWEE 5: Of course, you need a long-term plan in the port industry but also during this long-term planning, you have to act flexible depends on the short-term situations. As an example, you make long term plans for your organisation, but some issue occurred, so you need to adapt that situation by being more flexible in terms of management. From my perspective, imagine crisis occurred and at least you have to have a right to change tariffs due to your customer satisfaction. But as a public port we cannot change the tariffs because of the strict rules about tariffs. Tariffs are decided yearly from the headquarters and they cannot be change does not matter what problem is wherein private ports, it is totally opposite. R: Related to last question, do you prefer to hold regular meetings every few weeks to improve yourself as an organisation in a sustainable way rather than rely on annual results of a sustainability management report?

INTERVIEWEE 5: Usually we have our weekly meetings but when you look from the efficiency perspective, evaluating the organisation with monthly meetings and creating an annual plan seems more reasonable to me. We report everything after our weekly meetings and having meeting at the end of every year in Ankara. In these meetings we discuss the tariffs and the topics that we demand. Reports are usually evaluated yearly.

R: How does your organisation factor in uncertainties relating to Brexit, Trump's election, EU break-up into its planning?

INTERVIEWEE 5: I am afraid I do not have enough information about Brexit and Donald Trump's presidency in terms of its influence of shipping in Turkey.

Possible EU break up would help us to increase our numbers of trade and I see it as a positive change from the Turkey perspective.

R: Could you please tell me about safety management in ports briefly please?

INTERVIEWEE 5: Our port is a safe port. We are the first public port that has the ISPS certificate in terms of safety management. We have not had any problem in terms of safety so far. We employ 80 security employees. Apart from that police force, customs guards are also helping us for our safety management. There is an intense control procedure in our organisation about the safety. The issue is we have not realised the importance and awareness of the ports as a country. Three sides of our country surrounded by sea, but we have not using this advantage as efficient as we should be.

APPENDIX F – Full Interview with Haydarpasa Port

R: First of all, I would like to ask some basic information such as number of employees, turnover of port. Of course, you do not have to give this information if it is confidential.

INTERVIEWEE 6: The official name of our port is TCDD Haydarpasa Liman Isletme Mudurlugu. Number of our employees is around 600. Our annual turnover is around 100 million Turkish liras. Turnover is decreasing due to other ports around us. Gulf and Ambarli regions are one of the reasons of this decrease. Before this happened, we were the biggest port in Istanbul in terms of import we were reaching quite high numbers in terms of turnover due to not many private ports around us.

R: Could you please tell about your role in this organisation and your background briefly please?

INTERVIEWEE 6: I was born in Istanbul in 1971. I spent all my educational life in Eskisehir and graduated from the school of economics in Eskisehir. As my duty, I am responsible of managing different sections, which are all related to the container operations.

R: Could you please state the mission statement of your organisation in a simple and basic way?

INTERVIEWEE 6: We need to mention about the Haydarpasa Port Facilities first. Between 1899 and 1903, one Baghdad Railway Company built the first and second docks in order to transportation of cargoes. This company managed the facility until 1924. In 1924 government bought the facility. In 1927, the facility is given to TCDD to manage it. And in 1979 they built a container terminal with 600-meter wave breaker and included these facilities to its own management.

R: What does 'Sustainable Port Management' means from your perspective? Could you please tell me briefly?

INTERVIEWEE 6: Sustainable port management means to me as a port management perspective that meeting the daily and future expectations while considering health and safety at work and environmental factors with technological and management improvements.

R: I am examining sustainable port management in terms of triple bottom line, which are financial-technological, environmental, social perspectives. Could you please tell me how you manage these perspectives of sustainability as an organisation?

INTERVIEWEE 6: TCDD owns our port. That's why our investments and budgets are decided by this organisation every year. These investments and budgets are using for developments of the port such as technological of course by considering environment and daily circumstances. Port is placed in centre of the town. Hence every action that we take obviously affects city. Recently on 27th of July, storm occurred close to our area and damaged our port infrastructure such as gantry and container cranes. And all these damages ended up with fire because of the explosion of tank container. In terms of noise pollution, we do not have many issues because we use electrical machines and cranes and they do not create a noise pollution.

