

# **Port-City Symbiotic Collaboration in Norway**

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## **Abstract**

The port-city relationship has deteriorated over time since the early 20<sup>TH</sup> century. The need for land, pollution, social welfare, and fast-paced globalization contribute to the evolution of the port-city relationship. The objective of this master thesis paper is to conduct an in-depth analysis of the Port-City Symbiotic Collaboration in Norway. This paper identifies the challenges of achieving port-city symbiosis and the drivers for a symbiotic collaboration in business development and project implementation. In addition, the study analyzes the relationship between municipalities and small and medium landlord ports in Norway located inside or near the city center and the community.

Consequently, a combination of one-on-one virtual and semi-structured interviews were conducted using seven structured questions with seven experienced professionals from the port authorities and three municipalities. Recordings from the interviews were transcribed and thematically analyzed with NVIVO software (a qualitative analyzing software). The results underline two relevant themes, i.e., areas of conflict/challenges and drivers in working symbiotically. Furthermore, the analysis demonstrates that imprecise role awareness, unclear communication, and less cooperation are the main barriers besides land, social, and politics. Hence, considered the zone for improvement. It is crucial to have a consistent and honest dialogue, commitment to cooperation, and competent trust to create a symbiotic collaboration. Thus, exerting focus on sustainability as a starting point allows synergy. Furthermore, it builds trust among city/state politicians and the community to cooperate, openly communicate, collaborate, and be innovative in achieving port-city sustainability goals.

Keywords: port-city relations, symbiosis, collaboration, sustainability, communication

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To God be the glory

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## **1. Introduction**

### **1.1 Research Problem**

Port-city relations have changed dramatically since the Industrial Revolution, forcing cities to change port location and infrastructure (Laar, 2020). It became a golden age of ports and port cities in the 19<sup>th</sup> century (Hoyle, 2000b). Indeed, port cities portrayed a vital role in the global transformation as the main transition points between countries and continents. Consequently, thriving port cities invested in new water and railway linkages, and their ports became international gateways for industrial goods. The essential changes to port regimes, including the rules and regulations, socio-technological landscape, and routines that direct port stakeholders' behavior, impacted the port-city relation transitions

Globalization and city development planning, such as spatial planning, and environmental and social protection, created a zone of conflict of interests between the city and the port. The port-city relationship is crucial in creating a win-win game and a symbiotic connection between the two parties. Symbiosis is the relationship between two people or groups that work with and depend on each other. In urban cities in Asia, it is seen that there is a stable port-city interdependence compared with the European port-cities with low relationship connectivity (Ducruet, 2006). The correlation between metropolitan population and container throughput provides a good indicator of port-city interdependence. Although strategy from big ports and cities cannot copy, at least somehow, small-medium port-cities can learn from it by having a solid dependence and planning together to have a symbiosis in implementing sustainability and port-city development projects. The self-fulfilling bias of reality: port and city are two different entities (Karel B. J. Van den Berghe, 2020), and the port-city interface as a zone of conflict (Vries, 2013) needs to address, and this led me to the research questions of this master thesis to find the challenges in achieving port-city symbiosis and the drivers to work collaboratively from a Norwegian perspective.

### **1.2 Impact of the Problem**

Seaports are essential intermodal logistics platforms in the global supply chain since 80% of the international trade is handled by maritime transportation. It is the gateway of imports and exports essential to the growth of the port's competitiveness and the national strategic standing of the city. The port authority (PA) is responsible for developing and managing its port area (Karel B. J. Van den Berghe, 2020). Port affairs used to be one of the administrative tasks of urban governments or, in some way cases the scope of mayor-entrepreneur. Thus, it influenced the

competitive level of the port itself. A PA's business model is to profit by leasing lands and fees from incoming ships.

In comparison, the city government concerns more about the public's welfare, which controls the city's policies. The conflict of interest between the port and city can limit the community's commercial development to the national level. A strong relationship between all stakeholders (including ports, firms, local and regional governments, and municipalities) is valuable for developing joint strategies, innovation, and achieving a balanced economic vision (Karel B. J. Van den Berghe, 2020).

### **1.3 Goal of the Thesis**

In order to contribute knowledge on the functional and business operation challenges between the port and the city in achieving symbiosis towards sustainability and port-city development, the focus of the paper is on small-medium seaports located inside or near the city and under the "landlord" model. This paper will discuss factors and players that impact and influence an effective collaboration. More profound data will be gained based on empirical data gathered by conducting one-on-one interviews with selected Port Authorities and their City Government/Municipality, specifically from the eastern to the western part of Norway. The whole duration of the thesis complies with Norwegian research data protection rules and the University's thesis writing. The interview questions that will be used have been approved by the Norwegian research data protection agency NSD (NorskSenter for Forskningsdata). They are constructed in a way that to learn about the functional and business operation barriers faced in the industry and success strategies by the participants.

Due to the present measures of mitigating COVID19 in Norway and the fact that travel among ports and cities is pretty challenging, it is impossible to do personal interviews. Nevertheless, interviews will be conducted virtually and recorded through Microsoft application TEAMS using the author's working laptop. Using NVIVO data analysis software, all recordings will be transcribed into words and analyzed qualitatively. In addition, a literature review will be performed wherein the research topic will be explored via the University's database, google scholar, Scopus, and other research engines to find relevant articles, journals, and publications. Finally, from the Norwegian perspective, the thesis analysis will evolve on the barriers to achieving port-city symbiosis and the drivers for port-city collaboration



Consequently, the findings obtained during the interviews (i.e., recordings) will be studied in detail. At the end of this thesis paper, the key participants and stakeholders, such as the municipality and port authorities, will be presented with the extensive challenges and repercussions of disconnected port-city relations. The findings will help enhance port-city future collaborative planning and decision making towards the future.

## 2. Literature Review

To understand the functional connection between the port and the city, illustrating the business environment from the port perspective is essential to analyzing the division of public/government and private/business interests (Sorgenfrei, 2018).

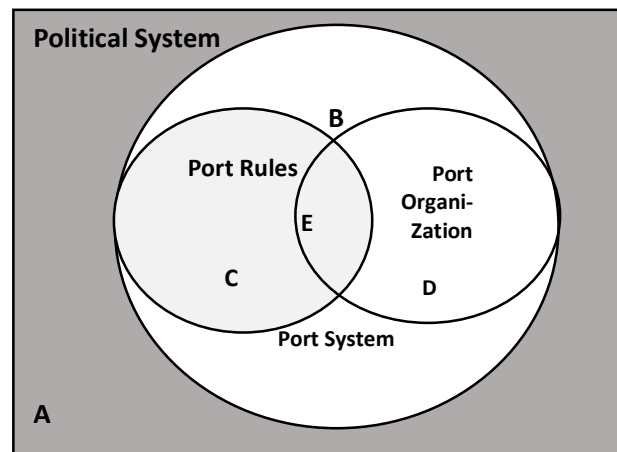


Figure 1 Port system-Port rules-Port organization (Sorgenfrei, 2018)

As shown in Figure 1, the "port system" is part of the political system where in area "A" consists of a country's political and socioeconomic framework. Debate on port and maritime infrastructure efficiency and integration of ports into the government's transport policy are some of the procedures involved in this level (e.g., the Norwegian Parliament passed in 2009 a new 'Act on Ports and Fairways'). Hence, it defines the framework for ports. The port system "B" represents the basic port regulations such as the share of public and private engagements; the federal, regional, and municipal level of responsibilities. In addition, fundamental rules on behaving in or with a port are included in Port rules "C." Port Rules focused on a specific port. In contrast, the port system is generally regulations in all ports in a country.

Furthermore, Area "D" displays the organization of the port authority and its relationship to the terminal and other organizations such as customs, police, etc. It is oriented to a specific port, same with the port rules. The overlapping "E" signifies the influence of port rules' effect on the port organization or vice versa.

A Port system is a state-written law or regulation that serves as a stable framework for port rules and a directional influence over the port organization. These are rules that attract long-term-oriented businesses to the State. The federal government or local municipality typically represents

the "state." In addition, figure 1 shows that regulations within a specific port or organization subordinate administration cannot influence the overall state port system unless sound arguments and discussion are provided. The intensely regulated context of various levels (communal, provincial, national, and European) complicates Port Authorities (PA) to implement strategic renewal activities and projects (Bosch et al., 2011). Due to activity limitations, seaports tend to resort to a self-regulatory strategy. As a result, programs go beyond the standards established by federal, state, and local air quality authorities (Knatz, 2017). Being the focal point of criticism from societal interest such as local government related to port development and operations, although it doesn't fall within their responsibility, slowly weakens the traditionally strong relationship between port and port cities (Qianyu Zhao, 2017; Verhoeven, 2010b).

The thesis will focus on the relationship gaps between the city government/municipality and the port authorities because their connectivity is slowly deteriorating. On the other hand, without a vibrant and well-run port, a city cannot thrive and maintain its preeminent position (Sorgenfrei, 2018). Moreover, the city's rising separation from the port is driven by institutional and organizational rationales peculiar to each stakeholder and territory (Loubet, 2019). Hence, their fortunes are intertwined despite different interests.

## **2.1 Port Definition**

European ports and port cities have been trending commercially and in society in the early modern days. However, globalization and containerization gradually change port's role and value in the supply chain. A port is defined as a physical location where facilities are available for ships to come alongside shore to perform interchange of cargo and passengers between land and water in a way that is safe, secure, efficient, and environmentally sustainable (Yap, 2020). Furthermore, the port has a significant role in the corporate because of its contribution in facilitating trade and giving added value to the port and city, increasing the market opportunities of both national and international firms (Jean-Paul Rodrigue, 2017).

