PORT-TERRITORY INTERFACES

PLANNING TOWARDS LOGISTICS AND URBAN DEVELOPMENT SCENARIOS

Tesi di Dottorato di Marica Castigliano

Tutor Prof. Michelangelo Russo

Università degli Studi di Napoli Federico II

Scuola Politecnica e delle Scienze di Base

Dipartimento di Architettura

Dottorato in Architettura XXX ciclo

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Coordinatore: Prof. Michelangelo Russo

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«As political, economic, and social conditions change,
as trade networks are transformed,
as ships, channels, and containers evolve, cities change too,
and these functions move within and beyond the city »
Carola Hein, 2011

ABSTRACT

The research project focuses on port systems as networks of infrastructure that spread in the regional territory through seaport areas, inland terminals, logistics platforms and corridors. The study investigates processes of governance, planning tools and spatial outcomes through which port authorities, cities, regions and states support new strategies for development, beyond the boundary of the port and according to the improvement of infrastructure's performance.

The 'spaces of flows' are influencing contemporary landscapes. Flows of goods affect human behaviours and built environments by providing commodities from all over the world. For this reason, the study addresses global networks focusing on the effects that supply chain capitalism and financial elite actors produce in the local context of port regions. According to urban theories, the city is no longer a compact urban form. Urban planners have to deal with new 'splintered' forms of urbanization and urban structures spreading in wide regional areas. In the urban development framework, logistics areas related to port network are usually outsourced to engineering expertise and transport policy. Transport planning, aiming to assure the efficiency of the infrastructural armor of the territory, is increasingly disconnected from wider urban policy goals. The dissertation claims that port and logistics areas are part of the contemporary urbanized world, and are also strategic in planning, especially when new scenarios and urban regeneration programs are set up. Considering that logistics areas vary in size, distribution and location, the study investigates the port system in a multiscalar perspective focusing on multiple actors and strategies occurring from the port-city threshold to the hinterland.

The research study provides an understanding of how the port system – in its spatial and institutional implications – affects planning processes, and it questions the urban design dimension of hard port infrastructure. As a final aim, the dissertation gives insights to foster a new perspective in Italian planning policies related to port networks and port territories development. In order to do this, the research approach focuses the relationships between spatial patterns and institutional structures given the different layers of interactions that the scattered port system embraces within the territory. This approach allows for study of port-territory planning issues, addressing their variations and complexities by framing the areas

of investigation through specific port-territory interfaces. Port-territory interfaces identify areas of analysis where scattered port and logistics infrastructure interact with different territorial patterns. Applying this method of investigation, qualitative analyses have been conducted on case studies through desktop research of official documents and instruments, and semi-structured interviews to key actors. The Dutch case is framed as a European model from which it is possible to deduce insights and assess constraints in order to challenge Italian issues. The latter are highlighted through the main case study on Campania region.

The dissertation provides an analysis of different port-territory scenarios in order to foster a comprehensive vision of port system issues in contemporary urbanized areas. In doing so, it aims to propose a more sensitive approach to local implications of global infrastructure. The goal of the research study is to improve planning tools oriented to the development of successful spatial and institutional relationships of port-territory interplay.

Fig. 1 | Economies of the sea in the urban landscape, Rotterdam. *Source: Author's picture.*

PREFACE

This dissertation is the bigger step of a long research path. Port studies have become part of my professional development during my master thesis that was conducted within a cooperation between the Urban Planning Department of the University of Naples Federico II and the research group on maritime studies of CNR- IRISS. In the framework of urban design, I addressed the theme of waterfront redevelopment as future architect, aiming to provide spatial scenarios to a complex 'in-between' place.
Since then, research questions piqued my curiosity about the infinite challenges that port issues provide to urban planners. I felt that I had only caught a glimpse of this dimension, and the port-city threshold became the point of departure of a fascinating world made of networks, flows and spatial patterns.
During my PhD course, I developed this interest, and I framed it into a research project. For this opportunity, and for his support and trust, I want to thank my tutor Prof. Michelangelo Russo.

Naples has been the inspiration behind my research project much before becoming the main case study of this dissertation. Its maritime history and its complex and poetic relationships with the port and the sea, led me to constantly observe, learn, and find again new questions. When I felt the need to observe, learn, and explore *new seas* and tackle new challenges, I built my chance to be a guest researcher at TU Delft in the Netherlands, and gain knowledge from the case of Rotterdam. This would not be possible without the support of Prof. Carola Hein. I am very grateful to her for the inspiring discussions, and for ensuring the conditions of my visiting. This experience improved me both as an academic and as a human being.
I want to express my gratitude to the funding program STAR-COINOR for trusting my research proposal and supporting my visiting period in the Netherlands.

I owe my thanks to all my interviewees that provided fundamental insights and directions to my dissertation.
Thanks to Dr. Francesco Messineo, Dr. Antonio del Mese, and Dr. Fiorinda Corradino (Port System Authority of Central Tyrrhenian Sea), Prof. Mario Calabrese (Municipality of Naples), Dr. Daniele Trosino (Interporto Campano S.p.A.), Dr. Fausto Mauriello (Municipality of Nola).
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This dissertation has been an insightful and priceless opportunity to explore my interests, challenge my limits, and learn a lot about myself.

Marica Castigliano, Naples, December 2017

Chapter 1.

Introduction

The Research Framework

1.1 | Introduction: Studying Port-Territories Interplay from the Coast to the Hinterland

The development of ports has modified the conditions of the territory affecting land use and governance structures. By embracing maritime global flows, ports are faced with several challenges such as variations in size, spatial shifts, new assets of rules and laws, and complex and multi-sectoral relationships with the surrounding environment. Throughout history, the importance of the port in the economic development of regions and nations has allowed the infrastructure to lead territorial transformations. The research project aims to address these territorial entailments of port development by considering the 'territorial' dimension in its geographical, administrative, and institutional aspects.

In the last decade, port regionalization occurred in port studies to label the ongoing spatial shift of terminals, distribution centres and port related developments towards the hinterland of seaports[1] (Notteboom & Rodrigue, 2005). Admittedly, this phenomenon shows how 'global-local spaces' emerge beyond the waterfront and materialise in specifically built forms, governance arrangements and economic development trajectories. Emerging port related geographies have been scattered over wider regions, and have defined a new urban phenomenon characterized by multi-level planning conflicts (land use, freight flow management, financial interests, environmental issues). Hence, market dynamics are shaping the contemporary landscape[2] through networked infrastructures underlying our daily life.

Given this perspective, the multiple nodes of port systems interweave different relationships with the territory. Seaports, logistics platform and inland terminals imply a new planning approach aware of local dynamics imposed by national governments. In an improved planning and policy perspective, these infrastructures are addressed as part of the urbanized landscape and thus, they should be involved in the design of urban development strategies.

In the overall framework of urban research studies, the research project aims to contribute with an empirical study to the theoretical backgrounds in which the research object is embedded. The port infrastructure, indeed, represents a physical and institutional entity involved in the changing processes of the production of the city, the definition of urbanized areas, and the concept and management of contemporary fluid spaces.

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[1] Throughout the dissertation we will refer to coastal ports as 'seaport' in the European meaning of ports accessible (directly or indirectly) to seagoing ships. Thus, maritime ports and river ports are included in this term.

[2] In literature, it has been labelled (with some differences) as infrastructural landscape (Graham & Marvin, 2001), logistics landscape (Waldheim, 2006) and operational landscape (Brenner, 2014).

The economic influence on urban geographies leads the territorial development, and, since the economy changes rapidly, the spatial organization of economic activity has been fundamentally transformed over recent decades[3]. Flow of goods, information, people and capital are shaping the built environment, and the way of thinking of the city in its fluid condition is changing as well. The spaces made by architectural objects and designed for everlasting time are not adaptable to the rapid changes occurring in our society. In this new flexible environment, processes, flows, fluxes, and relations should be the focus of attention, rather than an analysis of elements, things, structures, and organized systems (Harvey, 1996). We state that new concepts of urban spaces as places marked by movements of flows are required to define new agency of urbanism and planning in the era of globalization.

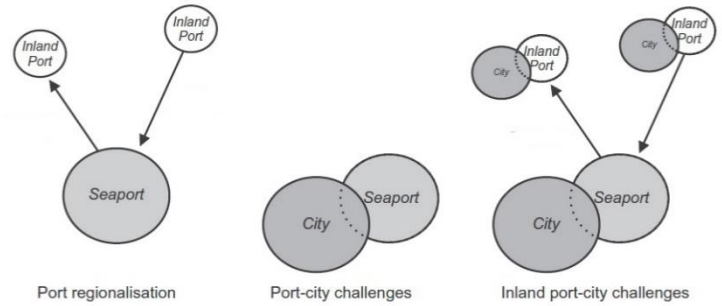

Fig. 2 | Spatial models of port regionalization dynamics. *Source: Author's elaboration based on Witte et al. 2014*

The changes in the port system also witness the shift from the industrial to post-industrial economy. This change is characterized by an improvement in the production chain influenced by the increase of informational and infrastructural networks, and the development of capitalism. Indeed, the Fordism model based on mass production was replaced by the 'post-Fordism' era in which the labour chain is displaced according to economic profit. In the freight distribution system, artificial flows of logistics are led by the movement of capital and business accumulation. This global framework of financial power is played by macroeconomic actors that translate their economic interests into new geographies (headquarters, private terminals, port expansions). On the other hand, global demand shapes variable processes of governance that are in charge to make local decisions

[3] This assumption, claimed by numerous scholars of social and political sciences, has been fruitfully addressed in the planning research field during the session 'Territori dell'economia' (Chairs: Stefano Munarin, Maurizio Carta), atelier of the XVIII SIU (Società Italiana degli Urbanisti) Conference 'Italia '45-'45. Radici, Condizioni, Prospettive', held in Venice, 11-13 June 2015.

and influence spatial policy, projects and plans. If, on the one side, port development is led by external factors coming from economic interests, on the other, spatial implications are locally rooted. The management of artificial flows of logistics 'reterritorializes' the global economies through governance processes aiming to materialize trades and capital in space and time. In order to define the morphological aspects of the reterritorialization process, port geographies are embedded in spatial policy, plans and projects of national, regional, and local planning.

Given this, the port system becomes a resource to design the port-territory interplay. The capability of the port system to be simultaneously 'maker' and 'breaker' of cities (Clark, 1958), and the deep connection between ports and urban spaces, are underpinned by historical and geographical researches. Furthermore, the bond between the logistics and the territory reveals an increasing attention to land use implications in urban and regional planning. The spatial organization of economic activity regarding logistics goals, plays an important role in changing the landscape. Thus, the development of port systems – pursued as a regional economic aim – is entrenched in planning scenarios focused on the transformations of urban as well as peri-urban and hinterland areas. We argue that, as a spatial entity, the infrastructural elements of the port system are matter of urban studies and planning practices. The port system as a planning device between global and local forces reclaims the role of urban design and planning in the contemporary networked territory.

1.2 | Research Object: The Port System as Networked Infrastructure between Global and Local Forces

The port as an object of study is deemed as a sample of dynamic changes in the urban environment, and it allows us to address the challenges that global networks induce to the local scale. Due to the improvement of technology and the globalization of markets, the port infrastructure became a lens through which to observe the progress of the society not only in terms of goods and people transport. Ports are local suppliers of jobs, engines of regional and national economic growth, and providers of policy changes. These areas of influence define the port as a complex research objective that involves multi-disciplinary accounts and wide historical and institutional frameworks. In this regard, we challenge the port as circumscribed reality to be observed in its nodal characteristics of urban space within port cities. The research study embraces the global perspective by considering the port as a system made by scattered fragments working together to improve the performances of port regions and attract financial capitals. Thus, the port is seen as a

fundamental infrastructure that absorbs and, at the same time, induces changes in the contemporary society by managing flows – the nourishments of our daily life – and by working as a link between the dynamic global environment and the territorial local requirements.

In the overall structure of port areas, the research project focuses the logistics geographies (commercial ports, inland terminals, logistics platforms) related to regional gateways (see Pain, 2011) physically interwoven in urban contexts[4]. By undertaking the regional dimension, port issues are addressed across multiple scales of territory. The interplay between the port infrastructure and the territory form the basis of the research project. They include several aspects and have been addressed by numerous disciplines such as economic, geographic, political and law studies. This dissertation aims to focus the planning issues related to governance structures and spatial assets of port systems by reframing the geographical dispersion of logistics areas, and by analyzing the relationships between the infrastructural spaces and the surrounding urban environments. Therefore, the research study claims the need to conceive the contemporary spatial structure of ports as constellations of working areas with different functions and features, all collaborating to improve the port network's performances. The competitive role of ports in the global market affects the development of port cities and port regions since they are major nodes of the global supply chains. The race towards an efficient trade transport network is leading spatial transformations also beyond the urban context due to the localization of logistics services such as storage, consolidation and high-throughput distribution in peripheral and inland areas. The resulting shift out of urban centres towards sub- or peri- urban places is known as 'port regionalization' in the frame of port regions (Notteboom & Rodrigue, 2005), or as 'logistics polarization' in more generic terms (Hesse, 2008). Nowadays, the form of the port systems is a network of infrastructures dispersed in the regional territory, for instance through seaport areas, inland terminals, logistics platforms and multi-modal corridors. These geographies of distribution are the outcome of the physical organization of supply chains and logistics networks. Moreover, they are changing the contemporary spatial pattern of metropolitan areas giving rise to 'interconnecting infrastructural landscapes' that lead the urban process defined by global flows, movements and exchanges (Graham & Marvin, 2001).