R: Could you please tell me which management system do you use as an organisation to have a more sustainable port?

INTERVIEWEE 6: I would like to say that we have our own management system for our organisation.

R: As an organisation, what new businesses would you like to develop? Are there any new development plans to make your organisation more sustainable?

INTERVIEWEE 6: We built a small passenger waiting area in 2017 and get the sea border gate certificate from ministry. With this certificate we serve to the Ro-Ro and Ropax types ships. For 2018, we are planning to build a bigger passenger waiting room for cruise ships, increasing the debt for cruise ships to be berthed and scanning the sea for this berthing activity that we spare 7 million Turkish liras for it. We are seeking a new business. In terms of cargo we never had a huge number of cargoes. We were a container port but as I mentioned earlier the increase of private ports number around us especially in Gulf and Ambarli region. Therefore, we are looking for new income business opportunities. Due to political, terrorist problems, huge decrease happened in cruise tourism, but it is not going to stay like this forever. That's why we still continue and consistent about this project. These projects will finish in 2018 and we put them in our 2018 investment plans.

R: Related to last question; could you please tell me how you manage those processes in a sustainable way?

INTERVIEWEE 6: We are running the passenger waiting area project with Mimar Sinan University. I mean we are not getting extra certificates, but we are getting the certificates that we need and regulatory asks us to have. Also, one of the reasons that we only get the needed certificates only is that procedure of these needed certificates such as ISPS and environmental ones take our most of times and we cannot spare time for other certificates.

R: About your business plan or development, are management systems useful to decide what you are going to develop and useful to your business plan? If yes, could you please give me an example about it?

INTERVIEWEE 6: Of course, it is useful. I can say waste management as an example. We have a protocol with Istanbul municipality. With this protocol, we

constructed a facility for waste management and thanks to this facility we can get rid of the liquid wastes of ships. Also, we built big tanks in our repair workshop for storing used oils in it and sending it to another facility to get rid of them.

R: Could you please tell me the three biggest concerns regarding to your organisation or your role in this organisation in terms of management? It can be general or specific to your organisation.

INTERVIEWEE 6: The rumours that our organisation will close as a trade port and turns into a project that similar to Galata Port as you might track it from televisions, there is a Haydarpasa Port project. Because of these rumours and project that has not happened for a long time, it worries our clients. It affects us to find a new client or lose our current clients. And we cannot guarantee to our clients either because when the government says this project is happening now, there is not much else that we can do as an organisation. Because of these uncertainties, there is no addition to our employee department. Due to decrease of employee numbers, operations that we are having are getting less effective. We can barely enough for the operations in terms of employee number. Also because of this Haydarpasa Port Project, we cannot get enough investments for our technological developments.

R: Do you believe that there is enough collaboration between the organisations in the port industry?

INTERVIEWEE 6: Between port sections, which work in container operations, I can easily say that collaboration between us is quite high. Because each section has a duty related to port operations. Instead of seeing it as a competition, it is more likely a high collaboration between sections unless if there is lack of communication between sections.

R: If you think that collaboration does not work, is rivalry between organisations one of the reasons for it?

INTERVIEWEE 6: I believe I responded it at the previous question.

R: Do you believe that ports are attractive enough for investors? If yes could you, please give me two or three reasons why investors should make investments to the ports?

INTERVIEWEE 6: I can say that ports are attractive enough for investors if the right conditions achieved. Such as having liner shippers as a customer, collaborating with big companies and supports it with networking and finds a customer that shares the same goals. 85% world trade is transported by sea transportation, which ends with ports. When you look at the port tariffs, you can see that huger numbers are achieved. It is quite attractive when you connect with the right customer. We can see that ports are attractive for investors with Dubai Port investment in the gulf region.

R: As we talk about the stakeholders, who is your biggest stakeholder, or do you get enough funds for investment?