### **2.1.1 Port Governance**

Indeed, ports influence the economics, business environment, and other characteristics of a city; however, the notion of a "one size fits all" solution does typically not apply or is entirely not feasible to another port because of port management differences. According to Yap (2020),

four governance models are characterized by port ownership, institutional structure, and administrative models.

Table 1 Port ownership, institutional structure, and administrative models (Yap, 2020)

<b>Attributes</b>	<b>Public Service port</b>	<b>Tool Port</b>	<b>Landlord Port</b>	<b>Privatized Port</b>
<i>Port administration</i>	Public	Public	Public	Private
<i>Infrastructure</i>	Public	Public	Public	private
<i>Superstructure</i>	Public	Public	Private	Private
<i>Port labor</i>	Public	Private/Public	Private/Public	private
<i>Cargo-handling operations</i>	Public	Private	Private	Private
<i>Ownership/management</i>	Port Authority	Port Authority	Port Authority	Private Sector
<b>Critical Aspects:</b>				
<i>Access to funding</i>	Government	Government	Private	Private sector
<i>Unity of control</i>	High	Moderate	Low	High
<i>Responsiveness to market conditions and user needs</i>	Low	Moderate	High	Low (if monopoly arises)
<i>Innovation and modernization</i>	Low	Moderate	High	Low (if monopoly arises)
<i>Government's influence on port activities and policies</i>	High	High	Moderate	Low

At one end of the spectrum is the *public service port*, wherein all port functions are managed and regulated by the public sector. Having a single entity in authority creates unity

control but may hinder innovation and efficiency. In addition, the reliance on government funding may lead to underinvestment and affect infrastructure development.

The *tool port* is the start of separation from the public dominance of the public sector in port management. The presence of private companies is an initial process towards being a landlord port since the trust from the private sector is not fully established yet. Nonetheless, the dependence on government funding is a deficiency and a limitation of innovation and potential international companies.

The port authority is the regulator and landlord in the *landlord port* and oversees property rights, planning, development, externalities, and efficiency. Also, the private sector owns the superstructure and cargo handling, producing appropriate investments (equipment modernization) and improved efficiency (technological innovation). On the contrary, pressures from various terminals could risk overcapacity and port congestion. Moreover, ports with renowned terminal operators involved may confuse who is in charge of the port authority or terminal operators. This model describes "a governance of proximity," marking the right balance between the private port and Latin pattern (in which the port is under the influence of the State) (Loubet, 2019).

On the other hand of the spectrum is the *privatized port*, where the ownership and functions are assigned entirely to the private sector. The structure benefits of having the maximum operator's investment flexibility and operations are the absence of government intrusion. Also, port land transfer to the private sector can be used for non-port activities and risk of speculation, specifically for an expanding city. The strategic role of the port, sovereignty, and national security may also be at risk.

This paper will focus on the *landlord port* structure since this is the principal and dominant model in large and medium-sized ports in North Europe. Hence, the decision-making power in and for the port is a balance between the private and public stakeholders (Sorgenfrei, 2018). Although the superstructure is managed privately, the government still influences port management in policies and port activities, mainly where conflict arises. Some of these are competitive pressure to invest in infrastructure, financial pressure to make these investments possible, and competition for land use which is crucial in this matter (Verhoeven, 2010a).

Table 2 shows that the Port Authority is responsible for the ownership/management of the port. The term "port authority" (PA) implies a specific, that is, public, form of port management, but we use it here as the generic term for the body with statutory responsibilities that manages a

port's water and land-side domain, regardless of its ownership or legal form (Verhoeven & Vanoutrive, 2012).

According to the 2011 report by the European Sea Port Organization (ESPO), there are four essential functions that port authorities may have. These are Landlord, Regulator, Operator, and Community Manager. However, this paper will focus on the landlord and regulatory functions since this is practiced in most ports in Northern Europe. Whether owns the land or not, the landlord function has the management, maintenance, and development of the port estate responsibility and implementation of policies and development strategies linked to the exploitation of the estate. In contrast, the regulator function includes the 'port authority' itself and a combination of controlling, surveillance, and policing.

Table 2 ESPO typology of port authorities

	Type “Conservator”	“Facilitator”	“Entrepreneur”
<b>FUNCTION</b>			
<b>Landlord</b>	Passive real estate ‘manager’ - continuity and maintenance - development mainly left to others (government and private sector) - financial revenue from real estate on ‘tariff’ basis	Active real estate ‘broker’ - continuity and maintenance and improvement - development broker and co-investor - includes urban and environmental real estate brokerage - financial revenue from real estate on commercial basis  Mediator in commercial B2B relations between service providers and port customers  Strategic partnerships with inland ports, dry ports and other seaports	Active real estate ‘developer’ - continuity and maintenance and improvement - direct investor - includes urban and environmental real estate development - financial revenue from real estate on commercial basis - commercial revenue from non-core activities  Direct commercial B2B negotiations with port customers - active pursuit of market niches  Direct investments in inland ports, dry ports and other seaports
<b>Regulator</b>	Passive application and enforcement of rules and regulations mainly set by other agencies	Active application and enforcement of rules and regulations through co-operation with local, regional, and national regulatory agencies + setting own rules and regulations	Idem facilitator

		Provide assistance to port community to comply with rules and regulations	Idem facilitator + selling expertise and tools outside the port
<b>Operator</b>	Financial revenue from regulator role on 'tariff' basis	Financial revenue from regulator role on 'tariff' basis with different charging options for sustainability	Financial revenue from regulator role on commercial basis
	Mechanistic application of concession policy (license-issuing window)	Dynamic use of concession policy, in combination with real estate broker role	Dynamic use of concession policy, in combination with real estate development role
		'Leader in dissatisfaction' as regards performance of private port services providers	Shareholder in private port service providers
		Provides services of general economic interest and specialized commercial services	Provides services of general economic interest as well as commercial services
<b>Community Manager</b>			Provide services in other ports
	Not actively developed	Economic dimension: <ul style="list-style-type: none"> <li>- solve hinterland bottlenecks</li> <li>- provide training and education</li> <li>- provide IT services</li> <li>- promotion and marketing</li> <li>- lobbying</li> </ul>	Idem facilitator type but economic dimension with more direct commercial involvement.
<b>GEOGRAPHICAL DIMENSION</b>	<b>Local</b>	<b>Local + Regional</b>	<b>Local + Regional + Global</b>

There are three basic types of behavior of port authorities based on ports functions and geographical dimensions

A 'conservator' port authority concentrates on being a good housekeeper and essentially sticks to a passive and mechanistic implementation of the three traditional port authority functions at the local level. Because of this low-profile attitude, conservator port authorities may run the highest risk of being marginalized and even becoming extinct in the future.

A 'facilitator' port authority profiles itself as a mediator and matchmaker between economic and societal interests, hence the well-developed community manager function. Facilitator port

authorities also look beyond the port perimeter and engage in strategic regional partnerships. It is the type of port authority that so far seems to find most support in the literature for the delicate balance it represents.

The 'entrepreneur' port authority combines the main features of the facilitator with a more outspoken commercial attitude as an investor, service provider, and consultant on all three geographical levels. Unfortunately, because of this ambitious profile, it is also the type that runs the highest risk of running into problems caused by conflicts between the various functional levels.

The attention of the master thesis project is the conservator, facilitator, and entrepreneur profile since most of the ports in Norway follow this kind of personality in the port industry. Consequently, they interact most with stakeholders and exercise partnerships with different functional levels.

### **2.1.2 Governing Body**

The port authorities (PA) ownership is not necessarily the same as ownership of the port land or port real estate. For example, if it is publicly owned (state), either national governments or municipalities, privately owned means, industrial companies, logistics companies, financial suitors, natural persons, private companies, etc. On the other hand, small and medium-sized ports, which are dominant in Norway, tend to be owned by the municipality and the state, respectively (Verhoeven & Vanoutrive, 2012),

Port authorities have two legal personalities called "commercialized" or "corporatized" forms. Port authorities are separate legal entities from local, regional, or national governments in both cases. The critical difference lies in whether or not they have share capital owned in part or whole by that government. "Commercialized" port authorities do not have a share capital, "corporatized" port authorities have. From "The ESPO Fact-Finding Report" of Verhoeven (2010a), corporatized form is the most potent form in North Europe. However, various countries have started to privatize or liberalize operational services for the past years. Interestingly, some governments discussed the selection of "ports of national interest," as Norway as an example (e.g., Act on Ports and Fairways passed in 2009).

PA has a formal supervisory or governing body, in most cases a board of directors or otherwise a supervisory board or an executive committee. The responsibilities of the supervisory/governing body often relate to general corporate practice, i.e., development of overall



strategies, overseeing the management, as well as the financial and overall performance of the port. In some cases, they are also involved in daily management decisions, thus limiting their management autonomy.