By addressing this geographical phenomenon, the research study originated from the question '*how do the economies of the sea shape the territory?*'. The first insight comes from assuming a new port paradigm according to the changing logistics environment. Several former studies have defined the port paradigm model as a networked infrastructure (see Graham, 2000; Neuman, 2006) according to the evolutionary development of port

4 With this statement, we aim to exclude, from this research study, port areas that do not have any relationships with the urban built environment such as transshipment ports and off-shore platforms.

systems. The overall concept of 'infrastructure network' well describes the notion of 'port system' since it refers to the spatial and operational structure of port clusters as set of nodes and links influenced by global and local forces that affect the exchange of flows. Furthermore, the networked infrastructure paradigm witnesses the multi-scalar aspect of port system. It underlines the physical and functional characteristics of the infrastructure as a local supplier of services (mobility and goods distribution) and it highlights the wide context of economic and institutional networks in which the port system operates as a global device.

The spatial and administrative changes, indeed, contribute to draw the port system as the dynamic element of the built environment that needs to be re-framed through updated and multi-perspectives backgrounds in times of remarkable transitions (the global market) and innovations (the containerization). Thus, the new port paradigm underpins the research project by tying together a dual aspect: the port as place in its morphological and sociological framework, and the port as an element in the supply-chain within logistics issues.

1.3 | Problem Definition: Bridging the Gap between Transport and Urban Development Policy through Planning Strategies

Both transport and urban development policies intervene in the regulation of port network since port development represents a primarily freight related issue that combines flows and places. Nevertheless, the absence of a comprehensive policy approach led to conflicts between the infrastructure and the territory. Transport and urban development are indeed oriented towards different goals pursued through different planning instruments. Although the process of geographic dispersion is largely a result of transport policy – affected also by the decisions of shippers and logistics providers –, urban development policies can shape it. In the current planning perspective, the development of port systems is strictly related to sectorial infrastructural issues, and it misses a constructive involvement in the governance processes committed to the development of urbanized areas.

Focusing on the coastal zones, the detachment between the development of the port and the city has been deeply argued by geographers, economists, historians and urban planners since the 1980s. The security and efficiency of the infrastructure have made the internal system of rules independent from the nearby urban context. In the late XX century, this phenomenon appeared to be a planning issue due to the spatial transformations required for the expansion of the port. The competition between the port and the city for the conquest of the water's edge led to develop forms of cooperation translated into regeneration projects

of urban waterfronts. Although this development approach of port cities is an ongoing process in theoretical research and practice paths, the collaborative relationships between the infrastructure regulations and the territorial strategic visions are still restricted to waterfront issues.

We underline the lack of these collaborative relationships in all the constellations of elements making up the port network. Inland terminals, logistics platforms and distriparks are therefore excluded from research projects focused on urban development planning. The divergence between transport aims and urban development trajectories, is highlighted by Clementi (1998) who emphasises the image of the network devoid of identity, in contrast to places continuously shaped by users' behaviours:

> *« […] the spaces associated with large networks are home to a conflict between two very different worlds. One is subject to the imperative of functionality and economy of service, and is generally oriented as much by homogeneity as the isotropic nature of its conditions of use along its various paths […] The other affirms the irreducibility of local contexts to the logics of the network, in the same manner as the measure of the finite and the existence of specific quality oppose the character of the unfinished and the neutral associated with the network»*[5] (Clementi, 1998: 18).

In the urban development framework, logistics areas related to port network are outsourced to engineering expertise and transport policy. Transport planning, aiming to assure the efficiency of the infrastructural armour of the territory, is increasingly disconnected from wider urban policy goals. This leads to conflicts over specific projects since the transport interests led technical or economic priorities rather than providing actual experiences to local users. Furthermore, transport links play a role in structuring maritime deconcentration. The transport planning practices focus the provision and canalization of flows without addressing place-based issues (Vigar, 2017). This process creates thorny interactions between the space of flows and the space of places[6] that grounds pragmatically in the transport and spatial policy disconnections.

We claim that the deep knowledge and the vocation of places should be integrated in the dominant forms of knowledge typically extant in transport planning processes. This means stressing the concept that infrastructures do not lean on undefined and anonymous surfaces,

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[5] Translation from Italian reported in *Waterfront. Dal conflitto all'integrazione*, Pavia R. and di Venosa M. (eds), ListLab, Trento, 2012.

[6] See paragraph 2.5 for research insights based on the concepts of 'spaces of flows' and 'space of places' introduced by Castells (2000).

conversely, they become part of the place with its shape and uses. Moreover, they are elements of the urbanized territory with its social, economic and geographical implications. Their minor role in urban development scenarios witnesses an incomprehensive perspective of the urban vision.

In this regard, the spatial integration between logistics areas and urban spaces is not the focus of this dissertation, although spatial interactions will be addressed as tool of analysis. The lack of a physical overlapping between these different areas is easily comprehended by considering security issues and negative externalities such as pollution and noise. Even though the port regionalisation phase is largely driven by both push and pull factors, a scope of action remains for public policy to shape its spatial contours (Raimbault et al., 2016). The dimension of the urban governance plays a role in the fulfilment of the gap between transport and urban development policies. By analyzing the development of port infrastructures, it is clear that the governance issue of transport plans mostly refers to coordination problems within the logistics chain, and largely overlooks how governance takes place in terms of strategic and land use planning. Therefore, we embrace a wider concept of networks[7]. They are primarily perceived as transport flows and logistics chains but they also involve relationships among actors that define institutional patterns influencing and shaping the governance and thus the development agendas through networking. The concept of governance herein highlighted, considers the public policy as not restricted anymore to governments decisions but as a process of coordination of private actors, social groups and public organizations in order to attain appropriate goals (Le Galès, 1998). Hence, in this globalized era, the new logistics 'geography of multi-scalarity'[8] (di Venosa, 2014) could be considered as catalysts of urban and political change. The processes that generate these geographies are fuelled not only locally, but regionally, nationally, and internationally and involve transport as well as urban development policy.

Historically, freight distribution and logistics became directly addressed by transport planners around the 1970s and 1980s, focusing on measures that were devoted to widening and expanding the infrastructure network. Only in the 1990s, the issue of intermodalism evolved as a generally accepted paradigm for policy and planning (Banister, 2002). The request of rethinking the transport infrastructure in a spatial perspective comes also from European directives. In the ESDP (European Spatial Development Perspective) document, the development of corridors – that we could extend to all the nodes of the logistics flows – is related (consequentially) to the safeguarding of settlement patterns in its components of open spaces, natural areas and sensitive landscapes (CEC, 1999).

[7] As a general definition, «A network is a fundamental representation of space which can accurately represent a wide range of relationships» (Curtin, 2017: 153).

[8] 'Geografia della multiscalarità' is the original Italian quote. The term 'multiscalarità' translated as 'multi-scalarity' is referred to the multiscalar characteristics of various (urban) phenomena.

Moreover, by focusing both the infrastructural and the urban policy dimension of port territories, the research study aims to develop a renovated planning interest towards in-between spaces. In this research, in-between spaces are considered as fringe zones surrounding the infrastructure and excluded from urban planning visions. They are the spatial components of the interface between infrastructure and urban areas and they define the buffer boundaries of sectoral infrastructures. Spatially, we claim that they represent the physical gap between transport and urban development planning. Depending on the typology of infrastructure (seaport, distripark, inland terminal, etc.) and, therefore, on the permeability of urban functions, in-between spaces could be involved in urban design processes.

The gap in public policies is also revealed in the research patterns that divided the port subject into two branches: the technical aspects of infrastructure management and distribution of flows, and the morphologic features and design processes[9]. The research study aims to address the port system as a network embedded in transport as well as urban planning processes. In order to do so, we frame the port as an element of the supply-chain in the urban development framework. This led to involvement of infrastructural geographies in planning strategies by considering the scattered port system as a planning device. The port network, as part of the fragmented urbanized landscape, contributes to define – among others – the spatial characteristics of a place. Furthermore, it is the economic engine of regional development. Thus, the development of the port network, benefitting from financial interests, could lead the transformations of the territory taking into account social, environmental and spatial needs.

Assuming the centrality of the port networks and its regional dispersion, we aim to shed light on the evident dysfunctions that affect current port and urban policies in Italy. Public policy and planning instruments regarding port and urban structures are formally disconnected. This is mainly due to the extent of the area of influence of planning subjects. For their nature of nodes between global and local flows, logistics infrastructures comply with national and regional overviews through an operational planning approach. Urban plans are instead focused on local places with circumscribed boundaries and are oriented to improve the quality of life through functional guidelines or design projects. In a planning perspective, these two different trajectories are translated into disconnected planning policy and tools. Transport regulations set the infrastructure of national interest with a top-down approach. The central government establishes the distribution of economic resources for

[9] The dual aspect of the port subject is underlined and very recognizable by analysing the presence of the port as object of study in specialized journals belonging to different research sectors. For example, on the one hand, *Journal of Transport Geography, Maritime Policy and Management, International Journal of Transport Economics*. On the other hand, *Cities, Journal of Urban and Regional Research, Environment and Planning*. Nevertheless, many of these research contents could be defined as interchangeable between the two areas according to the multiple aspects involved in port issues.

the development of infrastructures according to local needs through transport plans. Regions and municipalities include these infrastructures in land use plans by determining geographic locations and spatial boundaries. This approach is therefore limited to the supply of services. On the other hand, urban plans tend to avoid the spaces of infrastructures in their strategies. Logistics areas are considered as empty spaces excluded from strategic visions that aim to improve the quality of spaces. In the Italian planning scenario, it is fair to claim they are generally considered 'non-urban' and thus inadequate to become part of design projects or even be addressed by urban planners.

1.4 | Research Questions and Aims: Towards a Comprehensive Planning Approach for Italian Port-Territories

The research project aims to bridge the gap between transport and urban development policy by framing a diverse approach in regional and urban planning towards port related infrastructural transformations.

The research questions arise from both general and local issues. As reported in the two previous paragraphs, the development of the port network in its spatial and institutional components, as well as the consequent detachment between the infrastructural and territorial planning, are prominent and common objects of the study of several disciplines. The research questions frame a branch of the overall aspects of the theme by defining a national context, a system of regulation, and specific areas of analysis.

The dissertation aspires to make a theoretical contribution by providing a useful understanding of the role that port infrastructures play in territorial planning. More specifically, starting from the very first research insight '*How do the economies of the sea shape the territory?*', we seek to understand how port regionalization changes the territory from a spatial and institutional perspective. In general, we think that port regionalisation, as a process and a spatial outcome, is also of interest to planners. Excepting waterfront redevelopment issue, spatial disciplines remain almost absent in the discussion about these new infrastructural geographies. As reported by Raimbault and colleagues (2016):

> *«Port regionalisation shows that the development of inland logistics hubs in semi-urban and semi-peripheral locations are as much a part of the wider structural changes as the actual retreat of transport activity from waterfront locations in urban cores»* (Raimbault et al., 2016: 30).

The research general aim tries to provide a new resolute perspective to the research problem and thus to bridge the gap between transport policies and urban development strategies in port territories.

The **research hypothesis** we aim to explain and investigate assumes that:

> operational geographies of port networks are part of the urbanized territory and play a role in the planning system across multiple scales. Scattered port related logistics areas are shaped by global phenomena and contribute to build local places particularly in their governance and morphological forms.

The research project focuses the processes through which 'the local' adapts itself as a reaction to external forces such as market economy and technology improvement. It specifically aims to investigate contemporary port geographies through processes of governance involving port authorities, cities and regions.

The main **research questions** are:

> How does the economy-led port system shape the planning processes?
>
> How could the interplay between the port network and the territory become a driving force for Italian urban and regional planning strategies?

These questions imply the development of a comprehensive planning approach. The **research aim** is to give an insight into the planning development strategies tying together the port network's expectations and urban regeneration goals. This clue, according to the research hypothesis, arises from the assumption that local spatial plans can benefit from territorial logistics purposes by leading the transport-led transformations towards the fulfilment of social needs such as the provision of new services and compensatory measures.

In order to analyze this assumption, the research study addresses spatial and institutional processes of port geographies.

Furthermore, the dissertation stresses the relationships between the territorial policies that aim to strengthen the port infrastructure's performances, and the urban and regional planning scenarios that draw the future spatial development of urbanized areas.

The research questions include two **sub-questions** related to historical, geographical and methodological aspects:

1. How could the relationships between the operational geographies (related to the global scale) and the territory (local scale) be addressed in its multiple dimensions?

2. How could the Italian port and urban policies be influenced by a new comprehensive planning approach?

The main questions lead the design of the research strategy by framing the research methodology.

The subsidiary questions underline key aspects of the research project and they are assumed as stepwise milestones in the building of the research path. Therefore, the sub-questions reveal the main structure of the dissertation: the development of a research methodology and approach, the analysis of a case-study context, the theoretical premises for the main conclusions.

First of all, the sub-question 1 implies the development of a methodological framework. The extent of the theme has been focused on through a conceptual lens able to frame the research trajectories. The concept of the 'interface' is developed from the literature insights and improved to meet the research objectives. The multiple dimensions of actor arenas, multi-level policy, planning tools and spatial outcomes have been taken into account in the analysis of port-territory relationships. Secondly, we claim the need to define the spatial aspects and the national characteristics of a phenomenon largely accepted in the scientific field but usually addressed in generalized and abstract terms. Moreover, its geographical implications are strictly dependent on topographical and governance issues, and, as a consequence, port regionalization has local peculiarities that need to be addressed in empirical researches. Finally, the last sub-question tries to set the key elements that can answer the main questions. A change in the public policies is thus required to assimilate the new port paradigm in planning strategies. This change is pursued by identifying important gaps in Italian planning policy tools that are stuck in their sectorial approach.