INTERVIEWEE 6: Government is our biggest and only stakeholders. Unfortunately, we cannot get enough funds for our investments. As I mentioned earlier because of the expectation that we are going to close the organisation as a trade port, this situation blocks our funding requests.

R: Do you believe that port management systems should put short-term goals as their top priority because markets are so unstable, or should they put long term goals as their priorities?

INTERVIEWEE 6: I think the priority should be long-term goals but should consider the market instability. You have to offer some short term offers to the customers due to this instability otherwise your customers are trying to find new

ports. It is a disadvantage to be a public port in this situation. We are deciding our tariffs at the yearly meetings and need to get approval first before we start a development or investment from headquarter in Ankara. To deal with these advantages, in 2017 we started fixed exchange rate system for our customer to help them to see their future more clearly. We will continue this in 2018 too with small changes such as raising the rate due to USD and Turkish Lira rate.

R: Related to last question, do you prefer to hold regular meetings every few weeks to improve yourself as an organisation in a sustainable way rather than rely on annual results of a sustainability management report?

INTERVIEWEE 6: Depends on the requirements, we can have an instant meeting. I think it is the advantage of being a public port. We prefer to have instant meetings rather than waiting reports and having regular planned meetings. We have daily meetings at 2 pm and discuss and plan the next day's job.

R: How does your organisation factor in uncertainties relating to Brexit, Trump's election, EU break-up into its planning?

INTERVIEWEE 6: If Brexit happens, I believe that our port is going to be affected as the same rate as Turkey's trade is affected. I believe that Turkey will sign trade agreements with European Union and also will sign trade agreements with United Kingdom too. But do not think that it will affect majorly. There is no affect about Donald Trump's presidency on our port. Possible EU break up affects up deeply because the situation of custom trade agreement between EU and Turkey will not be clear.

R: Could you please tell me about safety management in ports briefly please?

INTERVIEWEE 6: Our organisation is meeting the all ISPS code and international ship and port standards. As you know ISPS code has been running since 2001. From that perspective, we are having regular supervisions. We have 54 private

security employees. We have 180 CCTV cameras the security of port. Besides,

we have custom securities in order to keep our port safe.

APPENDIX G – Full Interview with Kumport

R: First of all, I would like to ask some basic information such as number of employees, turnover of port. Of course, you do not have to give this information if it is confidential.

INTERVIEWEE 7: Employee number in Kumport is 841. Due to our policy I am afraid I cannot give any details about our turnover.

R: Could you please tell about your role in this organisation and your background briefly please?

INTERVIEWEE 7: I am responsible with deciding the strategic aims and dissemination of related aims. Also, I am responsible with simplifying and enhancing the processes in the company.

R: Could you please state the mission statement of your organisation in a simple and basic way?

INTERVIEWEE 7: Becoming the best port management in terms of quality, process and cost management. Keeping its profitability under any market circumstances and always in top three ports in Turkey by having an innovative approach.

R: What does 'Sustainable Port Management' means from your perspective? Could you please tell me briefly?

INTERVIEWEE 7: As a container logistic base in our region, our aims are having high standard port services to our clients and add value to our shareholders sustainably. Being ethical, transparent, leader, innovator, entrepreneur, result-oriented, collaborator, participant, customer and solution oriented, respectful to people and environment while serving our clients.

R: I am examining sustainable port management in terms of triple bottom line, which are financial-technological, environmental, social perspectives. Could you

please tell me how you manage these perspectives of sustainability as an organisation?

INTERVIEWEE 7: Having a healthy connection between Terminal Operating System (TOS), which is a fundamental piece in port management operation, and the devices, which are used in the area is crucial in terms of performance and sustainability criteria. At this point, it is crucial that having 3G/4G connection support due to redundancy and temporary Wi-Fi or network connection lost. Servers and storages should have the enough capacity that answers the requirements from high tech I/O (Input-Output) and related infrastructure. In addition, the TOS applications that is used, has to be in a platform, which has disaster recovery, which can be saved when extraordinary situations occurred. The subject of educating the most important role (Human) in this chain is crucial. The investments that been spent on educating human resource is beneficial for the organisation as an adding value service. In terms of financial part, to achieve our sustainability goals, we are working on changing our system to SAP-ERP (Systems, Applications and Products- Enterprise Resource Planning) system. We are consolidating by gathering our all data into a mutual pool. We created a management system approach by considering quality, health and safety at work and environmental standards. We perform a holistic management model by having management systems such as ISO 9001, ISO 14001, OHSAS 18001 (Health and Safety Management System), ISO 14064, EFQM (European Foundation for Quality Management). To give an adding value service to our shareholders, we manage our services effectively and evaluating our performance regularly.