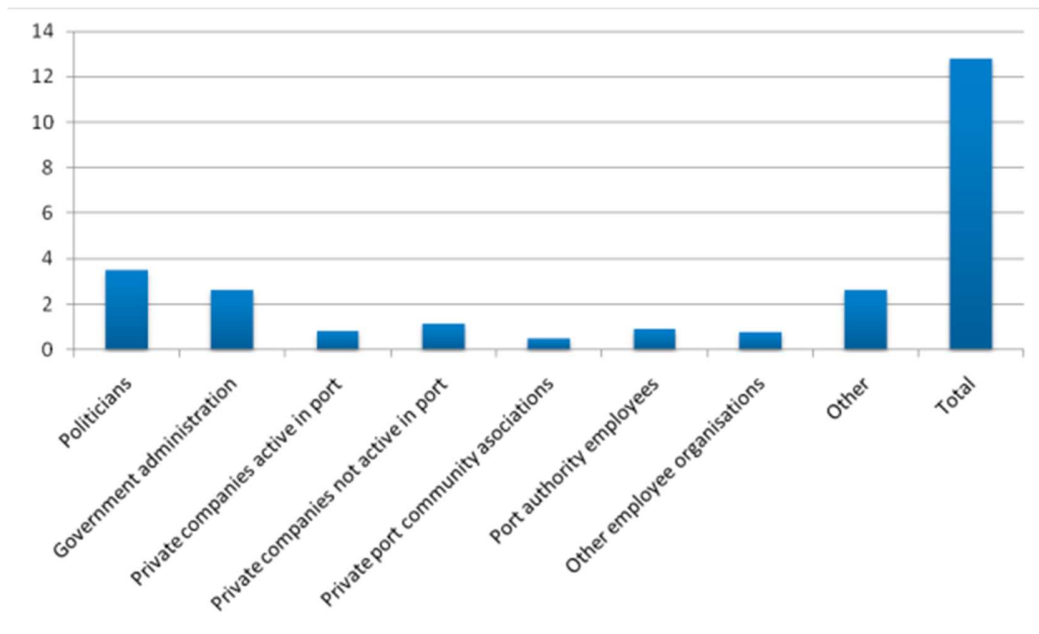


Figure 2 Average composition of the supervisory/governing body, in number of people (Verhoeven, 2010a)

Figure 2 shows that, on average, elected politicians, representatives of government administrations (civil servants), and "other" are the most categories of members. The "other" type is independent people who do not represent a specific interest but were chosen because of their expertise or knowledge. The political element is critical in appointing the supervisory/governing body chairman. The end is handled by a political body or a senior politician. While in some cases, it is the supervisory or governing board itself that appoints its chairman. The majority of the North Europe small and medium port authorities, the chairman of the supervisory/governing body, are elected politicians.

Politicians and government administrations in the supervisory board may have positive and negative effects on the whole operation of the port. For instance, it may be beneficial in port financial challenges such as increasing funding for port projects to reduce market risks (Knatz, 2017). On the other hand, port's dependence on the government's legal and regulatory

requirements, i.e., multiple government levels, limits growth and (proactively) anticipating developments (Bosch et al., 2011).

## **2.2 City Definition**

The government's role is a catalyst and challenger, stimulating companies to reach higher levels of competitiveness, innovation, and strategic renewal. The local authorities are a vital and influential player in leading and establishing an agenda, creating a vision, making collaborative opportunities and platforms or providing funding schemes, and allowing self-organization of different types (Niki Frantzeskaki, 2013). However, because ports and terminals are relatively not innovators and frontrunners in environmental protection, local municipalities' pressure is a driving force to increase pressure on ports to offer and produce environmentally quality indicators or become a Green Port (Sorgenfrei, 2018). For instance, the Rotterdam municipal government adopted a proactive approach to preventing more brownfields from emerging along waterfronts within Rotterdam (Bart W. Wiegman, 2011).

In Norway, the municipalities/cities and the county Authorities are the two tier-system of local government. Both have the same administrative status, whereas the central government has the overriding authority and supervision of municipal and county municipal administration. Regardless of size, they all have the same responsibilities in producing public services, legal safeguards, planning, and local development. In keeping with the independent responsibility of the municipalities, legislation emphasizes the need for municipalities to establish routines for self-regulation. The municipal council is accountable for supervising the municipality's activities, has the right to demand reports, and has a powerful word. Some of the responsibilities of municipalities include a primary and lower secondary school, primary healthcare, care for the elderly and disabled, social services, local planning, agricultural issues, environmental issues, local roads, harbors, water supply, sanitation and sewer, and culture and business development (Local Government in Norway). With regards to ports, the government's primary tasks are to look after public interests concerning safety, the natural environment, the public physical and knowledge infrastructure, and spatial planning (Bosch et al., 2011). In addition, municipalities' role is as a participating actor in multilevel governance, emphasizing efforts to mitigate and adapt to climate change (Fenton, 2017).

In the ESPO Green Guide 2021, the top port priorities are protecting the environment and sustainability. Thus, these priorities are congruent with laws and regulations connected to public interests (Vries, 2013). The port-city interface of goals can be a great start to regaining a port-city symbiotic relationship.

The Top 10 environmental priorities of European ports for 2020 (Mäkilä, 2021).

1. Air Quality
2. Climate Change
3. Energy Efficiency
4. Noise
5. Relationship with the local community
6. Ship waste
7. Water quality
8. Garbage/port waste
9. Dredging operations
10. Port Development (land-related)

On the other hand, governments often have limited information on policies they wish to pursue. As a result, bureaucracy, political instability, and little control over the consequences of a government's actions could result in lost opportunities and wrong investment timings (Yap, 2020).

### **2.3 Evolution of Port-City Relations**

Since the industrial revolution began, port-city relations have changed significantly, forcing cities to change port location and infrastructure (Laar, 2020). As a result, it became more evident that port activities and changes in port operations have led to a separation between the city and the port (Michele Acciaro, 2020). The Anyport-model developed by Bird (1971) described port infrastructure in time and space; however, it lacks direct emphasis on the changing relationship between the port and the city and the port-city interface. Although the model shows the gradual drifting apart of the port and city, it does not explain the effects of maritime, technological, and logistic developments on the scale of modern ports and the relative importance of ports to the city's economy. The transitions result from technological-maritime and industrial

developments, which have a prolonged impact on spatial contexts and port-city governance relations (Laar, 2020).

Vries (2013), Hoyle (1989), and Hoyle (2000b) studies on the port-city interface show that environmental, social, and spatial planning are the main reasons for separation. According to Bart W. Wiegmans (2011), coming from the direction of land use, there are four stages of being in both synergies until in conflict.

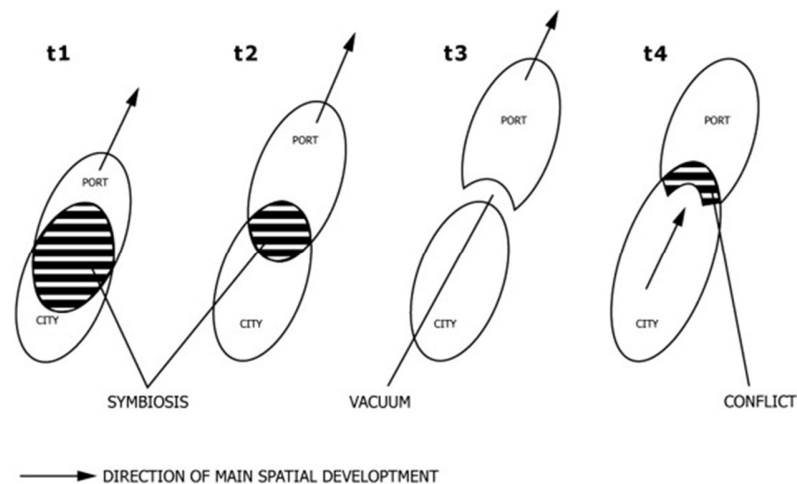


Figure 3 Proposed new spatial model for the port-city interface by Bart W. Wiegmans (2011), inspired from Norcliffe (1996) evolution and separation over time of cities and their ports.

Figure 3 shows the increasing separation of the city and port, functional and spatial. The symbiosis exists in the first stage (t1) and second stage (t2), and the successive period where older ports were deserted and water redevelopments took place (t3) have passed and have been replaced by a zone of conflict between different kinds of land use. In t2, the port and the city are increasingly functionally separating, and in t3, geographically, they are dividing. It is where port regulation is developing as well. In t4, the geographical separations disappear, but the functional partitions remain, which causes the current conflicts. T3 was a period of conflict but more passive, such as *how* the redevelopment should occur. While in t4 *whether* any active redevelopment should take place. It is a conflict between the existing land use as a port and proposed city land uses (housing, offices, etc.). Since the regulation is influenced by the "refined" societal regulation (environmental but also labor regulations), it seems that rules are slowly starting to affect port function in a limiting way (Laar, 2020). One example is the Port of San Francisco, wherein the topography and land-use

structure prevent the significant expansion of the port. As a result, the port has lost many of its longstanding customers to its competitors across the bay.

Hoyle (2000b) also introduced similar but more detailed sequences in six stages (see Fig.4). It starts from a close spatial and functional association between city and port (in the 1st stage) via a large-scale port that consumes large land areas (expanded throughout the 2nd, 3rd, and 4th stages). Then to the urban renewal of the original port area (in the 5th stage), and ultimately to an enhanced port–city proximity reflecting patterns of urban change and a revival of the port–city link (in the 6th stage). Both the city and port are engaged in attracting people and business, and often the city-waterfronts are the battlefield where the use of land in the conflict zone. Besides spatial and economic systems segregating the port and city, Hayuth (1982) saw that the ecological system (which involves environmental issues, mainly water and air quality) was a significant factor in the '80s. It is the same as Bart W. Wiegmans (2011) studies, but it is also identified as a cooperation zone. All these areas of conflict (spatial, economic, and environmental) between the city and port require more digging to find what is happening in the middle of disagreements and hindrances going in one direction.