What we are interested in is developing an understanding of the relationships between spatial projects and institutional impact given the different layers of interplay that the scattered port system embraces with the urbanized territory. In order to do this, we take into account the different types of interfaces that the elements of the port system interweave with the territory. The role of multiple agents involved, both in global supply chain and in public structures, is addressed to understand the degree to which they are institutionally

embedded in specific port-territory interplay. In particular, we are interested in developing a theoretical understanding of how institutionally related strategies affect the space and governance of port development and how common strategies between the port and the territory can shape successful planning processes.

1.5 | Research Approach: Spatial Patterns and Institutional Structures of Port-Territory Interplay

The research project specifically focuses on the effects of port infrastructure development in the broad territory in terms of spatial and institutional entailments. The research study embraces the multi-level range of territorial management to comply with the ramification process of the port system and its variations as scattered infrastructures. The multitude of forms and characteristics that define the port system imply different levels of interplay between the infrastructural spaces and the urban settlements.

The research approach highlights physical and institutional relationships between the port related infrastructures and the urban contexts. In this regard, the dissertation embraces the spatial and the institutional perspective by addressing the geographies and the processes that determine the port-territory interplay on different scales.

The choice to adopt this approach stems from the statement that economic issues – specifically the economies from the sea and the freight transport sector (Bologna, 2010) – are the leading forces of regional development. Hence, the need to improve economic performances defines a different speed in territorial changes. The port related infrastructures have an impact on the urban form affecting several aspects of territorial management. As they are part of the bone structure of the territory, these infrastructures are not tiny and ephemeral urban phenomena. They shape the space with a wide expanse of concrete and the efficiency of inner activities impose well-defined boundaries and suitable corridors' accessibility in order to foster the movement of flows. The 'hardness' of the port logistics areas shapes the land use as well as the territorial governance[10] (Davoudi et al., 2008; Lidström, 2007).

[10] «Territorial governance concerns the relationship between governance and territory. It can be understood as the policy, politics and administration of the territory – at local, regional, national and the European Union (EU) levels. It deals with the number of levels of government, how the borders are drawn, how the functions are allocated, the extent of autonomy and how the units are governed. It also concerns patterns of co-operation and collaboration, both between units of government and between governmental and non-governmental actors» (Lidström, 2007: 499).

The key role of infrastructure settlements in transport policies and in land use management entails complex processes in developing parameters and rules between public authorities at all levels. Therefore, the research study made use of a double oriented perspective taking into account the different scales affected by port related issues. On the one hand, the dissertation claims the need to analyze, while at the same time the spatial and the institutional sphere of urban planning processes bring into focus the interactions between the two key factors of territorial development (space and governance processes). On the other hand, the multi-level complexity of the object of study implies investigation of the decision-making procedures that lead the development of port infrastructures by going through the scales of all the involved administrative levels.

The aim to combine spatial and institutional aspects in port studies has been pursued by scholars of political economy (Jacobs, 2007), urban and port management (Daamen, 2010; Daamen & Vries, 2013) and maritime transport (Ng & Pallis, 2010). We aim to contribute to this research path by providing a planning perspective faced with both logistical and urban issues. The spatial scale is a complicating factor for studies related to global supply chain strategies of port actors. Thus, we can not reduce the spatial dimension in a simple global-local dichotomy since port actors are subject to place specific institutional framework (Jacobs & Hall, 2007). As a consequence, this combined approach requires us to deeply analyze the spatial policy of the state, the historical development (to discover form of path dependence) and the system of rules which structure the interactions between institutions.

Whereas the territorial infrastructures are pertaining effects occurring at multiple territorial levels in-between the global and the local, the research project embraces the concepts of multiscalarity and transcalarity. This approach is required to tackle phenomena engaging multiple scales (*multiscalarity*) and that can be observed by various points of view (*transcalarity*). The adopted notion of multiscalarity goes beyond the comparison between measures and the fragmented actions of a sector-specific planning approach. It is an interpretative lens that considers the production of contemporary space as a process of interactions between economic, social and cultural aspects (Russo, 2015). It is also the tool through which the new urban form, which is characterized by blurred boundaries and permeated by physical and IT networks (di Venosa, 2014), is analyzed and organized. In a complementary way, the transcalar perspective approaches a phenomenon by addressing the whole set of related aspects without considering the limits of an individual scale. Through the multiscalarity and the transclarity – going through the scales and across the scales – the progress in the planning perspective means giving a new meaning to the concept of scale. If it was formerly considered as a circumscribed field of action, it is now merged with the notion of context (Pavia, 2010). The context is also conceived in a wider meaning: it is not only its physical features, it is a set of actors, norms and socio-cultural behaviors that belong to a place and have impact on the urban phenomenon.

In the research project, the pragmatic aspects of these considerations is the analysis of the morphologies in their spatial and institutional context that embrace, in different ways, multiple scales and areas. In this section the two approaches are addressed as they are assumed in this dissertation.

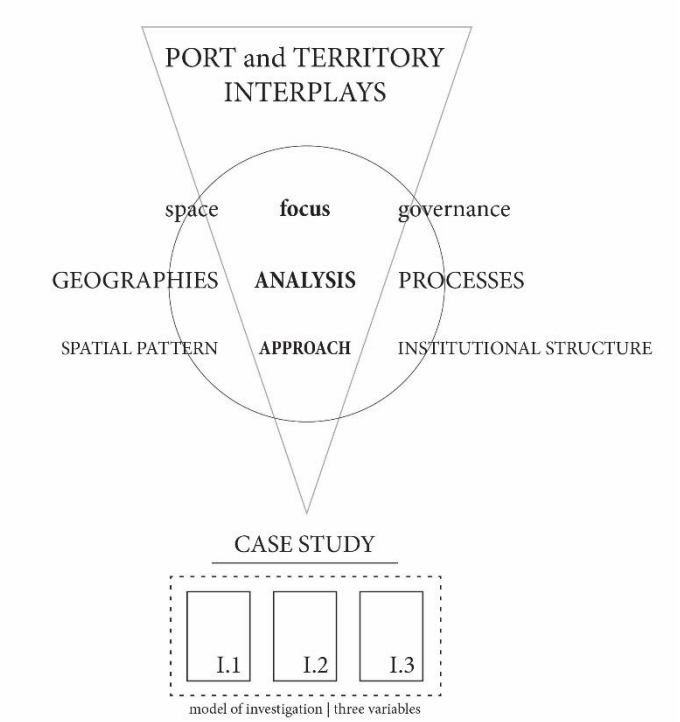


Fig. 3 | Research Framework Scheme. *Source: Author's elaboration*

Spatial approach

The research project arises from a scientific interest in the spatial implications of port development. The port regionalization sets out an evolutionary phase in which the shaping of the widespread network complies with the economic mind-set by permeating the space in different forms. The spaces of the infrastructural network have clear and organized areas exclusively settled to work as efficient elements of a functional machine that boosts the mobility of flows. Besides this economic-oriented perspective, the impact on the territory mainly affect the spatial dimension. As the infrastructures are thoroughly planned and programmed components of the territory, their spatial form is not the outcome of a spontaneous or place-based process. Actually, they usually reflect specific requests according to regional, national and supranational norms. Furthermore, the sectorial

infrastructures, like the logistics or productive areas, are not designed to respond to a collective standard of living spaces since they are operational mechanisms of introspective working networks. The purposes that lead these spaces – the economic profit, the challenge of competition and the management of goods distribution – put the infrastructure in a sector-based dimension of urban planning struggling to interact with the multi-dimensional aspects of the urban context. The sectorial transport planning underlines a more technical knowledge characterized by instrumental, means-end rationality (Banister, 2002; Vigar, 2017). The disconnection between transport and other policy goals puts aside all the aspects that, although indirectly, influence the environment in which the infrastructures are located. Nevertheless, the pragmatic outcomes of transport policies are infrastructural geographies that define new urban patterns. Thus, the spatial approach is the tool through which frame the networked geographies as part of the urbanization phenomenon and through which we analyze the relations interwoven with the territory. Through their physical aspects and morphological characteristics, these infrastructures interact with the surroundings by producing a variety of impacts on the landscape and, as a consequence, on social and cultural perception of contemporary spaces.

The spatial approach reads the territorial changes imposed by transport strategies and, at the same time, it becomes the field in which the urban planning could act to design the relationships between the port infrastructures and the urban areas in the drawing of future scenarios. The spatial approach is also adopted to deepen the urban studies on port regionalization phenomena. Indeed, the literature on this topic addresses mainly general exploration with a lack of pragmatic description about which kinds of spaces characterized the 'regionalization' of the port network.

The spatial aspects of territorial development have gained prominence since the publication of the European Spatial Development Perspective (ESDP) (CEC, 1999) that sheds light on the concept of space in public policy (Faludi, 2000). As Davoudi and Strange (2008) point out, the recent attention for the concept of space and place in public policy, has defined a spatial turn in planning practice. It has begun with the new patterns of space productions and consumptions in the post-Fordist era and subsequently has been placed as the basis for making spatial strategies. In this way, the space is seen as a study framework and, from a planning perspective, as a tool to draw and enhance the pragmatic aspects derived from the theory.

The research approach embraces the concept of space as a changing process that is constantly shaped by all the forces that contribute to influence each other «*This is a relational view of space in which, rather than space being viewed as a container within which the world proceeds, space is seen as a co-product of those proceedings*» (Thrift, 2003: 96). This relational conception of spatiality, introduced by human geography and sociology, sheds light on how places and habitats are economically, socially and culturally produced. Contrary to the absolute view of space as independent of external factors, the

relational perspective considers the space as produced by processes which themselves are made by the relationships established between entities of various kinds (Harvey, 1996). In order to embrace this relational view of space, we address the study of these relationships through an institutional perspective.

Institutional approach

The dissertation adopts the institutional approach to analyze the governance processes underpinning the development of networked port infrastructures. This approach broadly seeks to clarify the processes whereby institutions change, act and affect behavior of agents such as organizations, government and people (Powell & Dimaggio, 1991).

Institutions are assumed as a system of norms, rules, procedures and programs that give rise to practices and outline relationships between various actors in different arenas (Giddens, 1984). Given this perspective, we argue that institutional changes become concrete in the shaping of the built environment.

The institutionalism framework is rooted in the political sciences since it aims to advance the understanding of the political world. Besides, the social context plays a role in defining in which measures the institutions have an effect on political outcomes. Hall and Taylor (1996) identified three different schools of thought[11] that, although framing different pictures of the political structure, all attempt to define the role institutions play in social and political outcomes.

Based on the theoretical analysis of the branches of institutionalism theory, we embrace the institutional approach following the trajectory of the 'sociological institutionalism' since it considers a broader meaning of the notion of institutions by including not only rules, norms and procedures but also cultural attitudes and values[12]. Thus, in modern organizations, institutional forms and procedures should be seen as culturally specific practices. In other words, the cultural aspects affect the organizational structures and vice versa in an exchange of mutual interactions that make it not possible to divide 'institutional' and 'cultural' explanations since both are shaped by constraints and pressures from the contexts. In defining this approach, which arose in the late 1970s, Healey (2007) specifically analyzes the label of the institutional trend by giving insights about the deep meanings of the terms:

[11] Historical institutionalism, rational choice institutionalism and sociological institutionalism.
[12] For this reason the 'sociological institutionalism' is concerned more with other disciplines rather than political science (Peters, 2000).

> «*The 'sociological' term refers to the way that governance processes and policy meanings are produced through social relations in which potentially multiple frames of reference are constructed, mobilised and shaped into policy discourses which then interact with the various practices of governance. The 'institutionalist' term refers to the complex and evolving ensemble of formal and informal norms and practices through which governance processes and discourses are constructed, consolidated, challenged and transformed*» (Healey, 2007: VIII).

According to this, 'sociological institutionalism' has developed in the planning theory «*as a way of locating policy actions and practices in geographically specific governance contexts and connecting the phenomenology of micro-practices to wider structuring forces*» (González & Healey, 2005: 2057). Furthermore, planning is regarded as part of the attempts of governance to manage the issues of the urban complexity (Healey, 2007).

This approach entangles the institutional framework in the governance dynamics considering a dual effect. On the one hand, institutions are able to shape organizations by influencing the mindset of actors whilst, on the other hand, governance structures can influence institutions. The institutional approach is thus seen as an investigative lens to study governance in its contemporary meaning[13] that has shifted from the mid-twentieth term 'government' – related to formal and hierarchical public sector agencies and bureaucratic procedures. It refers to both the overlapping of different spheres (state, economy, daily life, etc.) in the definition of actions and policies, and to the involvement of new actors in the political arena (Davoudi et al., 2008). In referring to planning activities, governments have predominantly lost their leading role in policies and project process-making since they must deal with 'external' actors such as private companies, community groups and other authorities. Hence, we use the institutionalism aid to face the complexity of these negotiation processes by analyzing the set of decisions that underlay planning and spatial actions.