R: Could you please tell me which management system do you use as an organisation to have a more sustainable port?

INTERVIEWEE 7: I am afraid I do not understand the question.

R: As an organisation, what new businesses would you like to develop? Are there any new development plans to make your organisation more sustainable?

INTERVIEWEE 7: We have EFQM excellence in quality and green port projects. Waste management system that we set is helping us to control our operations waste by distilling waste from its source. We are decreasing and controlling the greenhouse and harmful gases by energy conversions of our equipment. Also, by setting ISO 14064 Management System, we controlled the greenhouse gas emissions.

R: Related to last question; could you please tell me how you manage those processes in a sustainable way?

INTERVIEWEE 7: As an upper management in Kumport, we aware that all employees have the same responsibility in terms of responsibility of health and safety at work. In terms of management perspective in health and safety at work, regular risk analysis, investigation of incident, statistics, various educational modules, routine or no routine area checks, having a feedback meeting with big numbers and different groups, management of regulatory and preclusive events, hygiene checking, work certificates and sub-employee management system model, hazardous load projects are the areas that we add to our point of view that takes us above the standard expectations and by that we have system that can offer sustainable adding value to our shareholders.

R: About your business plan or development, are management systems useful to decide what you are going to develop and useful to your business plan? If yes, could you please give me an example about it?

INTERVIEWEE 7: Yes. They are useful indeed.

R: Could you please tell me the three biggest concerns regarding to your organisation or your role in this organisation in terms of management? It can be general or specific to your organisation.

INTERVIEWEE 7: Due to our company policy I am afraid we cannot share this information.

R: Do you believe that there is enough collaboration between the organisations in the port industry?

INTERVIEWEE 7: Yes, we believe that there is enough collaboration between the organisations.

R: If you think that collaboration does not work, is rivalry between organisations one of the reasons for it?

INTERVIEWEE 7: No comment.

R: Do you believe that ports are attractive enough for investors? If yes could you, please give me two or three reasons why investors should make investments to the ports?

INTERVIEWEE 7: Yes. Turkey has a trade capacity that is getting bigger and bigger every year. Because of the competition conditions, all organisations have become more finance-oriented organisations to become profitable and shipping is the best option among other transportation options in terms of international trade.

R: As we talk about the stakeholders, who is your biggest stakeholder, or do you get enough funds for investment?

INTERVIEWEE 7: We get enough funds for our investments.

R: Do you believe that port management systems should put short-term goals as their top priority because markets are so unstable, or should they put long term goals as their priorities?

INTERVIEWEE 7: When you think about the ship size is getting bigger to create a cost advantage and its operational requirement, long-term goals should be prioritised. By prioritising long-term goals, you can have a permanent place and you can be a strong player in the market.

R: Related to last question, do you prefer to hold regular meetings every few weeks to improve yourself as an organisation in a sustainable way rather than rely on annual results of a sustainability management report?

INTERVIEWEE 7: We have different expectations from different goals. To track our short-term goals, we prefer having meetings frequently but for our long-term goals, we prefer to have a yearly meeting.

R: How does your organisation factor in uncertainties relating to Brexit, Trump's election, EU break-up into its planning?

INTERVIEWEE 7: Due to our company policy, we cannot share any political opinions or comments.

R: Could you please tell me about safety management in ports briefly please?

INTERVIEWEE 7: Against all physical and technological threats, we evaluate the risks regularly and depend on the results; we are preparing action plans for it. In addition, we are collaborating with official organisations and consultancy firms.