STAGE	SYMBOL ○ City ● Port	PERIOD	CHARACTERISTICS
I Primitive port/city		Ancient/medieval to 19th century	Close spatial and functional association between city and port
II Expanding port/city		19th – early 20th century	Rapid commercial/industrial growth forces port to develop beyond city confines, with linear quays and break-bulk industries
III Modern industrial port/city		Mid – 20th century	Industrial growth (especially oil refining) and introduction of containers/ro-ro require separation/space
IV Retreat from the waterfront		1960s – 1980s	Changes in maritime technology induce growth of separate marine industrial development areas
V Redevelopment of waterfront		1970s – 1990s	Large-scale modern port consumes large areas of land/water space; urban renewal of original core
VI Renewal of port/city links		1980s – 2000+	Globalization and intermodalism transform port roles; port-city associations renewed; urban redevelopment enhances port-city integration

*Figure 4 Stages in the evolution of port-city relationships according to Hoyle (2000b, p. 405)*

The evolution of the port-city relationship can be extended to include the literature on planning politics and the city's community groups. If geography analyzes spatial structures and interconnections, politics and planning illuminate the procedural structures, forces, and pathways

towards dynamic spatial patterns. For example, in Hoyle's (2000b) studies, the political influence was a huge factor in the prosperous economic times of the early '70s and late '80s, particularly in Toronto, Canada. Although citizen groups opposing the irresistible developments were relatively strong, the local politicians, bureaucrats, and citizens acted to produce new public policies to control the built environment and support goods that make the cities work. The changing political views in the government are also a factor in the transitions of port-city relations.

In addition, the influence of communities as an agent of change in port cities was the eye of attention in the '80s (Hoyle, 2000a; Hoyle, 1989; Pinder, 1981), contributing to the evolution of port-city relations. Community groups constitute a source of ideas; they influence the pace and pattern of change and development; they modify, restrain, promote and warn; they give retrospective overviews and influence plans for the future. In 1996, the community group's attitudes were a significant component of the decision-making process in port-city change and other aspects of society (Hoyle, 2000b). Community groups are diverse, such as business associations and the general public. None of these groups can legitimately represent the whole community, knowing that the local political situation is complex and dynamic. However, all such groups offer contributory and complementary opinions.

The effects of globalization, societal and community groups, and political influences are significant on the dynamic relations between the city and the port. Thus, it still currently exists in the port-city ecosystem.

## **2.4 Business Models**

Many port cities have a long and varied history. The interdependence evolution of the city and port has formed a complex network of relationships that resulted in the separation and created conflicts. Brooks et al. (2021) posited that adequate "transparency" should be practiced in port governance from the port perspective. However, it must be from the theory of nested transparency factors. There are no variations in expectations among the stakeholder group such as municipalities, governmental agents, the general public, provinces/states, and other private/public sectors or whether they have capital at risk or not. Indeed, *nested transparency* factors such as improving the visibility of information and focusing on inferability and verifiability must be exercised by ports. Visibility, openness, and reporting can help assess conflicting interests between the ports and other stakeholders (Brooks et al., 2021). In addition, dashboard models are a tool for transparency, which is an excellent means of community engagement and customer support.

Angela Carpenter (2020) "Framework for anchoring sustainability relationships between ports and cities" illustrates how ports and cities can be moved, leading into a holistic, sustainable port-city that can provide to a regions' sustainability (economic, environmental, and social). Separate entities or stakeholders (of the port, the city, and interconnecting) should move towards sustainability through a collaborative approach at a time of global change in the maritime transport sector (Hall, 2007). Economic viability is the requirement in the framework wherein, for instance, the city focuses on the needs of the people that live in them, with socially-oriented measures such as housing and jobs having a higher priority than the environment. In contrast, ports, environmentally oriented actions will have greater importance than socially-oriented measures (Angela Carpenter, 2020). Collaboration between the port and city is an essential tool in moving forward to the future (Alterman & Stav, 1999).

On the other hand, according to Schubert (2020), breaking the paradox of "city or port" to "city and port," combining aspects of the sectoral and comprehensive regional planning, postulated that it should be stopped. However, the combination of "competition" and "cooperation" into a "co-optition" joint approach between the city and the port is still wishful thinking. The development planning of cities and ports follow separate parameters, thus subject to the interaction and development of the global economy, transport and shipbuilding, nature and the environment, climate change, and, ultimately, the citizens' interests. Cities architects transforming harbor and waterfront sites into promenades and attractive still collide with port logistics and economic conditions.

Another version of collaboration, according to Niki Frantzeskaki (2013), is through "partnership." Partnerships produce vision. Similar to Angela Carpenter (2020), sustainability is the central vision of the collaboration; however, local government is part of the planning. Partnerships have two distinct characteristics: create and catalyze synergies between partners (social synergies, governance, and institutional synergies and resource synergies) and flexible and versatile in the role they take up despite the problem context. The sustainability vision and plan create a symbolic leadership and a flagship inspiring and committing the different actors to its implementation. For instance, in Rotterdam, the involvement of meta-governance centers: the Stadshavens Project Office Partnership as the meta governance center on vision realization (related to urban waterfront regeneration between Rotterdam Municipality and Port Authorities) and the Rotterdam Climate Initiative Partnership as the meta governance center on learning for climate

resilience (related to urban climate change policy), led the local government (Rotterdam Municipality) actively took a meta governance approach in coordinating different forms of governance.

Partnerships may suffer from shortcomings due to organization and joint-up nature, such as uncertainty of delivery, accountability issues, fragmentation, and risk of inception of bad practices (Niki Frantzeskaki, 2013). At present, the process and planning of the Climate Tech Delta partnership in Rotterdam identified first signs of pathologies such as miscommunications, weakening trust, protectionism of research findings, and lack of sharing. Hence, sustainability information, communication, and stakeholders engagement are the few primary axes for creating sustainable ports and operating transparently (María Ángeles Fernández-Izquierdo, 2020).



### **3. Methodology**

#### **3.1 Research Method**

This thesis chapter describes the research method used in data collection to answer the research goal. There are many ways to conduct academic research analysis, but the main domains observed in the literature are the quantitative, qualitative, and mixed methods depending on the research project phenomena (John Adams, 2014).

This paper is formulated in the Norwegian context. It uses a qualitative research approach to find an in-depth understanding of the challenges of achieving symbiotic collaboration between ports and cities and learn the drivers from the perspectives and experiences of the port authorities and municipalities to work interdependently with each other. The qualitative approach employs data collection methods and analysis that are non-quantitative, which aims to explore social relations and describe reality as experienced by the respondents (John Adams, 2014). Unlike the quantitative research approach, it deals with operationalization, manipulation of observed variables, prediction, and testing. Often its emphasis is on statistical measures validity (Chava. Frankfort-Nachmias, 2015)

#### **3.2 Research Design**

A research design includes a structured framework for data collection and analysis of a proposed study. It describes the type of research, be it descriptive, exploratory, or causal, and the researcher's aim (John Adams, 2014). In connection with the goal of the thesis, an exploratory design approach was conducted with the pre-designed questions addressing the challenges between the port and the city/municipality in achieving symbiosis. The seven questions were used to collect data for analysis by conducting interviews with the selected participants working in the ports and cities via TEAMS. In addition, recordings from the interviews were transcribed into text documents and analyzed using NVIVO software. This system is defined as an interrelated and interactive set of processes in qualitative research (Chava. Frankfort-Nachmias, 2015). Based on those transcripts, a thematic analysis was conducted that further categorized the responses from all interviewees to identify recurrent themes and patterns. Therefore, a qualitative research design is suitable for this master thesis. Also, it manifested in the project's inductive approach, type of data collected, social and societal analysis, and the project's goal, which is to gain an in-depth understanding of the functional separation of the ports and cities and not working in symbiosis.

Furthermore, the interview approach is conducted in a one-on-one and semi-structured interview to get a more adaptable and flexible approach to the interview process. It allows the interviewer to pursue a series of less structured questioning and permits the exploration of spontaneous issues raised by the interviewee. Its flexible approach indicates one of its greatest strengths (Frances Ryan, 2009). Thus, it provides a compelling insight into people's experiences and perspectives of a given phenomenon and is a valuable data-gathering tool in qualitative

### **3.3 Refined Interview Questions**

A set of interview questions that focuses on the operational activities concerning sustainability and project planning/implementation for the port authorities and the municipality were drafted in collaboration with the project's supervisor. The aim was to learn about the challenges of achieving a symbiosis between ports and cities and understand the drivers from the perspectives and experiences of the port authorities and municipalities to work cooperatively. Hence, the background and roles among the respondents varied. Furthermore, the questions were structured to encourage honest answers and unbiased opinions that would, in order, deliver an in-depth understanding of the deteriorating relations between the port and the city and the ongoing strategies that have been currently practiced. In addition, the respondents were given the same questions and the freedom to answer or not with the questions. The table below shows the seven questions formulated and addressed during the interactive semi-structured interviews.

*Table 3 Refined Interview Questions*

- RQ1** How long have you been working in the port? Have you been in different positions in the port besides your current role?
- RQ2** How do you see the city government/municipality in the business from your own perspective?
- RQ3** What areas of conflict do you encounter with the municipality regarding the planning and implementation of a project? Or other issues?
- RQ4** In the planning phase of a particular project, what are the challenges do you encounter in communicating the details or objective of the project? Especially when you need actions and feedback from their side.
- RQ5** What are the usual disagreements you encountered in a meeting with the municipality/port? How do both parties handle those situations to achieve an agreement

or solution? Do they express their opinions and bring suggestions as part of decision-making? How does the cooperation of the responsible people?

**RQ6** In coordinating with the municipality/port, is it an advantage or disadvantage that politicians/representatives from the government are part of the port's board? In what way?