Moreover, through the institutional approach, the research study addresses the governance dimension in port development by addressing actors, arenas, practises and decisional processes involved in the spatial transformations of port regions with the overall aim to

[13] «Since governance is not about government, what is it about? Partly it is about how governments and other social organizations interact, how they relate to citizens, and how decisions are taken in a complex world. Thus governance is a process whereby societies or organizations make their important decisions, determine whom they involve in the process and how they render account. Since a process is hard to observe, students of governance tend to focus our attention on the governance system or framework upon which the process rests - that is, the agreements, procedures, conventions or policies that define who gets power, how decisions are taken and how accountability is rendered» (Graham et al., 2003: 1).

understand the geographies through which the spatial patterns of infrastructural phenomena are produced. This approach allows us to address both the administrative process of defining system of regulation (to manage the port development) and also to analyze the effects that spatial development draws on the surrounding environment in terms of social responses and their adaptability to new operational landscapes. The institutional approach boosts the multiscalar and transcalar perspective of the research study by bringing together different government levels and sectors, as well as the array of external agencies and companies.

1.6 | Research Methodology: the 'Interface' Model of Investigation as Research Tool. Learning from the Dutch Case and Developing the Case Study of Campania Region

The research project uses the **planning and policy paradigms** in the field of port research by addressing the global entailments of port networks on a local scale. The previous paragraph dealt with key knowledge concepts that define the overall research methodology. Through this approach, we aim to understand the way port networks engage in spatially and institutionally oriented strategies within a glocal dimension in order to boost the port-territory development. This paragraph develops and operationalizes the conceptual model in order to translate the research path into actions. The responses to the main research questions[14] are drawn by a stepwise research design process that goes through theoretical analysis and empirical studies.

A **qualitative approach** leads the research analysis to acquire and process data through the observation of territorial and urban materials, and the study of official documents. The understanding of past processes underlying spatial projects is drawn by the narratives of professionals and it gave us insights to interpret the development processes according to our research trajectories.

The final goal is to foster a new perspective in Italian planning policies related to port networks and port territories development. Besides the general deficiencies identified in official documents and governance structures, we claim that specific observations can be addressed only by detailed case study analyses of port geographies at local level.

[14] The principal research questions are here reported in order to simplify the reading:

- How does the economy-led port system shape the planning processes?
- How could the interplay between the port network and the territory become a driving force for Italian urban and regional planning strategies?

Thus, the **research method** focuses on explanatory case studies.

The choice of a method based on a case study comes from the research assumption that port and planning issues are not distinguishable from the context. This method enables us to cover complex conditions avoiding a narrow and biased approach, and it relies on multiple sources of evidence supplied by the deep analysis of the local context (Yin, 2003). Events and decision-making processes are explained in order to answer the 'how' research questions and deduce research outcomes that can be extended in the wider national context.

The main case study is the Campania region since the research elaborates on Italian port policy limits that are well represented in the analyzed local context. Besides, the Dutch case is the extreme case of this range of port-territory variables. Indeed, it reveals a pragmatic experience in which port-territory projects are not suspended. The planning visions are operationalized in spaces, and the study of the relationships between processes and spatial implications have research materials to discuss the outcomes of these interplay. Therefore, the Rotterdam port system covers key aspects of the research objectives. In this way, the acquisition of knowledge from a paramount European experience, contributes to answer the research questions and to relate the conclusions of the Italian regional case study to the national dimension in order to propose future oriented changes in Italian planning policies

Moreover, the Dutch port-territory context has a predominant value in port planning and logistics management. Indeed, the Netherlands are an excellent laboratory of logistics and transport research since they play an important role in a large number of global supply chains thanks to centuries of trading activities, a strong fiscal-financial infrastructure, and a strong and innovative logistics industry (Veenstra et al., 2012). Their strategic planning approach is extremely focused on integrative policies that fulfil both the port and the urban development aims by promoting collaborative planning instruments based on common visions.

The Campania region is a territorial and administrative unit in the south of Italy that hosts a port system made by different geographies: two main seaports, two inland terminals and a container terminal under construction on the coast. The local resistance to changes provides a fertile field of study that, through the research analysis, can emphasis the weaknesses of Italian institutional structures. From a transport logistics perspective, the Campania port system has a key role in the whole southern part of the country since the infrastructure revolving around the port of Naples are embedded in the national gateway strategy. Hence, the regional port system has been seen by governmental policies as a resource of transport services also for the other southern regions. Furthermore, former failed attempts to transform the port areas together with an ongoing complex procedure for the development of the new port planning instrument in the port city of Naples, constitute the palimpsest of unsuccessful experiences that well frame the Italian port-territory issues.

Moreover, the recent planning reform established a turn in the governance structure of port authorities by promoting a collaborative system of relationships among all the elements of the regional port network embedded in supply-chains. This change in the system of national regulation is particularly relevant in the Campania region where significant relationships based on competition between infrastructures are required to turn into collaborative structures.

The array of operational geographies that are entailed in port networks constitute a large amount of particular cases with specific relational characteristics. The research project aims to shed light on the variety of spatial pattern and institutional structures characterizing the different geographies and their relationships with the territory. Given this, the research objects can not follow only typological criteria. Hence, we developed a **model of investigation** to select the areas of analysis by improving a theoretical concept largely applied in port studies.

The concept of the *interface* has been introduced in the scientific literature[15] by Hayuth (1982) highlighting the relevance to address – from a spatial and ecological perspective – the 'zone of transition' in-between the city and the port. Subsequently, Hoyle (1989) stressed this concept addressing the interface as a meaningful waterfront area where multiple factors interact. Thereafter, in port studies, the interface has always been referred to the contact zone between the port and the city. On the other hand, the research projects that focused on the study of port systems (and not only the seaport) widely consider the set of complex logistics relationships beyond the boundaries of the port city. Thus, we argue the need to introduce in port planning studies the same investigative lens to address local peculiarities in areas in-between the infrastructure and the multiple patterns of the territory.

The conceptual framework we apply in this dissertation is the expansion of the interface concept from port-city to port-territory. Based on overall studies about urban structures and port geographies, we identify three key morphological relationships that enable the research study to address the port-territory interplay in their most common configurations. Port-territory typologies are identified according to different urban density (urban, peri-urban and mainly rural areas) and different geographic locations (coastal, retro-port logistics areas and hinterland). Besides, port geographies located in these territorial patterns are selected as sectorial operational infrastructures that affect the local landscape (seaport waterfront, commercial port, inland terminals).

This methodological framework put aspects of port network research in perspective. The 'highly sensitive areas' shaped by technological, political, environmental, economic and legal implications (Hoyle, 1989) define different typologies of port-territory interplay all concerning different ways of influencing spatial and institutional structures. This approach

[15] For an in-depth analysis about the concept of interface in literature review, see paragraph 2.2 and 2.3.

allows us to study the port-territory planning issues by addressing their variations and complexities, although framing the areas of analysis in specific port-territory categories. Furthermore, the definition of three port-territory interfaces constitutes a methodological concept applicable to other research studies and contexts.

According to this, we analyze the Dutch case through three areas of investigation: the waterfront of the city of Rotterdam, the western industrial and logistics areas of the port, the inland terminal of Venlo[16].

The case study of Campania region is addressed in areas where complex port-territory interplay took place: the port-city contact zone of Naples, the peripheral eastern area of the city and the hinterland logistics site of Nola. The case study concerns only marginally the port city of Salerno: the second port of the Campania region for its relevance in trades and passengers. Indeed, the research project does not aim to give an overview of the regional assets, rather it focuses on specific space-governance interplay that are more nationally emblematic in the Neapolitan city.

For both the cases, the three different morphological structures and governance processes have been analyzed through the spatial and institutional research approach by deducing key variables such as strategic development drivers, involved actors, governance structures, spatial outcomes and planning tools.

Reading the Italian and Dutch cases through the same methodological lens, allows to understand values and deficiencies of both cases. In this regard, we claim that these two systems have many geographical and operational divergences (i.e. the Dutch role of waterways, the amount of freight handled, the size of port infrastructures). Nonetheless, similarities in the governance structures (such as the administrative principles of port authorities) ensure a fruitful understanding of the advanced Dutch experience in order to critically analyze the Italian policies. Furthermore, the parallel between the Italian and Dutch port-territory interfaces is not to be considered within strict parameters. Some factors, indeed, do not occur in the same area, for example, the attempt to integrate logistics and urban activities is pursued in the port-city interface in the city of Rotterdam

[16] An effort has been done in choosing, for the Dutch case, 'interfaces' that can shed lights on issues arisen from the Campania case study beyond geographical or administrative parameters. For example, while the first two areas have similar spatial/institutional relationships between the Dutch and the Italian cases, the case of Venlo exceeds the regional boundaries of the Rotterdam region. This area has been addressed because it reveals a similar degree of connection mainport/inland terminal of the case of Nola (Campania). For this reason, inland terminals more connected to the administrative network of the port of Rotterdam (in which the PoR is the landlord for example) have been excluded.
Furthermore, the choice to focus the case of Venlo is also due to the willingness of the city council of Venlo that provided us useful information, besides also the availability to have English documents and information thanks to the international resonance the city of Venlo has in the logistics business sector.

(Stadshavens) and in the retro-port area of Naples (port-peri-urban interface) in the Italian case study.

The **research technique** addresses the main case study through desktop research of documents (policy documentation, spatial plans, official reports, news articles) and semi-structured interviews to key actors and staff members of both the infrastructures (Port Authority of Naples, Interporto Campano S.P.A.[17]) and the public administrations (Municipality of Naples, Municipality of Nola). Several on-site visits lead our considerations about the quality of spaces and the experience of subsidiary logistics activities in the peri-urban areas of Naples. The interviews play a role in investigating the agents involved in port-territory issues, and in reconstructing historical processes of decision-making procedures as well as stepwise development of spatial strategies. Moreover, they contribute to understanding the emerging future trajectories of the infrastructures and the territory.

The areas of Rotterdam and Venlo also required semi-structured interviews mostly directed at scholars, with three interviews to the Port Authority of Rotterdam and the Municipality of Venlo. This empirical process was needed to upgrade the knowledge acquired by previous research studies and, most of all, to have support in investigating documents and information provided only in Dutch.

1. 7 | Structure of the Dissertation

In this introducing chapter, we have provided an outline of the research study presented in this dissertation. In this regard, we have framed our main background: the role of urban and regional planning in the project of port related infrastructures. The research focus is on the interrelationships between institutions and production of space within the planning policy of port-territory development.

The relevance of the dissertation is the investigation of port related geographies and territories beyond the coast, and the focus on the main complexities and variables that the development of the port system provides to urban planners and decision makers in dealing with the interactions between infrastructure and territory on different scales.

The core of this dissertation is the analysis of two port territories. In particular, the research questions focus on the Italian framework through the case study of Campania region (Naples and the inland town of Nola). The Dutch case (Rotterdam and the inland area of

[17] The private company which is in charge for the inland terminal of Nola.

Venlo), with its specific attention to logistics and urban development planning, is the 'extreme case' that allows us to not only deduce insights but also assess constraints.

It is meant to point out that this dissertation does not aim to ensure 'solutions' or 'rules of the game'. Rather, it provides the analysis of different port-territory scenarios in order to implement a comprehensive vision of port system issues. In doing so, it aims to produce a more sensitive approach to local implications of global infrastructures and to enhance the planning of spatial and institutional relationships of port-territory interplay.

The dissertation is structured in six chapters.

Chapter two is dedicated to the theoretical background. We drew this framework by considering different research branches which have tackled the topic of the port or, more generally, the objects of flows and infrastructures. The chapter opens with port geography studies underpinning all the research projects about ports. Indeed, through this fundamental background, the development phases of ports and their areas of influence define the key for further analysis on a port's spatial implications. Subsequently, this chapter follows the stepwise process of the research path that, prompted by personal curiosity, from the local scale of seaport issues, has expanded to the metropolitan and the regional scale. Firstly, the core of urban design studies tackles the waterfront issue. This very wide literature has been summarized into the main items that gave insights to this research. This dissertation very much owes its logistics upgrade to geographers, transport engineers and economists who studied the spatial development and structures of these 'hard' port related areas. The inspiring literature about global flows and urban aspects of networked infrastructures (in its sociological and urban theory components) recalibrates the research object – broadened through logistics areas – into the urban realm. Finally, the main traits of the research study resulting from the theoretical framework are pinpointed in the last paragraph.

Chapter three provides a methodological insight. A key concept of the theoretical background is expanded in order to cover the multiscalar focus of the dissertation. The method of investigation is developed as a conceptual framework that leads the empirical analysis of case studies and that aims to improve the methodology of port researches. It defines a bridge between the theory and the research application on case studies by embracing the new paradigm of ports as a networked system made by scattered elements. Specifically, it highlights three sub-areas on which the research aims to focus the analysis of regional and supra-regional case studies.

The three variations of the interface are addressed in different sections. The chapter aims to build an overall meaning of the expanded interface concept. By focusing the general characteristics occurring in the spatial interplay of port geographies and different territorial structures (in particular, different shades of interrelations between the infrastructure and the urban fabric), this section highlights the variables that can be comprehended in the model and its adaptability to multiple contexts.

The next two chapters report on the empirical part of the study.

Chapter four explores the Dutch port territory by addressing the riverport of Rotterdam and the inland terminal of Venlo. It provides a picture of the dynamics that are taking place in a European context, the leader in logistics management and regeneration programmes. The study of the ongoing waterfront redevelopment, the expansion of the port logistics areas and the successful case of the inland terminal of Venlo reveal a dynamic dimension in which attentive policies and planning processes are shaping the urban areas of the port territory. In conclusion, different typologies of spaces and institutional implications underline the flexibility of the Dutch planning approach, its attention to port activity improvements and the importance given to social entailments.

Chapter five zooms in on the case study of Campania region. Firstly, it addresses the Italian framework of port policy and instruments in order to remark the national context and system of regulation.