APPENDIX H – Full Interview with Trabzon Liman Isletmeciligi A.S.

R: First of all, I would like to ask some basic information such as number of employees, turnover of port. Of course, you do not have to give this information if it is confidential.

INTERVIEWEE 8: The official name of the organisation is Trabzon Liman Isletmeciligi A.S. The number of employees in this organisation is 206. The turnover of the organisation in 2017 is around 76 million Turkish liras.

R: Could you please state the mission statement of your organisation in a simple and basic way?

INTERVIEWEE 8: TRABZON PORT GROUP hired this facility from government for 30 years on 21st of November in 2003. Our mission is to be the heart of the modern Silk Road by connecting Europe and Asia in terms of shipping transportation.

R: What does 'Sustainable Port Management' means from your perspective? Could you please tell me briefly?

INTERVIEWEE 8: Sustainable port management means that embracing the latest technological developments to organisations in terms of capacity and profit perspective. Manage our operation capacity most efficient way and at the same time; increase this operation capacity with same level of our regional developments.

R: I am examining sustainable port management in terms of triple bottom line, which are financial-technological, environmental, social perspectives. Could you please tell me how you manage these perspectives of sustainability as an organisation?

INTERVIEWEE 8: In terms of financial and technological perspective, we are one of the first ports that collaborating with Softech Company about the system called "Gullseye". By using this system in our organisation, we have progressed in time efficiency, true and exact information, planning, finance and customer satisfaction. Besides we had investments on 2 port cranes (Liebherr), which costs us 7 million Euros in total to achieve our goals in terms of efficiency and low-cost operation. Also, with these investments we increased our capacity and put our organisation in a good position for the future business options. In terms of environmental and social perspective, we are member of Medcruise and we had a chance to present our city. Our port is also serving as a cruise port so the tourists that came to our port are really important to our city's economy. City and port are getting bigger together. We have started to share our organisation's 30 per cent share with public from starting on 24th of January in 2018 we are helping our shareholders too in this perspective.

R: Could you please tell me which management system do you use as an organisation to have a more sustainable port?

INTERVIEWEE 8: We do not have a specific system for our organisation. As I mentioned in previous questions, with the help of technological and capacity increase investments for our organisation and qualified employees that we have in our organisation, we put our cost in minimum level and managing our operations more efficient in terms of time. More efficient operations also lead us to increase our trade capacity in more profitable and sustainable way.

R: As an organisation, what new businesses would you like to develop? Are there any new development plans to make your organisation more sustainable?

INTERVIEWEE 8: Our new businesses are; port software system, new crane and devices (From 3.9 million tonnes to 10 million tonnes), close warehouses (From

12.000 tonnes capacity to 85.000 tonnes capacity), berth extension (From 1525 m to 2235 m), open warehouse (From 150.000 m2 to 240.000 m2), 76 high definition security cameras.

R: Related to last question; could you please tell me how you manage those processes in a sustainable way?

INTERVIEWEE 8: No comment.

R: About your business plan or development, are management systems useful to decide what you are going to develop and useful to your business plan? If yes, could you please give me an example about it?

INTERVIEWEE 8: Of course, it helps. For instance, with our new software, firms and agencies can track their ship's loading and discharging from their offices. Operation section is planning everything by examining this software, which leads a decrease on failure rate in our operations. Also, with this software, our financial team can track the operations and make sure that receipts are correct, and everything is on the right way.

R: Could you please tell me the three biggest concerns regarding to your organisation or your role in this organisation in terms of management? It can be general or specific to your organisation.

INTERVIEWEE 8: Lack of railway logistics, bureaucracy.

R: Do you believe that there is enough collaboration between the organisations in the port industry?

INTERVIEWEE 8: With our new system, yes, I can say that there is enough collaboration between the organisations.

R: If you think that collaboration does not work, is rivalry between organisations one of the reasons for it?

INTERVIEWEE 8: No comment.

R: Do you believe that ports are attractive enough for investors? If yes could you, please give me two or three reasons why investors should make investments to the ports?