**RQ7** Based on your experience and perspective, what do you think are the barriers or drivers to creating a collaborative relationship with the city/port? In which scenarios?

### 3.4 Population and Sample

To understand the challenges of achieving symbiosis and collaboration between ports and cities, a population of port authorities and municipalities were invited to qualitative research by interviews to collect data. The sample described as respondents in this master thesis comprises seven employees from port authorities and three from the municipalities in Norway with above six years of experience. Few of the respondents have a background in the transport sector and other segments of the maritime industry. Each respondent took part in an interactive interview performed via Microsoft Teams with questions provided above.

Table 4 Respondent's years of working experience.

<b>Port</b>	<b>Years of Working Experience</b>	<b>Municipality</b>	<b>Years of Working Experience</b>
PA A	7+	Municipality A	12+
PA B	6+	Municipality B	17+
PA C	15+	Municipality C	15+
PA D	6+	Not participated	n/a
PA E	6+	Not participated	n/a
PA F	7+	Not participated	n/a
PA G	6+	Not participated	n/a

### 3.5 Ethical considerations

Research ethics guidelines include various values, norms, and institutional arrangements that help constitute and regulate scientific activities. It is referred to as the codification of scientific

morality, which represents the research community's basic norms and values. Four guidelines are based on recognized criteria for research ethics, regulating research in different areas and relationships (Committees, 2019):

1. norms that constitute good scientific practice, related to the quest for accurate, adequate, and relevant knowledge (academic freedom, originality, openness, trustworthiness etc.)
2. norms that regulate the research community (integrity, accountability, impartiality, criticism etc.)
3. the relationship to people who take part in the research (respect, human dignity, confidentiality, free and informed consent etc.)
4. the relationship to the rest of society (independence, conflicts of interest, social responsibility, dissemination of research, etc.)

As mentioned in the forskningsetikk.no:

General guidelines for research ethics cannot replace subject-specific guidelines, but should serve as a gateway to the principles and concerns of research ethics, including for institutions and individuals who are not researchers themselves.

In compliance with research ethics guidelines and accurate management of participants' confidentiality, personal data, and sensitive information, the master thesis was written according to the provided research ethical guidelines by the University of Southeast Norway. Also, it was approved by the NSD (NorskSenter for Forskningsdata). The master thesis project details, goal, and purpose were tendered for approval via online application form Meldeskjema for behandling av personopplysninger at nsd.no. The thesis proceeded after the approval, and an online search was conducted and the supervisor's network. A request form for participation was sent with project details provided to all potential participants via email. Consequently, confidentiality and non-disclosure of personal data and sensitive information agreement was mutually agreed with selected participants upon acceptance to be part of the research.

## 4. Results

This chapter presents the results generated while analyzing the collected interviews to understand the challenges and drivers for port-city symbiotic collaboration in Norway. The initial aim of the thematic analysis process is to review the collected data numerous times to identify the recurring topics and get a better understanding of the participants' answers. Subsequently, the transcriptions of the interviews for both the ports and municipalities are imported to NVIVO analyzing software. The codes were created by checking the similar responses among the interviewees. The code analysis laid the grounds for categories that transformed into themes. Lastly, the categories are coded, evaluated, and entrenched based on the exceptional responses of the participants. The two main themes that surfaced during the thematic analysis were gathered together based on the importance as perceived by the author of this master thesis.

### 4.1 Theme one: Area of challenges/conflicts

The first theme is the challenges that the port authorities (PA) and municipality encountered connected to business development and environmental issues. The challenges were driven mainly by projects on spatial planning, infrastructure, and decisions from the city council. There are four sub-themes under theme one: *land, politics, communication & cooperation, and environmental issues (Noise and Traffic)*



Figure 5 Thematic analysis of the areas of conflict/challenges for port-city symbiotic collaboration

#### 4.1.1 Land

The three municipalities highlighted the value of ports for the city's growth, particularly in bringing jobs to the community. According to one of the respondents, local businesses rely on the port services they provide, such as offshore supplies and cargos for import and export throughout Europe. Besides people, it also transports goods essential for the operation of local businesses.

Moreover, other than the port's positive impact on the whole municipality, most respondents expressed challenges related to land use as one of the conflict areas. Both the municipalities and port authorities respondents said that business and city development needs the land. *PA B* emphasized how valuable the land is for the city planners; however, it is difficult for the port to run the operation without being close to the sea. On the other side, *Municipality B* shared and strongly clarified that they are not at war with the port authorities. The respondent revealed that they are currently connected to a big project but have a challenge related to the land expansion of the port: “..the port wanted to expand much wider than we could allow it or recommend.”

Another respondent also explained a situation wherein the municipality wants to take land in the port area for city development and move away from the town. However, according to the respondent, the port owns the land, and they could not just come and take it away because the port invested in infrastructure in the port city. The respondent reasoned, "The port and the marine activity own this, and that's protected by Norwegian law." In addition, land scarcity is also an issue raised by *PA F* and *PA B*. According to them, most people and the municipality know that they don't have any land to expand on, which creates congestion in the area. The city reacts to the logistics of trucks coming in and out, but there is not enough land to develop further.

#### **4.1.2 Communication and Cooperation**

This section represents the second theme – communication and cooperation between the port and the municipality. One of the respondents explained people's disinterest in the city group discussions when it comes to an understanding the importance of port logistics. Similarly, *PA F* also shared the same challenge with some city employees, wherein they do things in their own way and do not ask. The respondent stated: “They are close-minded. They don't want to listen.”

*Municipality B* described the inconsistency and use of different communication channels by the city and port politicians in expressing their opinions. The respondent highlighted that the easy change of views causes sudden division of people. Consequently, the respondent uttered disappointment and said, “..it has been the process going on for so many years. So, it's a bit frustrating. Can't we just go on and do the job so well?”

The community or the general public is part of the city, and some PA respondents conveyed their challenge in getting people's interest or the public to know what they are doing. Some respondents explained that most people who work in the port see the port's value for the city and the community; however, the understanding is not mutual. As a result, it gets the impression that the port did not communicate well enough because people just don't want the transport close to their veranda. Likewise, *PA B* described the challenge of getting the community cooperation:

There is also an issue of neighbors, the big protests for a new container terminal because they don't want the container terminal. And that's also part of the story; they call it the NIMBY effect, not in my backyard. Everybody knows that we need a port and everybody realizes that we have to have a port, but nobody wants that in their backyard. So that's always an issue.

In addition, *Municipality C* conveyed the issues encountered with the port of not agreeing on building a particular project in the port area. According to the respondent, the port is very protective of its independence, and they make their strategies and master plan on how they want to develop the port. In addition, the respondent also stressed the struggle of getting the offshore industry in their city because the ports focus only on their business and are restrictive on the area they possess.

Another challenging aspect is getting support for allowances for a particular project. *PA F* explained that it could have been an easy approval, but it takes time to get approval due to different views and own assumptions. It causes another round of discussion, costs a lot of money, and is not efficient. The respondent clarified that: “..the people who work in the government may make their assumptions about how things can work and make decisions. And then in real life, those assumptions are wrong.”

Last but not least, the decision on balancing how many cruise ships are allowed in the city is one of the challenges that emerged. *PA E* explained the ongoing discussions about the limitations of the number of cruise ships coming to the town. Still, the respondent hoped it would change because it is their primary business. The port's income mainly comes from cruise ships, especially during the summer. The same scenario with *PA G*, wherein it operates commercially. The respondent said, "How much can we say no..., just kind of say no to cruise vessels. If you say no because you don't like the pollution here, that means less money to the company." The port sees

this as complex, and not liking cruise ships doesn't mean no to port business. The respondent emphasized despite cruise ship restrictions; it is vital to find still solutions to be an open port.

#### 4.1.3 Politics

All respondents except *PA A* and *Municipality A* expressed challenges regarding the influence of politics in the city council decision-making, such as project implementation. One of the port respondents explained that political parties are a factor in implementing or continuing a particular project. One port respondent observed that the division of political parties and the influence of strong political parties either fastened or slowed down the approval or even stopped the project.

Respondent *PA C* also shared the willingness to be part of the council meeting to contribute to evaluating such project decisions. The respondent clarified they are invited to the discussion when the topic is not political; however, sometimes, when it comes to port-related, they aren't because of politicians' different viewpoints from the port authorities. *PA C* stated, "I love to go to those meetings and explain whenever I can." The respondent gladly voiced the willingness to share where they earned money and asked what he thinks of the future.

Furthermore, the position of port/city politicians is complex, with different responsibilities. Referring to RQ6, *Municipality C* elaborated that they should represent the municipality's policy, but it was the other way around on the board. They stand on being the port politician more often than the city politician. The respondent also added that when the port politician has a significant influence or power, it lobbies the city council. Sometimes, it looks like the port controls the city council and not the way it should be. Likewise, from *Municipality A* experience: "...they(city politicians) see themselves mostly as the port politician." They sometimes forget that they have a responsibility also to the whole municipality and not only to the port.

In addition, one of the port respondents noted that sometimes politics are brought into the board room. If they don't want something, they decide no to it. In the same way, *PA E* explicitly expressed that: "...some of these politicians don't want cruise ships. That's a big challenge because if we don't have cruise ships in the port, we will not survive as a company. And they don't understand us". Moreover, the respondents pointed out the gap in the competency of the council's elected or appointed board members. One of the respondents said:



I was to some of the board meetings, and one board member was suggesting things or asking questions that it was impossible to understand what they wanted. It was terrible sitting there to watch this and how he could have been placed in that role. It was completely off the chart, so there must have been something about the political process behind that I don't know anything about”.