The three areas analyzed in the Campania region underline the limits and conflicts occurring in the governance sphere and in the development of planning processes. The suspended waterfront redevelopment, the fragmented former industrial area of the city, and the development of one of the two regional inland terminal, shed light on the national constraints in dealing with port territory transformations.

Chapter six concludes with remarks of the research study in order to pinpoint the main highlights of the dissertation. In particular, the conclusive chapter gives answers to the research questions and traces future research development paths.

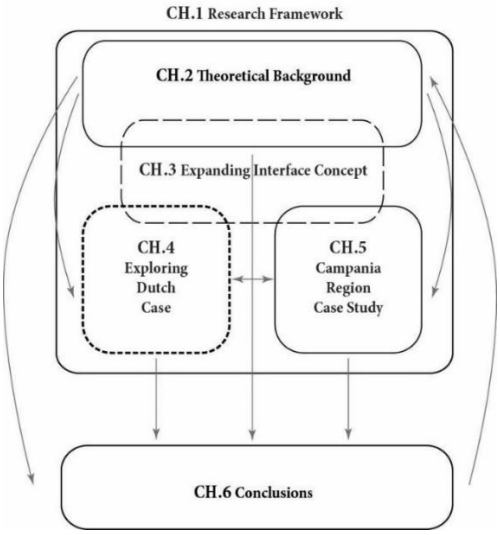


Fig. 4 | Structure of the Dissertation, Scheme. *Source: Author's elaboration*

Chapter 2.

Theoretical Background

2.1 | Introduction: The Port System from the Threshold to the Globe

The literature on port systems encompasses a wide range of disciplines that analyze the topic in different perspectives. The great amount of scientific resources shed light on the complexity of the subject and it expands the knowledge about multi-sectoral aspects. By deepening interdisciplinary studies, the dissertation focuses on the strengths and limits of port research and aims to orient the research outcomes by identifying constraints and gaps in literature.

The purpose of this chapter is to point out the research path underpinning the theoretical framework of the dissertation by selecting the relevant part of the reviewed literature that has had a major influence on tracing directions and choices leading the research study.

In this chapter, the research topics have been subdivided into four main parts that concern key themes characterizing port research: the spatial port development, the waterfront, the supply chains, and the theoretical global framework behind port network and port cities. Therefore, a combination of different approaches from transport, urbanism and urban geography, reflect the hybrid character of the subject. Purposely, we have included multidisciplinary standpoints claiming the lack of an integrated vision of port systems in urban planning and policy.

The following first paragraph aims to set the basis of the port research. The port development phases have a crucial function in approaching the topic and in understanding when and why some complexities – such as the dispersion of infrastructural geographies and the compromised relationships with the city – came to characterize the multidisciplinarity of port research.

The subsequent three sections are thematic areas that reflect macro-divisions – with some overlaps – of literature references. They constitute three different scientific approaches to port development. Moreover, the structure of the chapter is the result of the intentional purpose to gather scientific contributions around specific ‘visions’ of the port system, focusing on aspects from the local to the global scale. This process follows the stepwise building of the research knowledge that develops in order to frame the multiple aspects of the port addressed by different disciplines. The theoretical background firstly addressed the port topic in its main urban spatial studies focus (the waterfront development), and then the research path, gradually proceeded by identifying new questions,thus enhancing the research study through broader research branches and points of view (the transport and logistics management standpoints, and the urban studies on flows and global cities). In the last paragraph we will identify overlaps and gaps between those research contents, and settle the common ground of knowledge on which this research study is founded.

Finally, this theoretical exploration helps us to explain the position of this study within the fields of research we draw upon in this dissertation.

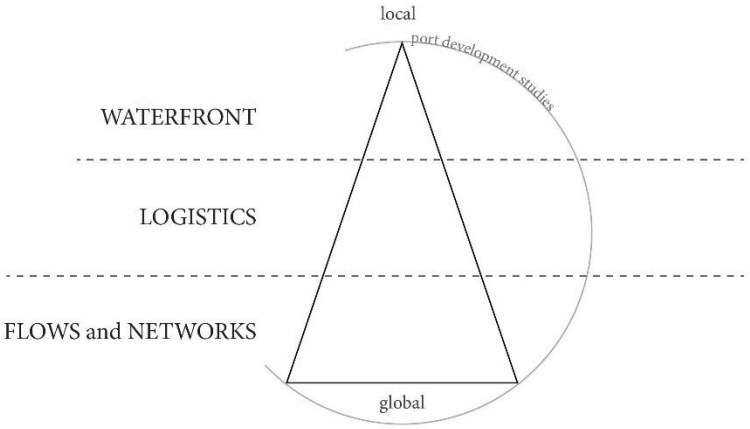


Fig. 5 | Theoretical Background, Scheme with Keywords. *Source: Author's elaboration*

2.2 | Port Evolution and Areas of Influence. The Port as a Changing Spatial Device

«*The port is the place of contact between land and maritime space, and it provides services to both hinterland and maritime organization. It is, therefore, a knot where ocean and inland transport lines meet and intertwine. Its primary function is to transfer goods (and people) from ocean vessels to land or to inland carriers, and vice versa. Traffic means life and prosperity not only for the port but also for the city and region around it*» (Weigend, 1958: 185).

The scientific interest in port spaces began to rise with the increasing globalization of production and manufacturing led by the efficiency-oriented management of goods in supply chains. Since the '60s, ports played a key role in the logistics trend and they changed many aspects of their spatial and governance structure to fulfil the global turn.

These changes have been investigated by port geographers, economists and, more recently, transportation scholars (Ng, 2013; Ng et al., 2014; Ng & Ducruet, 2014). The publication of pioneering books on port development – such as the works of the English geographer Hoyle and colleagues (Hoyle, 1996; Hoyle & Hilling, 1984; Hoyle & Pinder, 1981, 1992) – constitutes the most influential basis of all the subsequent and recent studies on this topic. The spatial approach highlighted in these works gives explanations about the current layout

of port systems and witnesses the historical roots of the morphological and administrative characteristics of modern ports.

The main contribution of geography to port studies is the investigation about the evolutionary phases of port infrastructure. This process of chronological partitioning stems from the systematization of the interactions between geographic and morphological variations and historical, economic and technological phenomena that marked every macro-period.

By analyzing the evolution of British ports, the geographer Bird (1963) conceptualized the 'Anyport' model describing how port infrastructures evolve over time and space. Based on his research on 'major' ports (in terms of amount of trade handled), Bird proposed six stages explaining the way ports adapt their facilities and size through time and the way they gradually move from the town centre by building docks and quays further away from the original site. The Anyport model is based on some general aspects that can be applied to all the main ports which underwent the process of containerization, although it gives space to peculiarities of each specific case. This model predicted the broad influence of the standardization of loading units on the whole system of infrastructures related to goods transportation (Levinson, 2006; Wang et al., 2007) and it is still recognized as a solid explanation of port morphological development. Moreover, other authors based their work on the Anyport concept and continuously tried to adapt or improve it. For example, Rodrigue and colleagues (2013) summarizes Bird's six stages in three phases (setting, expansion and specialization); McCalla (2000) labels the Anyport as an 'internal port infrastructure development model' and proposes five stages for the container port development as a stepwise upgrade of container facilities to become a 'Superterminal'; Notteboom and Rodrigue (2005) introduced the well-known concept of 'port regionalization'[18] as a modern phase that adaptsBird's model to the contemporary scattered port system layout.

Besides the urban scale addressed by Bird, Hoyle (1989) focused on the scale of waterfront – the urban water-land threshold – by deepening the separation of the port with the other urban functions. He describes an outline of five (Hoyle, 1989) and, at a later time, six stages (Hoyle, 1998) emphasizing the changing relationships between the port and the city. The model suggested by Hoyle attempts to include economic and technological influences to chronological sequences and spatial relationships. It traces the evolution of the port since its early connection with the medieval city characterized by a deeply two-way sharing of spaces and features between the port and the urban centre. This phase characterizes the famous historical representations of port cities depicted from the sea perspective with coasts flourishing through trade and market activities. In the late XIX century, the dawn of

[18] See paragraph 2.4.

industrialization introduced new types of enterprises depending on port activity (such as steel, iron, chemicals and the later oil-based and oil processing industries). The industrial growth soon demanded available spaces near the port settlement to easily manage the exchange of products, and thereafter the expansion of port-related complexes kept increasing with the deployment of containers[19] (stage II, III). During the '60s, the industrial areas settled nearby the loading docks were formally recognised as MIDAs (Maritime Industrial Development Areas)[20] and the efforts to boost their development beyond the urban area become a priority totally independent from city growth (stage IV). In the '70s, *port-expansion* turned into a *port-shift* with the progressive abandonment of historical coastal areas no longer able to host the activities required by a modern port such as the need for huge areas and deep water. The spatial detachment between the infrastructure and the city core led the city to re-think the waterfront as an urban space by promoting development projects in former port areas (stage V). The building of the new waterfronts was led by a design approach oriented to plan the coastal areas as an extension of the urban pattern. This approach was subsequently criticized and the treatment of the modern shoreline changed thereafter. The aim to promote a cultural image of port cities switches the trajectories of the redevelopment into a 'renewal of port-city links' (stage VI) in which the historical role of the port's physical components (warehouses, cranes, docks, quays, etc) in shaping the identity of the port city gave new insights to waterfront development projects[21].

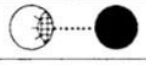
STAGE	SYMBOL ○ City ● Port	PERIOD	CHARACTERISTICS
I Primitive port/city		Ancient/medieval to 19th century	Close spatial and functional association between city and port.
II Expanding port/city		19th - early 20th century	Rapid commercial/industrial growth forces port to develop beyond city confines, with 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		1960 s - 1980 s	Changes in maritime technology induce growth of separate maritime industrial development areas.
V Redevelopment of waterfront		1970 s - 1990 s	Large-scale modern port consumes large areas of land/water space; urban renewal of original core.
VI Renewal of port/city links		1980 s - 2000+	Globalization and intermodalism transform port roles; port-city associations renewed; urban redevelopment enhances port-city integration.

Fig. 6 | Evolution of the Port-City Interface. *Source: Hoyle, 1989*

[19] The 'container' is a loading unit introduced in 1958 by the American entrepreneur Malcom McLean. According to Vallega (1997), the process of unit load standardization is the application to the transport sector of the criteria of production efficiency that led, ten years before, the mass production of the Taylorism.

[20] The term MIDA has been introduced in literature by the National Port Council of the United Kingdom.

[21] See paragraph 2.3.

The focus of Hoyle on the spatial characteristics of port evolution and the related opportunities in urban design ambitions, have made the 'port-city interface' evolutionary model a strong basis for spatial disciplines with planning aims. However, for the purpose of this thesis, it is worth mentioning the models proposed by the French geographer Vigarié (1992) and the Italian colleague Vallega (1997). The French scholar suggested a model based on four time-related stages arguing about the port-city detachment by comparing the relationships between port and urban activities. On this basis, Vallega's model (1997) explored the same sequence of phases by framing them in economic stages and highlighting the changes involving port oriented activities along the coast. Through the *mercantile*, the *paleo-industrial*, the *neo-industrial* and *trans-industrial* stage, Vallega describes the spatial regionalization of a port system as an outcome of the economic development of port related activities before Notteboom and Rodrigue (2005) did. As Vallega explained, in the first stage (XVIII century) the shipping companies began to weave relations with the hinterland thanks to the improvement of the transport sector. In the second stage, the industrial tendency towards the clusterization of factories and the production specialization (Dunford & Yeung, 2009) produced remarkable technological innovations that influenced the maritime transport in the size of ships (sea side) and the localization and the infrastructural equipment of port related industries (land side). This phase, during the XIX century, changed the shape of the coasts surrounding the ports. The industry's location started to diversify the port geographies: river ports expanded their industrial functions towards the sea behind the wharves' expansion (as in the cases of Rotterdam and Antwerp), sea ports were surrounded by industrial activities in the spaces in-between docks, cities and natural constraints of the landscape (as in the cases of Genoa and Marseille). In the third stage, the containerization contributing to the standardization of the port spaces and the trade of goods – rather than raw materials – made the national economy more dependent on maritime transport. In the last stage, the port is definitively framed in the supply chain management. The development of the logistics sector put the port in the network of global transport operators not physically embedded in the port environment. The space of the port thus becomes just a requisite assessable on the basis of a port's economic performance. As a consequence, the big decision-maker centres of logistics companies are often located in the business districts of global cities (Sassen, 1992) completely altering the spatial dynamics of ports as well as their autonomy in managing flows.

The perspective analyzed by Vallega (1997) emphasizes a new issue. The role of the port as a node in global networks[22] expands the borders of the environment in which the port acts and, in relation to this, the area of analysis of port studies. Furthermore, the tools through which we address the expansion of port influence – and the related interplay between the port and the territory that underlay this thesis – consist of productive and logistics areas that affect both port and land issues. In referring to the new role of the port,

[22] See paragraph 2.4.

the need to define the consistency of new increased port areas also arose[23]. The methodology proposed by Vallega (1997) describes the interactions between maritime transport, the port, the city and the region by sorting the world into several 'types of spaces' that reflect the source, the influenced and the influential areas of the innovation in a sort of large-scale classification. Even more interesting is the approach taken by the economist Musso (1996). He introduces the 'metropolitan port areas and regions' underlining the role of the port as an urban catalyst since it attracts in its surroundings the urban community and the economic activities. In this spatial and economic concept, the 'metropolitan area' goes beyond the traditional boundaries of urban agglomeration and, with the 'zone of influence' (the area affected by economic benefits generated by the port) it shapes the 'metropolitan port region'[24].