INTERVIEWEE 8: Ports are organisations that have high-rate profits in the business. Competition level is relatively lower than the other businesses and in terms of Turkish ports, your income is coming with foreign currency and your expenses are with Turkish lira.

R: As we talk about the stakeholders, who is your biggest stakeholder, or do you get enough funds for investment?

INTERVIEWEE 8: ALBAYRAK HOLDING is the biggest stakeholder in our organisation with 70% shares. The other 30% is offered to public on 24th of January in 2018.

R: Do you believe that port management systems should put short-term goals as their top priority because markets are so unstable, or should they put long term goals as their priorities?

INTERVIEWEE 8: Port management systems should have long-term and short-term plans. I am thinking that ports are the least affected from the financial instability. Because the companies that do business with ports, their incomes are with foreign currency and their expenses are with Turkish liras and this situation is decreasing the rate of the financial instability influence on ports.

R: Related to last question, do you prefer to hold regular meetings every few weeks to improve yourself as an organisation in a sustainable way rather than rely on annual results of a sustainability management report?

INTERVIEWEE 8: To show a quicker reaction to the issues and demands, we have daily meetings in our operation section.

R: How does your organisation factor in uncertainties relating to Brexit, Trump's election, EU break-up into its planning?

INTERVIEWEE 8: We have not experienced the Brexit and Donald Trump's presidency in our organisation yet. But possible EU break-up can affect the firms that export goods to Europe through our port in terms of container shipping, but this situation will not influence on us significantly.

R: Could you please tell me about safety management in ports briefly please?

INTERVIEWEE 8: As an organisation, we have the ISPS (International Ship and Port Facility Security Code) certificate. We have 28 employees who are responsible with the port security in three entrance gates. Also, we have 76 high-definition cameras to record the port 24/7. Security employees provide maximum level security with the high-definition cameras.

APPENDIX I – Full Interview with Academic Lecturer at 9 Eylul University

R: First of all, I would like to ask some basic information such as number of employees, turnover of port. Of course, you do not have to give this information if it is confidential.

INTERVIEWEE 9: n/a

R: Could you please tell about your role in this organisation and your background briefly please?

INTERVIEWEE 9: Lecturer in maritime faculty.

R: Could you please state the mission statement of your organisation in a simple and basic way?

INTERVIEWEE 9: Education

R: What does 'Sustainable Port Management' means from your perspective? Could you please tell me briefly?

INTERVIEWEE 9: Managing ports with a way of profitable, environmentally friendly and adding social value where they located.

R: I am examining sustainable port management in terms of triple bottom line, which are financial-technological, environmental, social perspectives. Could you please tell me how you manage these perspectives of sustainability as an organisation?

INTERVIEWEE 9: Automation, innovation and digitalisation are key factors for sustainable port management as they reduce environmental effects, increase productivity. Internet of things and technology that enables process data are bring solution for more efficient ports. Operational optimisation and technology driven approach support port business and management process.

R: Could you please tell me which management system do you use as an organisation to have a more sustainable port?

INTERVIEWEE 9: Port privatisation has not been completed in Turkey yet. Private and State-owned ports are competing in some areas. If we take the question as technology driven port management systems, there are some integrated solutions for port operation optimisation that lead efficient port operations…

R: As an organisation, what new businesses would you like to develop? Are there any new development plans to make your organisation more sustainable?

INTERVIEWEE 9: Internet of things and digital platforms must be adopted into systems in order to increase port productivity.

R: Related to last question; could you please tell me how you manage those processes in a sustainable way?

INTERVIEWEE 9: Working with right people, right software, integrating and combining different platforms as well as different ports and different transport modules.

R: About your business plan or development, are management systems useful to decide what you are going to develop and useful to your business plan? If yes, could you please give me an example about it?

INTERVIEWEE 9: No

R: Could you please tell me the three biggest concerns regarding to your organisation or your role in this organisation in terms of management? It can be general or specific to your organisation.

INTERVIEWEE 9: Unqualified work force, geopolitics concerns, bureaucracy.

R: Do you believe that there is enough collaboration between the organisations in the port industry?