One of the respondents stated that conflicts also start when money and investment risks are involved. The politicians care about their image and are careful with high stakes. Then again, the ownership structure of the port cannot separate the political side of it. *PA G* reasonably explained that:” sometimes political views give color to a debate but also make it more attractive as long as for the best of the port and city.”

#### **4.1.4 Environmental**

During the analysis, environmental issues such as port noises and too many people from cruise ships emerged as challenges to the municipality respondents. On the other hand, *municipalities B* and *C* expressed that the most problems they received from the neighboring area of the port were coming from the machines that produce electricity for the ships and work in the area. *Municipality C* also cited these issues are often attached: “..when it comes to the port, the negative part is often associated with traffic and traffic problems, noise pollution and stuff”.

The port respondents admitted these issues (e.g., many people from cruise ships, traffic, and noise) as the primary challenges the port is trying to minimize and contribute to reducing carbon emissions.

#### **4.2 Theme two: Drivers for symbiotic collaboration**

Another theme discovered in the analysis conducted in understanding the port-city symbiotic collaboration in Norway is the driver to improve the weakening relationship. These sub-themes become apparent from the challenges referred to by the respondents. These sub-themes categorize into four which is the following: *dialogue/communication, cooperation, role awareness, and sustainability.*

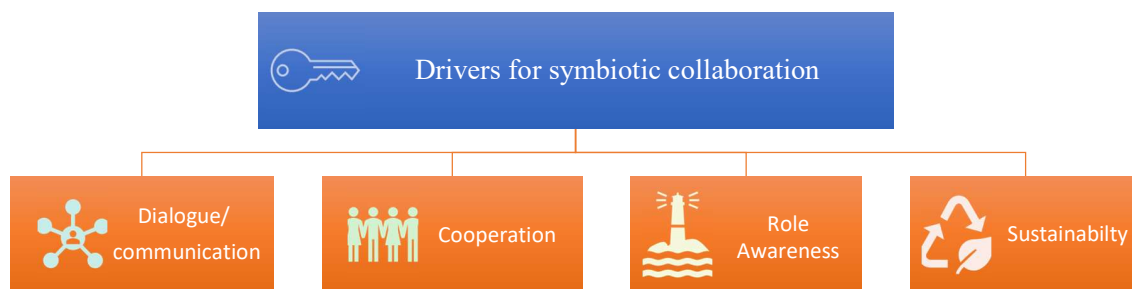


Figure 6 Thematic analysis of the drivers for port-city symbiotic collaboration

#### 4.2.1 Dialogue/Communication

In this chapter, dialogue/communication between the port authorities and the municipality are essential in working symbiotically, especially handling projects. Communication is vital for both the port and city, especially those involved in the projects. According to *Municipality B*, the issue of cooperation has been in process for a long time, and they found out that there is something wrong and suspected that there is a hidden agenda from both. The respondent also added the importance of being open to the communities: “the port could be much more open and communicate better with the surrounding communities.” At the same time, respondent *PA B* said that they are currently trying to work on how to communicate with people about the importance of container terminals in the area.

*Municipality C* emphasized a clear understanding of each other opinions. The respondent explained that everyone has something to gain by getting a more transparent way of running things and investing in working together. However, it is often a miscommunication of each standing as well. Also, both the PA and municipality have to be much more transparent in what they expect that the port is supposed to deliver besides the economic side of things. Furthermore, *PA C* readily shared examples of how their communication plan works with the community:

” So basically, we used the local paper, take pictures and try to be honest with people that there will be some noise. There is much more noise than a passenger train, but they won’t come ten times a day, but twice a week. When you are honest...people see that you are honest”.

The point raised by some of the respondents was that it is essential to convey your intentions and accountability to get the municipality's trust. *PA A* gave a scenario: “I was in front of the city

council, and I said I take full responsibility for the development. I shall do my utmost to ensure that we have success and that no one else is to blame but me. The responsibility is mine.” The respondent also added that sometimes politicians need to hear and communicate those, and it is important to share success with them. While *Municipality A* expressed the same that open communication is a significant advantage in gaining a tight relationship. Open communication does not mean they always agree with all the discussions but more of listening to each other. The respondent recalled: “I always consult with PA A to learn before I answer..in some way that concern with port.”

Apart from this, *PA D* also emphasized being proactive and initiating communication is crucial if things are unclear. For example, the respondent gave a heads up before deadlines based on different themes or issues between the port and the municipality. According to *PA D*: “..as long as there is good dialogue and we use a site....and share that knowledge base, then at least the holistic situation is put forward”. Also, finding reasonable solutions can be attained through openly collaborating. Similarly, *PA G* explained:

We have to collaborate together and see how we can do this and for the business. Then we spend some time with the municipalities, not the board necessarily, we go to the owners and talk about these issues if we want to and try to find a good solution.

Some of the respondents also concluded that getting all the available information is also helpful in enlightening the community with less knowledge about ports. It is using all means of resources in telling stories and giving examples. Respondent *PA F* elaborated that it is essential to get the facts up and publish them and make them easily accessible for all those who would like to or those who are pro port and not only see the pollution and the problems.

#### **4.2.2 Cooperation**

Many of the respondents highlighted cooperation as the first and foremost crucial to making symbiotic collaboration work. And some port respondents took the initiative to move outside the city center. For instance, *PA A* thought back on their decision before and said:

Most ports are hindering the city to fully develop where they are situated. So few years ago, we took the decision the port’s need to get out of the city centre and establish itself outside and free the areas for the public and growth of the city.

In addition, *Municipality A* iterated that the port and city planners have to cooperate and help develop their properties because they are just two public landowners. Subsequently, *Municipality C* said: “the port has to work together with the local planning authorities and get things through.” Respondent *Municipality B* also expressed the benefit of having the presence of port authorities (not only a port politician) in the council meeting, which develops trust in understanding what the port people are trying to convey. They could understand what and why the municipality considers those things.

To keep a ferry company staying at the port, one port respondent provided a situation wherein cooperation with the municipality is possible. The respondent recalled that a few years ago, the public was not in favor of the passengers coming into the city; however, the ferry company didn't want to move and didn't want to spend money to construct the new terminal. As a solution, the municipality bought the land to be able to build a new one, and according to the respondent, that gave them a sound contract with the ferry company: “The deal is perfect for both parties.” Corresponding to the respondent example, *Municipality C* highlighted that the ultimate goal between them should be harmonizing with the port and municipality strategies.

#### **4.2.3 Role Awareness**

Another sub-theme that showed in the analysis is the distinction of one role awareness as port/city politicians, municipality employees, and the function of the port. This sub-theme was dominantly from the municipality's side. As *Municipality C* stated: “...the city council doesn't do its job properly”. According to the respondent, it is the responsibility of the municipality to clarify what goals they set for the port and what they expect them to deliver. In addition, some of the respondents stressed the importance of working together to understand each other different roles. *Municipality C* noted: “we respect the port's independence, but we have to be better owners that have more management system or common strategies in place.”

According to *Municipality B*, the presence of port authorities in a council meeting that concerns a port project is essential in planning. Be there and tell about the different things they are doing and their role with the local industrial businesses. The respondent elaborated further that it could help some politicians know that the “kind of view that the port is dumb” is not true.

One of the respondents from the municipalities explained that having a clear awareness of the port's role is highly vital to working together. The respondent said: “..the port is a tool..owned by

the municipality, and this way of thinking is very, very good.” The respondent revealed an experience with the previous port authorities with a different view of the port's position in the city. And because of that, their cooperation did not work well nor improve their relationship. In addition, both sides that the leaders must see themselves as dependent on each other. Similarly, respondent PA A stated:

“ ..we work as a tool to ensure the new businesses employ more people in our area , and I need to build that because otherwise they will not come. We have exactly the same goals. We're close to one million tons per year now. To me, I have no ambition to reach four or five million tons per year... But I have an ambition to be ready to do it if it is required by the businesses. So, it's a different way of thinking. We are a tool”.

Last but not least, having politicians on board, *Municipality B* stated that it is crucial to have a competent politician that understands what's going on in the port and the services they provide and knows when to put the hat as a port politician or city politician.

#### **4.2.4 Sustainability**

Another pattern in the analysis is in connection with sustainability which is driven by reducing noise/carbon emission. The one that stands out from the port respondents is the ENOVA financial support from the government. Enova SF is owned by the Ministry of Climate and Environment that contribute to reducing greenhouse gas emissions, developing energy and climate technology, and strengthening the security of supply (ENOVA, 2018). Most of the respondents mentioned the organization assisting them in financing their sustainability projects for different groups, but it is a competition to get funds.

Another similarity between Municipality A and PA A's goals is to get jobs, reduce carbon emissions, and get people to move to the area to grow. According to PA A: “We firmly believe in this and that we are going to be a zero emission ports by 2030. So, all decisions that we are making now is contributing to do that.” The respondent positively stated that this fits most companies' wants, a good location for environmentally friendly and clean operation. And because of that, they got a battery company in their city and supplied by green shore power. Consequently, *PA B* conveyed that sustainability is vital in promoting a good relationship with the city:

“...we tried to do and invested millions Norwegian kroners up. The investments in technology also improves such as the cold ironing for ferries. That is the emission to eliminate noise from the ships in, and we do it because we want to have a sustainable business. We want to do it because we want the possible relationship with our city government and our public and the neighbors.

Respondent *PA C* is also actively cooperating with different ports in Norway towards sustainability. According to the participant, they participate in various working groups within Norway, and for ferries, they have an electric shore power supply, especially during the night.