The efforts in properly defining the hinterland – conceived as the land space connected to the port by means of physical or economic relationships –, in terms of a circumscribed area, is a simplistic generalization since it is wiser to consider the port hinterland as a dynamic concept (Hayuth, 1982a).

2.3 | Planning the Waterfront in the Port City. A Long Urban History

«[…] waterfront spaces are dependent on local economies but are also crucial sites for competitive global growth strategies; these spaces embody the past and represent opportunities for the future; they generate growth within the city and impel growth outside the city; they are both subject and object of cities' ambitions and growth strategies; they are within a jurisdiction but are often outside that jurisdiction's control; they are both colonized and colonizing territories; they are represented as spaces of promise but have often been spaces of oppression; they are planned and unplanned; and of course, they are both natural and artificial» (Desfor & Laidley, 2010: 24–25).

Waterfront redevelopment is the first approach the city had towards regaining port spaces. It entails the urban scale and, more often, the scale of the landscape architecture insofar as it is primarily oriented in the design of new places and the building of a catchy image for the city (Petrow, 2011). Since the topic of the waterfront development has been addressed for a long time by various points of view, the wide variety of literature in this field has been summarized by looking at the main traits that influenced this research path. Although the

[23] Herein considered as areas which functions are related to port activities.

[24] Musso (1996) developed the concept of AMMs (Maritime Metropolitan Areas) to frame the Italian territory in 18 AMMs and analyze their economic development.

focus of the research project attempts to target the urban studies towards the spatial and institutional implications of port logistics and industrial areas, the building process of the research framework started by addressing the multiple facets of the waterfront development literature. This stock of knowledge contributes to revealing limits and fertile grounds for planning perspectives in the field of urban and port development and, particularly, to launch the debate about the planning of future scenarios towards a broader, multi-level, scale beyond the local shoreline.

For the research purpose, the broad field of study of waterfront projects provides remarkable insights on two aspects. On the one hand it marked the cultural turn in the recognition of the infrastructural space as a 'place' (Olivier & Slack, 2006) that contributes to form the urban landscape and provides pragmatic experiences of strategic urban plan outcomes. On the other hand, waterfront redevelopment studies address the complex relationships between the port and the city's administrative organizations by underlining the efforts to define a common policy ground and meet the expectations and the demands of both systems.

From an urban design perspective, this meant the definition of a limited portion of the city in which the planners have been able to work together with architects and developers towards the aim to reshape the port cities. In this research field focused on the renewal of port cities – and committed to finding new meanings and strategies for the designing and planning of contemporary urban spaces – the partiality of the approach that had mainly interested the urban studies related to port areas arose. The main aim of this approach is to define rules, processes and visions to redesign coastal brownfields or underutilized port areas and to provide a new urban image of the port city through the development of public spaces and real estate operations.

The waterfront development as a multidisciplinary issue in urban planning

The spatial disciplines have long addressed port infrastructure by studying the local relations with the city on the urban scale and usually in historical contexts (Bruttomesso, 1993; Gras, 2010; Sepe & Porfyriou, 2016). Urban planners and designers have analyzed the port as a former part of the city which gained a more autonomous and introvert structure as a consequence of the standardization of loading units and industrial evolution (Breen & Rigby, 1994; Bruttomesso, 1999, 2006; Marshall, 2001; Meyer, 1999). Starting with the recognition of the economic and cultural value of coastal areas, the contact zone between the port and the city became the focal area of the urban planning concerns focused on morphological and spatial meanings. The concept of the 'waterfront' as an area in which the urbanized land comes into contact with the water arose in literature referring to the regeneration of abandoned port areas (Sepe & Porfyriou, 2016). The scientific interest in the theoretical discussions about the 'waterfront redevelopment' processes and strategies

has produced extensive literature on geographic, environmental, planning and policy studies (Hall, 1993; Ng, 2013) and it has been launched and enhanced by the practical boost to improve coastal areas according to new urban and transport needs. The economic and technological turn, during the '60s, gave rise to spatial reestablishment that changed the urban structure of port city evolution (Hoyle & Hilling, 1984; Pinder & Slack, 2000) and fostered the designing of new maritime urban spaces as a result of the relocation of port infrastructure in extra urban areas (Hoyle, 1989, 1998). In this development stage, urban designers and architects have been involved again[25] in the issues related to port transformations after a long period of industrialization in which engineering features prevailed over the formal aspects such as the design of buildings and the accessibility of paths. The considerable opportunity to operate in the city core through great urban plans in an era of soil consumption issues, centralized the debate in the field of architecture and urban design by positioning the waterfront as a key area of the urban development programs in the XX century.

Since then, 'the port' became, in the spatial design disciplines, the place of empty docks and old warehouses, highlighting its historical memory rather than the modern infrastructural development that was taking place far from the ancient city. The first design approach in building these areas as modern concrete districts was replaced by the cultural standpoint of preserving the maritime identity of port cities focusing on social domain aspects rather than transport issues (Clemente, 2012; Kokot et al., 2008; Meyer, 1999). The port-city interface, the threshold in-between the port and the city, characterizes the local dimension in which the complex system of port and urban relationships need to be defined by a planning strategy. Its configuration is the palimpsest of natural and anthropic demands that change over time in a dynamic sequence of external circumstances. For this reason, the port-city interface was defined as an 'area in transition' since the scenery of an active port on the waterfront was fading and «The urban shoreline is becoming more attractive and accessible to the public and better integrated into the urban environment» (Hayuth, 1982b: 223). In pursuing the aim of urban integration, the interface was labelled as the 'zone of conflict and/or cooperation' (Hoyle, 1989). As a matter of fact, this area tends to induce competition between different uses due to the economic benefit related to the proximity to the sea and, besides, numerous factors – such as economic, technological, environmental and political issues – began to influence the redevelopment process. Industrial and technological innovations have been recognised as the forces that produced the 'abandoned threshold' (Bruttomesso, 1993) through the movement of port activities out of cities. Nevertheless, the city's ambitions to expand urban areas and thus increase the

[25] Pavia highlighted the predominant role of architecture in the design process of port spaces since the treatises of the XV century until the II world war in Pavia, R (2012). I porti delle città/Urban Ports. In R. Pavia, M. di Venosa, *Waterfront. Dal conflitto all'integrazione/From conflict to integration* (pp. 15-72). Trento: ListLab.

local economies became an influential factor in the competition concerning new uses of the waterfront (Hoyle, 2000; Wiegmans & Louw, 2011).

Assessing New Planning Concepts and Tracing Sustainable Trajectories

The experiences in the design of waterfront have produced many pragmatic examples on which many studies focused their attention through the systematization of categories and 'models'. The first and the second generation of waterfront projects (Schubert, 2008)[26] show the attempt to identify common approaches that could be generalized in huge categories, while leaving room to improve in-depth analysis of specific case studies in order to address local aspects and implications. Furthermore, the scientific interest in this evolving argument is also witnessed and enhanced by the operative actions of scientific associations[27] engaged in promoting events, publications and debates.

Waterfront redevelopment, labelled as contemporary 'movement' (Lucia, 1994) raises many conflicts in its 'beautification' aims (Meyer, 1999: 45). As the first American experiences have shown, the opportunity to design a wide part of the port city has the limitation and the risk of building a 'city in the city' (Hall, 1992). Spatial configurations without morphological relationships with the urban context and not tied to the history of places, are 'acts of hypocrisy' and generate the 'generic memories' of a 'generic city' (Koolhaas, 2006). The cultural aim to preserve the historical meanings of places gave a boost to notions such as *maritime identity* and *port culture* as leading concepts of place-based design projects (Diedrich, 2013). As Van Hooydonk (2007) argues, the soft values of ports – historical, sociological, artistic and cultural sub-functions of seaports – define a new approach in spatial planning, and also offer a new perspective on the variety of actors involved in the decision-making of port areas.

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[26] Schubert defines two generations of waterfront revitalization. The first one started in North America with a leisure-based approach by building new facilities for tourists, shops and offices. The second generation, at the beginning of '90s, raised in Europe and paid more attention to cultural activities like museums and cultural centres.
The operation of summary made by Schubert allows us to provide a quick overview of the development of the processes of waterfront transformations. The grouping of urban projects leaves obvious room to address distinctive features for each cases.
See more in: Schubert, D. (2008). 'Transformation Processes on Waterfronts in Seaport Cities – Causes and Trends between Divergence and Convergence'. In W. Kokot (Ed.), *Port Cities as Areas of Transition Ethnographic Perspectives* (pp. 25-46). Berlin, Boston: De Gruyter.
Schubert, D. (2011). 'Seaport cities: phases of spatial restructuring and types and dimensions of redevelopment'. In C. Hein (Ed.), *Port Cities. Dynamic landscapes and global networks* (pp. 54-69). New York: Routledge.

[27] AIVP (Association Internationale Villes Ports), ESPO (European Sea Port Organization), RETE (Association for the Collaboration between Ports and Cities), WAVE (Waterfront Vitalization and Environment Research Center).

A new emphasis on the use of local resources arose with a worldwide awareness about environmental issues. The sustainable approach became a key word in development projects as it is witnessed by the UNCTAD's concerns about the environment in the definition of 'principles of modern port management and organization' (UNCTAD, 1992). In the planning approach, the overall meaning of the term 'sustainable' quickly became associated with 'creative' actions highlighting the role of cultural-led innovation (creative industries, creative tourism, creative spaces, etc.) (Florida, 2004). As a paradigm of global cultural changes, the port research absorbed the sustainable turn (Carta, 2013; Fusco Girard, 2013; Fusco Girard et al., 2014; Hall, 2007) with an 'eco-creative oriented' approach that set up the 'Waterfront 3.0' as the third generation of waterfront (Carta, 2013; Carta & Ronsivalle, 2016).

According to this, the approach of urban planners and historians to waterfront issues is nowadays based on a common perspective claiming the port is part of the port city landscape[28] (Hein, 2011; Kiib, 2007) that means the port city is deeply rooted in an inseparable 'harbour-urban identity' (Russo, 2016). This important remark in the knowledge sector is particularly relevant in addressing working ports tied to urban cores.

The wide variety of literature on port city development focuses mainly on major port cities in which the waterfront assumes the role of post-industrial brownfield available to be designed by extensive functional and typological renewals. Against this, many other ports did not experience a spatial shift, thus they still compete for space with surrounding urban structures. In these cases, the relationships between the port and the city are more complex and challenging since the planning of the waterfront deals not just with the preservation of the port memory but with the management and organization of operational port spaces and urban functions. Additionally, in these contexts, a central role is played by cities reclaiming their edge[29]. This assumption changes the point of view of waterfront redevelopment; as Wiegmans and Louw (2011) cleverly argue, the development phase characterized by wide port expansions is generally concluded, whilst cities still tend to grow while reclaiming land. Even though the two scholars assume a North European (Dutch) perspective – where the development of new urban settlements is still the main development trajectory of cities

[28] «*It's not only about the state of nature, neither ecology or biodiversity: landscape is becoming an argument that identifies different spaces, infrastructures and settlements, that includes also fragmented spaces, result of contemporary urbanization, suburbs degeneration, urban and functional dross, materials that have a potential coming from the urban metabolism. Landscape is about potential spaces, tractable and convertible areas, a resource of many phenomenon of the urban change: it includes in-between spaces, the enclosed open spaces potential, urban agricultural areas, disused places, uncultivated lands, waterfronts and brownfields, dismissed areas, and any type of landscape recognizable as drosscapes*» (Russo, 2016: 33).

[29] Despite quoting Breen and Rigby (1994), we do not refer to the general subject of this publication that addresses the development of abandoned post-industrial areas on the waterfront. The meaning is to highlight the urban boost to 'conquer' the shoreline rather than the urban reaction to the port relocation.

–, their study underlines a common condition of spatial conflict between cities and ports embedded in urban areas.

This asset[30] represents the Italian condition in which the port-city relationships developed within the urban area. In Italy, geographical circumstances such as the topography of the territory and the crowd of coastal areas launched the debate about the waterfront development by addressing the design of spaces of coexistence rather than of integration (Bruttomesso, 2011). Furthermore, the unchanging scenarios of Italian port cities, despite the large number of official projects, reveals a lack of planning policies (Savino, 2010) that seeks to be overcome by filtering spatial and administrative tools (Pavia & di Venosa, 2012).