INTERVIEWEE 9: No, even they do not share what makes them more ''green'' port…No any benchmarking either…

R: If you think that collaboration does not work, is rivalry between organisations one of the reasons for it?

INTERVIEWEE 9: Yes, one of the reasons but the main concern is market condition that ports need to compete for small margin of profits… Unlike European ports, Turkish ports are reluctant to collaborate….

R: Do you believe that ports are attractive enough for investors? If yes could you, please give me two or three reasons why investors should make investments to the ports?

INTERVIEWEE 9: Yes, it is attractive, despite the global economic slowdown since 2008, new port investments or expanding port capacity continued. Ports are critical gates for international trade, and they will keep their position despite the fact that economic crisis. Just percentage of investment they receive will change according to geographical location, growing percentage, type of ship they will serve…

R: As we talk about the stakeholders, who is your biggest stakeholder, or do you get enough funds for investment?

INTERVIEWEE 9: Two leading container carriers recently invested in Turkey where they built container terminals… they bring technology and standards that applied at highest industrial standards… Although geopolitics crisises are just nearby…However, as there is no benchmarking between rival ports, no smooth integration of other transportation modes- effectiveness of this new built ports are not as good as global leading ports. Some ports are still running by government and there are also small privatised ports…physical conditions and hinterland connection of these ports still need to be improved by railways, and roads…On

the other hand, in order to receive foreign investment, first politic crisis on our south border need to be sorted out…Policy makers and regulation bodies need to provide 'investible' atmosphere…

R: Do you believe that port management systems should put short-term goals as their top priority because markets are so unstable, or should they put long term goals as their priorities?

INTERVIEWEE 9: Port management should have business plan at strategic, tactical and operational level that provides flexibility against crisis as well as sustainable growth…

R: Related to last question, do you prefer to hold regular meetings every few weeks to improve yourself as an organisation in a sustainable way rather than rely on annual results of a sustainability management report?

INTERVIEWEE 9: Better to evaluate condition with short intervals.

R: How does your organisation factor in uncertainties relating to Brexit, Trump's election, EU break-up into its planning?

INTERVIEWEE 9: No comment.

R: Could you please tell me about safety management in ports briefly please?

INTERVIEWEE 9: Safety culture is improving with recently built ports as we see at APM terminals or Star Refinery.

APPENDIX J - List of Sustainability Themes and Scoring Criteria

Asset Management and Maintenance (AMM)

(1) A lot of our assets are in poor condition. Immediate attention is required.

(2) Some assets will be needing renewal or extensive maintenance within the next 5years.

(3) Our assets have good future life expectancy.

(4) Our assets have good life expectancy and have a financed plan for repairs and maintenance.

(5) As 4; an asset development plan is in place with funding identified.

Safety Management (SM)

(1) We have an unacceptable safety record in the harbour; urgent action is required.

(2) The safety record in the harbour gives cause for concern.

(3) We have a good safety record and a strategy for managing safety liability.

(4) We have a good safety record and an effective safety management system.

(5) We have a good safety record and a highly effective safety management system (accredited/continually improving).

Environmental Knowledge and Awareness (EKA)

(1) No relevant data relates to the quality of seabed and marine habitats in the harbour.

(2) We rely on external stakeholders to provide environmental warnings to the Harbour Authority relating to the quality and sustainability of habitats.

(3) We rely on unreliable data without scientific evidence (past or present) regarding quality of seabed habitat as a vehicle for environmental management.

(4) We have reliable data on habitat composition and condition.

(5) We proactively seek new data and knowledge to find tangible evidence to support what we are trying to do, since good science is hard to challenge.

Environmental Management (EM)

(1) No environmental management practices are in place; environmental legal issues are being raised.

(2) We implement management practices based on an instinctive professional view, rather than a formal environmental assessment process.

(3) We use research as a mechanism for environmental management; we apply measures to mitigate environmental impacts.

(4) We undertake appropriate environmental assessment on routine and non-routine operations in the harbour.

(5) We have an accredited environmental management system to establish the causes and mitigate the environmental impacts of significant operations.