Furthermore, *PA D* enthusiastically narrated how the Zero-Emission Action Plan, a politically based plan showed an excellent collaboration between the city and port. To reduce 85% of carbon emissions by 2030, the port and climate agencies discussed different measures to achieve it. After presenting it to various agencies, two of the agencies in the city hall cooperated and participated. Consequently, the city mayor and the city council accepted the proposal. The respondent said that the port initiative was grassroots based on the emissions of the whole city, not just in the port area. According to *PA D*, their study shows that the transport sector appears as the most prominent part that produces emissions in the city and underscored:

In combination with the city’s demands for zero-emission building sites and transport solutions, you actually get a win-win in the way that they set demands, and that affects the different partners that we have in our port.

In addition, *PA D* said they initiated their investigation on what is realistically possible to reduce emissions by 2030 by using shore power for passenger ships. However, the city advised that it is not ambitious enough and has to reach higher. At the same time, they will continue to pressure different parties, shipping lines, and actors transporting cargo in and out. Due to the high cost of investing in shoring power solutions on ports, the participant highlighted the significant role of ENOVA (government body for funding). ENOVA SF is forward-leaning and has a continuous dialogue with the port, which works effectively in the port's strategy to start funding shore power. Similarly, with *PA G*, the board is aware that there is funding that they could get if they want to pursue green before the market demands it.

Alternatively, respondent *PA E* saw the benefits of shore power on the municipality's restriction on the maximum number of passengers allowed in the city. As the respondent explained:

“..the reason for putting our restrictions in the number of ships was due to emission. We can put them on shore power. That’s not a problem anymore. We admit that if we are putting too many passengers on shore to go around in the city at the same time, it would be growing challenges in the different attractions in the city.

Finally, including environmental issues in the port strategies can also support the municipality. According to *PA F*, they got a positive response from the city’s mayor and other political leaders when they adopted the main goals of the city, especially the environmental goals.

### 4.3 Summary of Results

To summarize, the primary purpose of this master thesis is to gain an in-depth understanding of the challenges of achieving symbiotic collaboration between ports and cities and learn the drivers from the perspectives and experiences of the port authorities and municipalities to work interdependently with each other. All the displayed findings are consistent with the goal, as shown by the respondents' reactions to the seven questions delivered during the interviews. The majority of respondents acknowledged the unstable relationship between the ports and their municipalities; however, the identified drivers vary in the behavior types of ports and where it is situated. The analysis of the findings provided two main themes, each with four subthemes, as presented in table 5:

*Table 5: Summary of Results*

Port Authorities		Municipalities	
<b><i>Theme one: Area of Challenges/conflicts</i></b>			
Land	port expansion, city development	Land	how much land the port is allowed to expand?

Communication & Cooperation	NIMBY effect, kommune employees close-minded	Politics	stronger voices with subjective views, incompetent port/city politician
Politics	Political parties influence, politician doesn't like cruise ships, politicians	Communication and Cooperation	inconsistent opinion/long discussion, port focus only logistical operation, ports being protective of its independence
		Environmental	noise, traffic, crowded people

***Theme two: Drivers for Symbiotic Collaboration***

Dialogue	consistent dialogue	Sustainability	same goal of reducing carbon emission, reducing noise and traffic pollution
Cooperation	Initiatives, proactive	Communication	open communication, honesty creates trust, transparent
Roles Awareness	distinction of port/city politicians, employee's	Cooperation	harmonize strategies, listen to and understand PAs



	awareness, Port is a tool for the city		projects in the council meeting
Sustainability	the same goal of reducing carbon emission, ENOVA Financial support,	Roles Awareness	distinction of port/city politicians, PAs competence

## 5. Discussions

This chapter aims to solve the questions in this master thesis by applying the results collected during the qualitative research to determine if the findings align with the existing knowledge. The order of the discussion chapter follows the two main themes that appeared in the analysis of the results. Eventually, the conclusion will be taken, recapping the discussion. Throughout this paper, the purpose has been to determine the challenges of achieving symbiotic collaboration between the port and the city and the drivers in improving the weakening interdependent relationship. Additionally, it has been extremely valuable for the author of this master thesis to contribute knowledge by analyzing the port-city relationship status in the small and medium ports in Norway.

### 5.1 Theme one: Area of challenges/conflicts

Ports and municipalities are both cohabitants. Even in the evolution of port-city relations way back in the 19th century, they coexist initially and are dependent on each other. And nowadays, the geographic relationship is still existing dominantly in North Europe. Norway's usual port management model is the landlord model, wherein the municipality(ies) are the owners.

To begin with, the interviews give an exceptional insight into the challenges of the port authorities and municipalities working together to develop each business and job function. One of these involves *land*, an issue over time and the primary necessity in business development. Most of the respondents, both the municipalities and PAs, raised the issue of city development which requires land to build housing, commercial infrastructure, offices, and buildings that serve the community. The result provides supporting evidence that this is one of the significant factors that institute port-city relationship deterioration. Furthermore, it is linked to Hoyle's (2000b) evolution theory model, and Bart W. Wiegman's (2011) spatial model for the port-city interface, wherein industrial growth, container terminals, and rapid commercial growth intensify the need for space. So, it creates a conflict zone. However, access to funding is not present in the theoretical models of Hoyle and Wiegman, considering it is a crucial aspect because the port needs infrastructure to start with the operation of cruise ships, container terminals, and other port services. It is the dilemma of some port respondents in or near the city because it involves a considerable amount of money. According to Norway's distribution of expenditure between the different sectors of local government for 2012, care for the elderly and disabled, education and kindergartens are the

majority of expenditures for municipalities, while education and public roads and transportation account for the majority of expenditure for the counties (*Local Government in Norway*). Although the state gives municipalities or municipal councils the need for self-regulation, this explains the difficulty of the financial aspect between the port authority and municipality in building port infrastructure. The degree of priorities among municipalities affects how they respond to investing in the port infrastructure needed to start with the movement. It is interesting to stress out and include future research on which extent or how much the port is allowed to expand.

Another result from this study is the challenge in *politics*. Given the structure of the landlord port, part of the board members is appointed politicians or elected officials, typically also a member of the city council. The characteristic of being administered and operated by a corporate entity (corporate port) remains publicly owned and partially controlled by the government authorities or the municipality, adding to the environment's complexity. And this is supported by Verhoeven (2010a) average composition of the governing body of ports. It is recognizable that government needs some modicum of control over the port expansion and development for safety and environmental protection; however, a flavor of political influence is sometimes at hand. It supports the findings analysis wherein politicians decided to put limitations on cruise ships just because they didn't like it. The subjective views of politicians and government administrators affect the local authority's credibility and produce gradual disconnection towards working together effectively. It can be linked to Hoyle's (2000b) studies on the early 70's and late 80's, wherein political forces still exist in this era. The delays of projects such as port infrastructure are due to political party influences, while politicians holding multiple hats often do not balance out which function to perform. In addition, it contradicts the theory of Yap (2020) in the literature review that under the landlord port, the government has a moderate influence on the port's activities. Government control, particularly on some critical decision-making, prevents the port from reaching its potential and catching up with the complex and dynamic changing market. The decision-making and investments may be responsive to political influence or the local community instead of market-based. The political appointees or elected officials with little knowledge or 'incompetent' with no background on ports, land, policy, etc., or vice versa, decelerate the decision-making process because of the need to educate the board. And in a worst-case scenario, it might result in an unfavorable decision. Conversely, appointee members are beneficial as long as they are competent and well experienced in evaluating critical decision-making.

Besides land and politics, environmental issues such as *noise* and *traffic* coming from ports also affect the relationship and limit work symbiotically because of these problems' negative anecdote or image. The noise coming from the port 24/7 with ships and cranes limits people from doing recreational activities, going to cafes, and even blocking the view downtown. In Hayuth's (1982) study, water and air quality are the primary environmental issues classified in the '80s, while noise, traffic, and crowded people in the city are the current concerns. The port respondents acknowledged this issue and emphasized the vitality of addressing it responsibly. However, this negative image is imprinted on community minds; hence a potential opposing party may influence the value of ports in the city.

*Communication* and *cooperation* are related to the challenge mentioned above and involve politicians, municipal administrators, and the community. They are intertwined and crucial factors in causing a relation to distort and separate; however not incorporated profoundly in the evolution of port-city relations by Hoyle (2000b) and Bart W. Wiegman (2011). A few of the primary external challenges identified are land, politics, and environmental issues, which are solvable through amending policy or governance structure. Nevertheless, soft human skills are also lacking in creating interrelations. Constant changing of opinions and long discussion triggers doubt about one's intentions towards an issue or project. For instance, respondents answered about an uneven stand of a council member (politician) and to the extent newspapers are used as a medium of communication instead of raising it to the board. Resorting into media could influence the public on how and what they perceive a particular project. As a result, it disrupts the communication line between the involved people from port authorities and city administrators/board members. Thus, ineffective communication causes resistance to cooperation.

The functional division has been a challenge between the city and the port. The protection of being independent of the latter shows a refusal to share valuable information and use each other potential to cater to the needs of both. There might be other sensible reasons behind it; however, it hinders working together cooperatively. The Port's primary focus on the needs of its customers only serves mainly the port and is unable to offer opportunities to the community. It supports Hoyle (2000b) port-city evolution in the early 20th century; wherein industrial growth is one of the factors as well. Improving port services to their customers is excellent, but not including all the concerned parties and port owners generates a "silo" or operating independently.