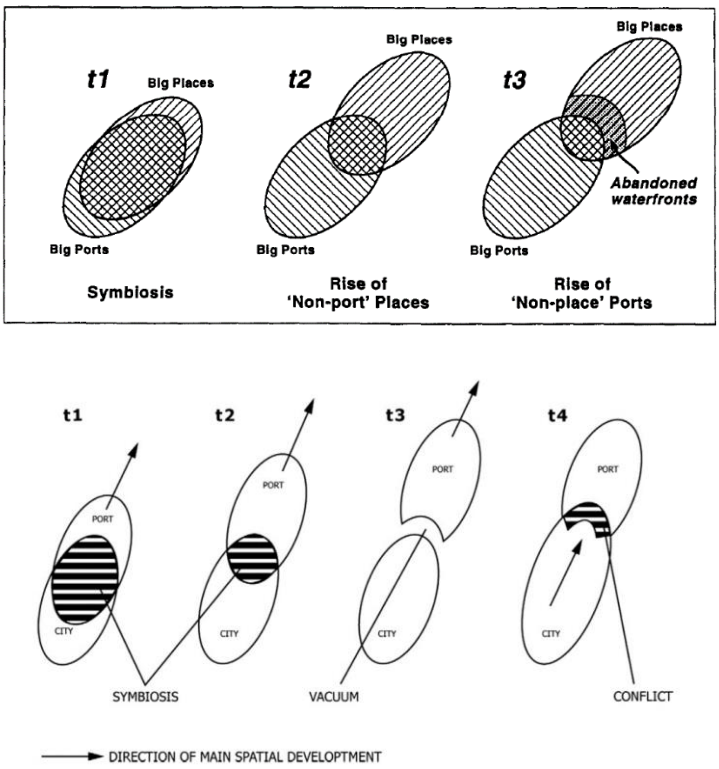

Fig. 7 | Comparison between two port-city development models. *Sources: Norcliffe et al. 1996 (up) Wiegmans and Louw, 2013 (down)*

[30] In the research paper, Wiegmans and Louw (2011) analyze this condition as a recent development phase ensued by the waterfront redevelopment period. We want to underline that this is not the case in Italy. The Italian condition missed the massive renewal of urban waterfronts. Hence, the conditions analyzed by the authors (the physical proximity of port and city in the same coastal area) are, in Italy, not a *new* state but historical circumstances that have always characterized the Italian port-city planning issues.

Port cities and networks

More recently, a broader research approach is framing the port city in a system of cultural and infrastructural relationships. The attempt to expand the limits of the port city research has emerged as insight towards a new methodology and new key subjects. The concept of the network started to rise in the urban port literature in the XXI century. Pavia and Di Venosa (2012), albeit focusing on the role of the waterfront in urban design projects and plan, clearly claimed the importance to set the port and the city in the complex interweaving of networks which define the territorial system. The shift from the port as *locus conclusus* to the new concept of port-territory, lays emphasis to those areas of interaction between the port-city-territory (Fonti, 2010) that play a role of interchange between technical networks and urban and territorial contexts. According to the authors, the 'spaces of relation' such as the infrastructural connections between the port, the inland terminal, the rail depot, etc. pave the research interest in introducing these themes in Italian port planning issues.

The concept of the network in port cities, besides the focus on territorial patterns of infrastructures, also assumes methodological implications. Hein (2011) underlines the key role of networked influences in shaping the port cities: «*maritime and associated networks create dynamic, multi scaled and interconnected cityscape*» (Hein, 2011: 5). Hein argues that the port city-scape is the effect of the interaction between global forces and local interests. The port cities are thus shaped by flows such as shipping and trades as well as migrations and planning ideas that influence the urban environment. These flows affect port cities in different ways (both cultural and physical) and these changes can be addressed through a networked analysis that highlights the network as a pattern of cultural influences among far away port cities. It is also relevant to highlight the use of the term 'built form' that, besides architectural volumes, includes also working instruments such as cranes, docks and quays. The meaningful insight is that the development of port cities is certainly due to technical improvements and geographical features but, nevertheless, human activity and external economic, political and social factors are among the main drivers. Thus, this perspective introduces human agencies in the networked system of port cities:

«*Trading networks and travel patterns can change quickly in response to shifting economic or political global or local conditions. Institutions and citizens in the different cities of a network take more time to respond to new or changed networks by establishing or adapting institutions and social structures, as well as building and infrastructure*» (Hein, 2011: 7).

From a network perspective, the waterfront is widely acknowledged as the space of flows. Contrary to the network theories – that highlight the homogeneity and aseptic characteristics of those spaces (see Castells, 2000, 2010) –, Desfor and colleagues (2010)

introduce an innovative theme to address the local and specific characteristics of waterfront areas and, in doing so, territorialize global dynamic forces. They propose analyzing complexity and changes of waterfronts by considering 'fixity and flow': two main conceptual categories affecting each other. Fixities such as built environments, institutional and regulatory structures, and cultural practices, gain a new meaning. They are usually considered as crystallized in a determined and static time-space frame, whilst the authors stress the concept that changes can be understood only by focusing on processes that continuously intervene to transform 'fixities'. On the other hand, processes are the dynamics of relations between perpetual movements of 'flows' – such as processes of capital accumulation, information, labour, finance capital, energy, and knowledge – and the transient moments of 'fixities'. Even if this theme is introduced as *trait d'union* of individual case studies collected in the book and not as a theory, it offers a significant transposition of the 'network theory' to the spatial approach of urban disciplines to port cities transformations.

The waterfront development projects as concentration of power

The broad appeal of the phenomenon of waterfront redevelopment is also due to its ability to reflect, in a defined urban area, the contemporary challenges in the spatial allocation of financial capital. According to many authors (Harvey, 1989; Meyer, 1999; Norcliffe et al., 1996) waterfront development reflects the economic and social transition from the modern to the postmodern society. The Fordism era affected the spatial aspects of the waterfront by allocating production-based capitals; besides, postmodern values are visible in the spread of consumption-led activities (such as restaurants, museum, theatre, sport centres, hotels, etc.). Waterfront development – as a strategy to revive former industrial lands and to bring new activities into the city –, is seen as one typology of large-scale urban development projects. That means those available spaces on the shoreline are addressed by developers and politics as economic opportunities to attract and harness global flows of capital (Couch et al., 2008; Gordon, 1997a; Moulaert et al., 2003).

From this perspective, urban development projects are studied as specific cases in which the spatial configuration is the outcome of complex policy processes occurring from the convergence of power, money and profit (Allen, 2003; Malone, 2013). Thus, research studies about waterfront development certainly imply governance issue. In connection with this, it is clear that waterfront projects deal with complex political processes (Gordon, 1997b) negotiated among various levels of government and nongovernmental actors (Daamen & Vries, 2013). On this issue, the research study conducted by Daamen (2010) underlines the waterfront development projects as a process by analyzing what the waterfront development strategy consists of and how it evolves in decision-making. This shift in perspective comes from the awareness of the variety of involved factors, the complexity in defining shared policy solutions and the long-term procedure in planning

actions. The breadth of this approach sheds light on the complex set of decision-making processes and policy efforts in a 'behind the scenes' view of the strategy-building process underpinning waterfront transformations.

2.4 | Urban Nodes in Supply Chains. Logistics as Urban Matter

The paradigm shift tackled by the port infrastructure has introduced a transport and economic allied branch to port studies literature. As Robinson (2002) states in his seminal paper «*the role of ports and the way in which ports position themselves in the new business environments […] must be defined within a paradigm of ports as elements in value-driven chain systems, not simply as places with particular, if complex, functions*» (Robinson, 2002: 252).

Since the definition of a port as the *gateway* of regions and associated hinterlands (Bird, 1973, 1977) – using 'gate' to mean called upon to transfer flows between different real or virtual spaces – port infrastructure has been framed as a node in the transport network in a new, globalized, trading environment[31] and it is thus evolved in the *logistics hub* aiming to facilitate widely dispersed global trade flows (Hall, 2007; Olivier & Slack, 2006). The increasing development of freight distribution was due to the containerization phenomenon that has permitted lower volume flows while offering economies of scale by the consolidation of numerous shipments in batch flow units (Hesse & Rodrigue, 2004).

Logistics integration and network orientation in the port and maritime industry have redefined the functional role of ports in value chains and have generated new patterns of freight distribution. The logistics environment[32] also reset the priorities of ports. Therefore, seaports, in order to improve their competitiveness, seek the acceleration of goods movement and, at the same time, they aim to reduce the cost of that movement influencing the spatial structure of the port region with implemented infrastructural patterns.

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[31] According to Robinson (2002) the new trading environment is characterized «by the globalization of markets, of production, of finance and of distribution; by the corporatization and privatization of third party service providers; by the exceptional fluidity and competitiveness of business environments; by an essentially containerized, relatively medium-to-high value freight context; and by a rapidly and pervasively restructuring logistics or supply chain environment, past paradigms are of interest but not of problem-solving relevance» (Robinson, 2002: 252).

[32] «Logistics consider the wide set of activities dedicated to the transformation and circulation of goods, such as the material supply of production, the core distribution and transport function, wholesale and retail and also the provision of households with consumer goods as well as the related information flows» (Hesse & Rodrigue, 2004: 172).

The research studies focused on supply chains, underline the external forces that become part of the range of factors affecting port development. Although part of the mentioned literature is wide and extremely specialized, it has been addressed to frame the whole set of entailments that shape the port-territory relationships in its spatial and institutional issues. The logistics shift, sheds light on the changing role of the port system: no more an autonomous leading actor in maritime traffic, but an adaptive element of supply chain embedded in global market logic. The port system generates transformations in the territory, pursuing the goal to increase its competitiveness in the extra-territorial dimension of market, finance and business. The loss of decision-making power of port authorities in favor of new logistics actors (transport operators, shipping companies, stevedoring companies, etc.) enhances the set of institutions and organizations embedded in port development processes.

During the industrial era, landward routes gain importance with the concept of intermodalism that introduced the organization and synchronization of the distribution system through a combination of modes (truck, rail, barge, ship and airplane) (Hayuth, 1982a; van Klink & van den Berg, 1998). Thus, the ports have gradually lost their maritime dependency, while transport operators enhance their power.

With this landward shift, ports became part of the logistics system that affects the built environment by fostering the expansion of networks and infrastructural nodes such as highways, terminals, and airports. The project of the infrastructure has become the project of the territory (Belli et al., 2008) and thus, urban disciplines, in planning and design research fields, seek to assess their role in the shaping of the territory[33] through logistics.

Port regionalization: a paramount (debated) improvement in port development studies

The concept of 'port regionalization' (Notteboom & Rodrigue, 2005) focuses dispersed spatial layouts of logistics and attendant governance frameworks as outcomes of the new functional role of ports in supply-chains. This definition has had a wide relevance in the literature since it frames a set of arguments and issues well resumed in the conceptual model expressed by Notteboom and Rodrigue (2005).

[33] «In un'ottica di crescita del territorio il più possibile integrata, il progetto delle infrastrutture si pone in sinergia rispetto allo sviluppo delle piattaforme logistiche, programmate a sostegno delle attività del commercio, dell'industria e del terziario. La rilevanza di centri logistici sul territorio è dovuta all'indubbia attrazione che essi esercitano a livello occupazionale e di richiamo di competenze specializzate. In questo senso, la loro presenza è da considerarsi un indicatore significativo delle ricadute territoriali, in quanto rivela la salute di un territorio che, dopo cicli virtuosi di sviluppo, è nelle condizioni di massimizzare il vantaggio derivante della presenza del porto» (Delponte, 2009: 4–5)

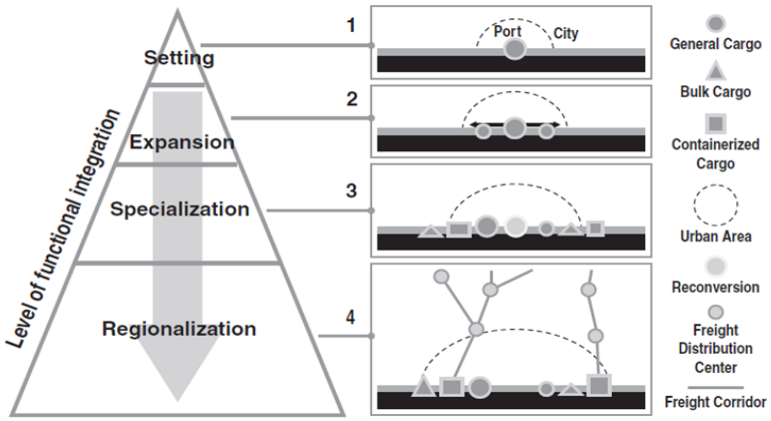

Fig. 8 | Port Regionalization, Scheme. *Source: Notteboom & Rodrigue, 2005*

Firstly, the two scholars aimed to update the phases of port development promoted by Bird (1963). Before them, other studies addressed the development of ports by highlighting the increasing relevance of hinterland (Hayuth, 1981, 1988) and corridors (Rimmer, 1967; Taaffe et al., 1963). Nevertheless, Notteboom and Rodrigue (2005) claim the lack of reference – in former development models – to new hub terminals (such as transhipment ports and seaward offshore platforms) and to the role of inland freight centres as active nodes in shaping regional load centre networks.

The stage of port regionalization represents the spatial network development beyond the port perimeter, and it highlights the port-hinterland relationships in a larger economic system. Additionally, the study emphasizes the changes that the new phase implies with seaports (Hall et al., 2011). Even though the new spatial configuration is market-driven, and it results from decisions of shippers and logistics providers, the ports are not seen as stuck entities (Slack, 1993). Ports have to face containerization challenges by shaping governance structures, and they should benefit from the involvement of new actors in developing new approaches to port–hinterland issues. Besides, «*also national, regional and/or local authorities try to direct this process by means of offering financial incentives or by reserving land for future logistics development*» (Notteboom & Rodrigue, 2005: 306).

In essence, the spatial consequence of this phase is that warehouses, storage and distribution activities move further inland and away from the port city. This process is also driven by the lack of spaces in the proximity of port areas and by the economic advantage of avoiding urban constraints such as bottlenecks and high land costs. Furthermore, as Raimbault and colleagues (2016) argue «*The most important pull factor to move logistics activity inland is the proximity to the consumer market and to benefit from a strategic location along transport corridors where land (and labour) is abundant and accessibility is superior*» (Raimbault et al., 2016: 18–19).

Hence, the framework of port regionalization in literature mainly contributes to: addressing issues of scale and agency; developing a systemic approach that see ports, inland logistics zones, urban, suburban and hinterland areas, as infrastructural and territorial elements functionally, economically and spatially integrated.