Stakeholder Engagement (SE)

(1) We use reactive measures based on community and stakeholder concerns and conflicts.

(2) Benefiting our stakeholders is a part of our strategy (e.g. supporting young people, maritime events, sailing at lower price)

(3) We proactively consult to listen and soften conflicting interests and bring more people to the negotiating table.

(4) We educate harbour users and are effectively engaging stakeholder groups about issues relating to harbour sustainability and putting a communication strategy in place.

(5) We proactively engage with stakeholders and are able to influence stakeholder's perceptions (e.g. governing bodies). We establish working partnerships and take part in joint projects to benefit the harbour and local community.

Business Planning and Management (BPM)

(1) We have little or no annual surplus, no resources to undertake development, little or no increase in demand and unused infrastructure.

(2) Investment and development takes place only around the main source of revenue of the harbour.

(3) We balance supply and demand of assets and infrastructure to reduce maintenance costs, resulting in a consistent surplus.

(4) We apply business measures to increase efficiency to reduce overall operational costs and increase surplus.

(5) We have dedicated savings programmes for various long-term planning and improvement initiatives. We significantly increase the harbour's resilience to the economic climate through contingency planning. We engage the Board's strategic thinking and continue to innovate around existing and new sources of revenue.

Effectiveness of Management Processes (EMP)

(1) We have documented our management process and policies.

(2) We have documented our management process and policies and they are inclusive all of our procedures and impacts and have been communicated to the relevant personnel.

(3) We are evolving our processes into formal systems for internal use.

(4) We have formalised management systems covering a range of harbour processes, including statutory, voluntary and best practice.

(5) We have achieved management system accreditation, and our management systems are reflecting the needs of the people and the organisation.

Customer Service and Satisfaction (CSS)

(1) We expect our customers to adhere to our policies on the use of the harbour and the estuary. We do not measure levels or customer satisfaction.

(2) We have policies and procedures which we communicate to our customers in order to promote the concept of a safe customer experience.

(3) We enquire about our customer needs, and deliver products and services that meet these needs, and ask our customers for helpful feedback.

(4) We establish individual customer needs, are flexible and accommodating, have good working relationships with our customers and deliver tailored products and services that meet individual customer needs.

(5) We engage with our customers and gather customer feedback in an effort to improve the customer experience; tailor products and services, as well as having a dedicated person as a first point of call for each customer.

Proactive Partnerships (PP)

(1) We have experience of conflict with stakeholders and governing bodies (i.e. see action plan). We have not undertaken a stakeholder analysis to identify all possible stakeholder groups.

(2) We have identified/have knowledge of our stakeholder groups but have no programme in place to manage stakeholder relationships

(3) We have an informal programme in place to manage our stakeholder relationships. We are starting to form working partnerships to share best practice with stakeholders.

(4) We have established good working relationships with governing bodies and have developed working partnerships which implement practical measures, share best practice and help reduce operational impacts.

(5) We have influential relationships with governing bodies and stakeholders and share operational costs/responsibilities for factors affecting the harbour. We educate harbour users, openly share best practice and jointly contribute towards improving the harbour credentials.

Change Management (CM)

(1) We have accepted and recognised the need for change due to the unsuitability of the current harbour in the modern society.

(2) We have identified critical areas of the harbour operations which require change.

(3) We have started to change our expertise, knowledge and raise awareness in relevant critical areas.

(4) We are changing our mind-set attitudes and introducing sustainable practices. We are recognising relevant changes in legislation.

(5) We have fully integrated sustainable practices, are proactive with changing legislation and are continually improving and innovating in the organisation.

Strategic Planning for the Future (SPF)

(1) We are reactive to improving current issues

(2) We are accepting the need to be proactive and address long-term sustainability of the harbour.

(3) We plan for the appropriate use and requirements of future resources. We are starting to engage in strategic thinking and forecasting future trends.

(4) We are starting to address unsustainable business practices through the implementation of a strategic business plan.

(5) We have addressed unsustainable business practices through the implementation of a strategic business plan outlining the short, medium and long-term sustainability of the harbour which is reviewed and updated regularly.