Conversely, the municipality administration's close-minded behavior and community having the mindset 'not in my backyard' or NIMBY effect contributes to the difficulty of doing things and reconciling what is necessary. An example of this is the movement of the container terminal because of the noise from cranes, machinery, and trucks, whereas in cruise ships, the general public is quiet because it suits what they want. Norway is one of the highest spenders in international tourism in Europe (Eric Neumayer, 2021). The community covers more portion of the pie, and sometimes they are the louder voice, which tends to gain more influence or edge in the development phase. It supports Hoyle (2000a), Hoyle (1989), and Pinder (1981) studies as to the community as the agent of change regardless if it is for good or not. On the contrary, sometimes it is unjust to think that louder voices are always right because they might be based on a subjective view instead of a balanced and constructive criticism. Nonetheless, cooperation will always be a challenge if effective communication fails.

## **5.2 Theme two: Drivers for symbiotic collaboration**

The port-city relationship has continuously evolved, facing different challenges in a vibrant environment. Yet, challenges are also the areas of improvement and innovation to achieve a robust and symbiotic relationship.

*Role awareness* is having a clear understanding of one's position and achieving organizational objectives. It is highlighted in this research that both the port authorities and the municipalities should grasp the difference and understand the significance of each other's scope of authority and responsibility. Applying the Angela Carpenter (2020) about collaboration as an answer could catalyze synergies and versatility in their role. Identifying when politicians should use their hats as port politicians or city politicians is efficient because it produces trust and the impression of having a sound verdict or decision without any bias. It takes someone to be a jack of all trades to perform this, but it is possible. It is proven based on PA A and Municipality A relationship analysis, wherein industrial development is currently happening in their city.

Furthermore, the city employees who deal with port authorities' activities should be aware of the broader picture, not only thinking that their perception is correct. Based on the analysis of the findings, few respondents conceded that the port is a tool for the municipality to grow and provide jobs to the people. Norway encompasses deep coastal fjords, the better accessibility of ports or harbors, and the tremendous investment potential. On the other hand, the findings tell that some

landlord ports sometimes resist the chain of authority; hence the precision of one's role is essential. Future research to explore the experiences and perspectives of port/city politicians on how they balance their crucial decision-making will be a valuable addition to this project.

Another result of this study is the communication and cooperation among the port authorities, board members, municipality employees, and the community. *Communication* is dynamic and a complex process influenced by human differences and motivation. It can be linked to María Ángeles Fernández-Izquierdo (2020) study that communication is few of the primary axes for creating transparent operation. It is vital to have open communication and consistent dialogue about unclear issues or projects and express intentions and goals. Communication also depends on the regularity and the mode of interacting with each other. For instance, informing the community on ports' activities that produce noise and traffic should be part of the plan either in newspapers or radio. Likewise, with the municipalities, continuous and consistent updates and consultation with ports relevant to them must be in place to have standardized objectives. It is not discussed profoundly in theory, which should include as a critical factor. Understanding others and being understood is extremely difficult, but honest and transparent dialogue builds trust regardless of good or bad. The Brooks et al. (2021) study confirms that visibility and openness in reporting are beneficial in assessing conflicting interests between ports and other stakeholders. Gaining trust is through honest and constant communication; thus, trust produces cooperation. It is interesting to extend this research project by measuring the trust degree between the port authorities and the cities by conducting online surveys.

*Cooperation* is the alternative word for collaboration. And according to Schubert (2020), a partnership is another version of it. Cooperation is working together to the same end, but it should work symbiotically to get each other value in achieving such a goal. Although Schubert (2020) study that breaking the paradox 'port or city' is impossible due to development planning different parameters, it contradicts the result of this study wherein through initiatives, harmonized strategies, and openness to listen; it is attainable. A few of these scenarios is that some port respondents initiate to move outside the city for the city's growth, initiating carbon emission research and including environmental issues in the port's strategic plans, which catches politicians' interest and private sectors. Also, municipalities plan to harmonize with port strategies and acknowledge their expertise when an important decision needs to evaluate thoroughly. Initiatives mean willingness

or proactive in settling issues and contributing to achieving objectives. Nevertheless, council members must be open-minded in listening to port authorities' projects despite priority disparities. As a result, it produces incremental and radical innovations beneficial to the city, such as jobs and wellness.

Lastly, the critical factor that drives port-city symbiotic collaboration is through incorporating *sustainability* in the strategies and objectives of the port and the city. Sustainability is an interconnection for cooperation and maximizing each other value, and having a shared sustainable vision such as zero-emission and reducing noise pollution is a good starting point in creating a synergy because, in the end, all benefit from it. And in the analysis, this has been explicitly explained by the port respondents. Using an onshore power supply (cold ironing) for cruise ships, moving the quay area away for offshore and cruise vessels away from downtown, limiting the number of cruise ships, adapting Environment Ship Index as an incentive for crafts, etc. These initiatives are driven by intense pressure and collaboration with organizations such as the European Sea Ports Organization (ESPO). Incorporating environmental issues on ports' agendas represents responsible for the public's welfare, not only their customers. The Angela Carpenter (2020) study in the literature review confirms that sustainability vision and plan create a symbolic leadership and a flagship inspiring and committing the different actors to its implementation.

Compared to the analysis result, local authorities proactively initiate strategies to reduce carbon emissions through the Zero-Emission-Act-Plan (ZEAP), a politically-based plan. ZEAP aims to reduce the city to 85 percent or close to zero of all emissions by 2030. The port's introduction of using onshore power also led the city to contribute by pushing all sectors in one direction, not only the cargo owners and shipping but also the transport. The shared vision of reducing carbon emission impacts the city and the port is profound on this matter, and they are in one team.

Furthermore, state funding such as the ENOVA SF has a significant impact on reducing port environment issues. Enova is owned by the Ministry of Climate and the Environment and contributes to restructuring energy use and energy production through technological developments. The result of the study highlighted especially from the port sector because of the massive amount of funding to build an onshore power supply. Due to the high-cost demand for

such technologies, the state financial support covers the need of the port and city to resolve their issues with community protection and climate change.

This chapter has synthesized the results and analysis and discussion of the interview data collected for this master thesis. The discussion is presented over two themes, examining different aspects of Norway's current port-city symbiotic collaboration relationship. Arguably, port authorities and municipalities are challenged to work collaboratively because of interest differences. Yet, both parties are positive in overcoming and breaking the silo and reaching for a symbiotic relationship via collaboration. The discussion emphasized sustainability as a starting point for a better understanding of each other's values and roles. This chapter also made recommendations and identified the need for further research because some areas are not included in the theory and are relevant to this research study. The next chapter completes the study by addressing the research questions and identifying the contributions to knowledge as well as the implications this has for future research.



## **6. Conclusions**

### **6.1 Concluding Remarks**

The final chapter presents the conclusions of the study. The exploratory study of the research questions assessed the challenges of achieving port-city symbiosis and the drivers for a symbiotic collaboration. The findings that surfaced were discussed in light of available literature. It is confirmed that the port-city relationship in Norway is unstable due to unclear communication, imprecise role awareness, failure to cooperate, political influence, land use, and environmental issues such as noise/traffic. On the other hand, it also shows that symbiotic collaboration is achievable through consistent dialogue and cooperation, a clear role, and acknowledging competence, shared vision, and sustainability as a starting point. It is relevant to emphasize that symbiotic collaboration is achievable in large ports and small-medium landlord ports regardless of whether it is commercialized or corporatized. The findings also show that few ports and municipalities in Norway are interdependent or in synergy toward achieving a common goal. The master thesis expounded on those challenges and presented different perspectives as viewed by all participants of this study, the author included. The purpose of the thesis is achieved as it contributed the knowledge on the current port-city relationship status in Norway and factors to address in improving and achieving symbiotic collaboration. Indeed, ports in Norway are likely to achieve great collaborative relationships; however, it boils down to one's commitment to cooperation, honesty in communication, and trust in creating value for each other. As stated by Patrick Verhoeven in Gothberg (2021) podcast, it requires government-owned ports' input to establish trust in sharing data or information. Thus, trust competency is vital in building the relationship between the port authorities and municipalities. Lastly, the non-response and decline for interviews of the four towns show the city's engagement in improving both relationships.

### **6.2 Limitations and Suggestions for Future Research**

This chapter of the master thesis depicts a few limitations that imply further studies. First, the limited sample size of the municipalities respondents who participated in this project is less than the initial plan of seven participants. Only three towns from the ports accepted the request, while the rest opted not to participate and did not respond to the request. Nonetheless, it is not assumed if this has any considerable effect on this paper's trend and emerging findings. At the same time, it will be essential to expand the sample size in future research. It is worth seeing

another limitation regarding data collection and safety measures in controlling COVID19; all interviews were conducted virtually via Microsoft Teams, differing from the traditional physical interview. It might have influenced the flow of the discussions and the overall interaction between participants. Lastly, not so much previous research on this topic in Norway is also a limitation as prior research might help understand the phenomena and further answer the research questions.

Throughout this master thesis, the author realized the need for further research relevant to the scope of the projects. Also, besides the proposals from the discussion part, below are a few suggestions for future research and recommendations:

- It is interesting to expand the group of samples, including all the wheel powers (e.g., customers, trade associations and industry groups, press, etc.) to gain an effective symbiotic collaboration.
- The land has always been a challenge, especially in the ports inside or close to the city. Further research should explore how ports can develop their business and optimize their strategic value despite land limitations.
- Based on the analysis of the findings, a symbiotic partnership is possible. In one of the port-city respondents, there is synergy with only minor issues, which is inevitable. Therefore, I recommend that there should be an Inter-City-Ports collaboration that includes how to sustain and improve the relationship with the local authorities. Sharing practices and experiences are beneficial for those lagging ports and cities.

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