The critique expressed by Monios and Wilmsmeier (2013) underlines the fuzzy use of the term 'regionalization'. Ducruet (2009) argues that a geographic definition of the port region is not possible since it is an amorphous system of multifaceted relations. Thus, the reference to an extended area characterized by the port influence embraces different realities such as «*the economic area around a port (i.e. the port region stricto sensu), the logistics area connecting the port (i.e. the hinterland), and the area in which inter-port relations take place (i.e. façade, range, or system of ports)*» (Ducruet, 2009: 42–43).

On the other hand, Rimmer and Comtois (2009) strictly claim the vague and inaccurate theoretical enhancement in the development phase proposed by Notteboom and Rodrigue. In their opinion, the improvements listed by the port regionalization model (offshore and transhipment hubs) can easily be included in the fifth development phase already proposed by Rimmer (1967, 2007). The meaning of the term 'regionalization', moreover, is not very different from the Rimmer's fifth phase named 'deconcentration and decentralization'.

By enhancing port regionalization studies, Monios and Wilmsmeier (2013) increase the port regionalization with spatial and institutional aspects (see also Monios, 2016; Monios & Wang, 2013). They argue that the market-driven spatial development underlined by Notteboom and Rodrigue (2005) can be analyzed by considering port-hinterland connections not merely as physical links but as a set of agreements between terminal operators and port authority actors.

Many studies thus addressed port regionalization as a starting point to observe transport and governance implications of inland terminals from an internal (infrastructural) perspective. Conversely, Fläming and Hesse (2011) approach port regionalization as a planning challenge. In referring to this claim, they tackle port regionalization by emphasizing related planning conflicts such as congestion, land consumption, and land use competition. In their paper, the two authors argue that as the spatial structure changes from seaports to inland infrastructures, planning conflicts are also different and sometimes more complex. This is also due to a very important argument: the poorly developed institutional framework of hinterland areas. To foster the claim of port regionalization as part of urban structural changes, Raimbault and colleagues (2016) also underline the lack of urban historians, planners, and geographers in the scientific debate on port regionalization.

Global chain, local pain[34]*…and urban chances*

Scholars of transport and geography disciplines addressed the new logistics environment introduced by Robinson (2002) highlighting impact on the local scale. This approach concerns the array of infrastructures that constitute the territorial port system (seaports, logistics platforms, inland terminals, distriparks, etc.) in different ways.

The seaports, and particularly the mainports, are the starting points and the main objects in these research studies since they are the fundamental and historical nodes of transport networks. Thus they endure, more than other infrastructures, the changes caused by the new commercial environment.

As McCalla (1999) points out, the ports contribute to locally adjusting the consequences imposed by globalization. These adjustments occur on several levels and in issues such as dredging, terminal capacity, and labor productivity. Among these factors, the increasing competition of maritime ports to gain shipping traffic, focuses the question on the concentration of services that implies logistics spaces and, thus, good hinterland connections. The system of inland services and its spatial configuration – the new geographies of production and consumption (McCalla, 1999) – became the areas of analysis to measure the effects of globalization on local systems (Hesse, 2006).

Focusing on seaports, Slack (1993) frames the loss of power of port authorities in the governance structure. In the changing commercial environment, port authorities have become 'pawns in the game' of supply chains and they should address new strategies to become more competitive by gaining more financial autonomy and being part of national strategies engaged in an organized distribution of port facilities.

With the aim to address logistics implications in the planning field, geographical studies have mainly focused on the distribution aspect in urban areas (Ogden, 1992; Woudsma, 2001). These sectorial studies, together with research projects focused on transport issues of port systems, open up the field of urban research to observe the cities from a new perspective. Particularly, Hesse (2006, 2008, 2010, 2013) focuses his studies on the spatial interaction between cities, regions and transport flows (Hall & Hesse, 2012). His study contributes to shed light on how urban places change in the system of chains. Going beyond the effects produced by the 'terminalization' of port activities (Ng & Ducruet, 2014), Hesse extends this concept to the whole city[35]. He claims that modern logistics draws urban (economic) patterns and contributes to determining urban phenomena such as the evolution of polycentric city-regions due to the process of commercial suburbanization resulting from transport development and strategic distribution of firms.

[34] Hesse, 2006.
[35] 'The city as a terminal' is the title of Hesse's main publication (Hesse, 2008).

In this regard, research questions on corridors as physical infrastructure involved in the development of urban processes also come to fuel the discourse on the contemporary urbanization affected by supply chain capitalism and financial elite actors (Albrechts & Coppens, 2003; Perulli et al., 2015).

Logistics as one of the driving forces of urban expansion and fragmentation is a topic also approached by sociologists and critical urban theorists in the development of the concept of postmodern urbanization (Soja, 1989, 2000, 2011). From this perspective, the polycentric form made by centres surrounded by a sprawling suburban periphery is stretched in a geographic system with eroded boundaries[36]. This approach imposes urban questions at a new regional scale introducing social and economic processes in the definition of spatial structures. Networked infrastructures such as logistics platforms, have been seen as splintering forces of this urban phenomena that are required to take into account the complex sociotechnical apparatus that surrounds them (Graham & Marvin, 2001). Hence these infrastructures are part of the urban progress that foster connections and exchange in a new interconnecting landscape shaped also by new political assets (MacLeod et al., 2011).

The emphasis imposed on logistics in urban studies has been also fostered by scholars who included the set of infrastructures, terminal areas and container patterns in the study of contemporary landscape. Design disciplines reclaim their central role in the research studies focused on new urban structures. They address the 'hardware' of the networked infrastructure and are largely disconnected from sociological functions (Isola, 2002). As Waldheim (2016) points out «[…] *landscape urbanism emerged to occupy a void created by urban planning's shift away from design culture in favour of social science* […]» (Waldheim, 2016: Preface). In developing his theory, Waldheim assumes the landscape as a form of urbanism able to understand and shape the city from an ecological perspective. Furthermore, not so differently from insights underlined by critical urban theorists, he argues that the landscape is also a way of thinking of the changes induced by macroeconomic transformations. The logistics landscape is framed in three provisional categories structured by typological and functional characteristics: distribution and delivery, consumption and convenience, accommodation and disposal[37] (Waldheim, 2016; Waldheim & Berger, 2008).

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[36] «*In the post-metropolis conceptualized by Soja, the traditional density gradients from the center to the periphery get thinner; the boundaries between the city and the countryside fade away; peripheries become more and more differentiated and host strategic urban functions; decentralization and recentralization recombine and produce new sets of centralities and new systems of voids*» (Balducci et al., 2017: 5)

[37] Distribution and delivery refer to the basic functions of the supply chain, fundamental infrastructure such as ports and telecommunication networks. Consumption and convenience represent retail fronts of global supply chain such as McDonald's and Walmart. Accommodation

In the wake of the design approach to logistics spaces, Bélanger (Bélanger, 2009, 2016) introduced the term landscape infrastructure to redefine infrastructure as physical tools for improving mass transit, enhancing public accessibility and ecological performance integrating urban and economic aims. His works address spatial patterns of capitalism with the aim «*to redefine the conventional meaning of modern infrastructure by amplifying the biophysical landscape that it has historically suppressed, and to reformulate landscape as a sophisticated, instrumental system of essential resources, services, and agents that generate and support urban economies*» (Bélanger, 2009: 79).

More generally, the statement of design disciplines is that they have to construct new economic arrangements in spatial and material form. Recently, Lyster (2016) claims that the logistics, as specific networked infrastructure, is a useful source of insight for design. It is particularly used by the author as a lens that offers new lessons to understand and interpret the city in a 'a-geographical' context. Pursuing the insight of Hesse (2008), Lyster (2016) approaches the city as an integrated service platform claiming that, for the opportunities that logistics offer to the shaping of the city, it can be seen as a form of urbanism.

2. 5 | Global Flows and 'Network Thinking' in Urbanism. Port as 'Glocal' Node

Major port cities are framed as global spaces since they are involved in economic and cultural globalization processes affecting social, economic, and political tissues. The increasing scientific interest in nodal points of contemporary territories as well as the focus on their working principles and consequences, intertwine a changed concept of the urban form. The image of the city as a network (Perulli, 2007, 2009), places the urban question at the heart of the system of dynamic relationships that structure and organize territorial flows. The network of economic, social and environmental flow represents therefore the complexity of the urban system as the result of horizontal forces with no prioritising hierarchy (Alexander, 1965). Through the image of the network, all transformations are challenged as processes involving several aspects that cross the spatial scales and blur the boundaries of urban sites. This explanatory concept provides different levels of tackling and interpreting the urban space.

The network has been significantly used in looking at the interactions between space and human activities in the development of urban practices (Salingaros, 2005), and it is

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and Disposal describe the spatial consequences of the increasingly short- lived consumer goods; they are landfills, incinerators, or other dumps (Waldheim, 2016; Waldheim & Berger, 2008).

progressively evolved in conjunction with the technological innovation (ICT devices and virtual spaces) and the infrastructural progress (the capillarity of water, energy and goods infrastructures). Moreover, the network perspective has challenged the meaning of notions such as the geographical proximity, the tracking of dynamic data and the territorialization of flows (Brenner, 1999). Thus, the network represents, on the one hand, a metaphor to understand and organize the complexity through the connections, and their mutual influence, between different factors. On the other hand, it is the model structure that better depicts the working principles of new forces shaping the urban context and everyday life. As our contemporary way of living is mainly based on mobility (Cresswell, 2006), the networks that underlie daily practices such as commuting, exchange of digital data, use of home electrical or water systems, are leading the shape of urban spaces and also influencing governance issues called upon to manage flows and spaces to improve the quality of life. The 'network thinking' in urbanism is a paradigm challenge for urban design and planning that tries to overcome the previous zoning thinking through a (re)problematization of urban systems in terms of urban technology systems (Drewe, 2003).

The network of flows is therefore a key tool to define contemporary urban strategies and policy (Hesse, 2010, 2013), and adapt the planning goals to citizens' behaviors and needs. The planning principle based on the governance of the system of flows also implies a need to re-think the connections between the consumption of resources and the effects of the urban territories. According to Van Timmeren (2015):

«*As cities grow in complexity and their infrastructures become more networked, they invariably become increasingly integral to the functioning of daily life of city dwellers and, most importantly, fragile to disruptive systemic changes. Therefore, the planning of their forms and services must adapt to the needs of present and future urban dwellers as well as predicted shifts in environmental baseline conditions*» (Van Timmeren et al., 2015: 31).

The relationships between flows and spaces headed the research studies on the network: a structure interpreted as the social morphology of our society by leading scholars. By addressing networks of financial, information, and knowledge generation flows, the sociologist Castells (2000), argues that our society is increasingly being transformed by flows – of capital, people, goods, information, images, sounds, symbols. These flows are the expression of processes dominating our economic and political life. The material support of dominant processes is the ensemble of elements making these flows circulate in the space. Thus, the definition of 'space of flows' as «*the material organization of time-sharing social practices that work through flows*» (Castells, 2000: 442) attributes a new meaning to the notion of *space* conventionally assimilated by social theory to the concept of *contiguity*. The space of flows reveals the dominant spatial logic of our society deduced from location patterns of core economic activities in the networks of firms (advanced services and manufacturing) enhanced by information technologies. Hence, it implies the

decoupling between the interactions of dominant social actors[38] and the contiguity of their physical positions. This new space is opposed to the 'space of places', the historically rooted physical organization of society in which activities are the result of institutions, that themselves reflect structure (home, work, school, etc.). The concept of *place* is therefore strictly associated with notions of local, contiguity and spatial boundaries and, contrary to networks of flows, it is clearly identifiable in its components characterized by interactions of cultures and histories that give meaning and sense of urbanity.

Besides the differences between space of flows and space of places, the technological turn witnessed by the network society also implies a changing perspective on urban places. If social structures (and hence social practices)[39] (Thrift, 1983) are shaped by flows of power, this means that the space of flows – through which the power is organized – has implications also for the space of places altering their meaning and dynamics. Indeed, economic, financial, and information forces put pressure on urban policy to adapt urban places to the logic of flows, for example by providing accessibility and infrastructure (Hesse, 2010).

The space of flows defines the network as a spatial entity and clearly frames the phenomenon of globalization based on mutual influences between nodes – points of convergence of information and decision-making processes – geographically distant. Globalization is a debated phenomenon that is usually seen as the product of a continuous influence of tangible and intangible transnational flows such as cultures, knowledge, information, money, and people, and it is also perceived as a process of standardization with tendency to homologate spaces, laws and behaviors. The notion of the 'global city' has been introduced by Sassen (1992) to define strategic sites in economic globalization by developing the concept of 'world cities' (Hall, 1966) previously advanced in the work of Geddes (1915).

Hall (1966) traced the main characteristics of world cities as urban concentrations of political power, business, and finance, as well as culture. By involving a geographical perspective in looking at dispersed and centralized effects of international forces, Sassen (1992) frames the global cities as head-quarters of corporate control and centres of pivotal

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[38] Dominant social actors are the ones embedded in economic, political and symbolic structure of society. Castells, defines 'dominant social structure' as «*those arrangements of organizations and institutions whose internal logic plays a strategic role in shaping social practices and social consciousness for society at large*» (Castells, 2000: 442).

[39] «*Social structures are characterized by their duality. They are both constituted by human practices, and yet at the same time they are the very medium of this constitution. Through the processes of socialization, the extant physical environment, and so on, individuals draw upon social structure. But at each moment they do this they must also reconstitute that structure through the production or the reproduction of the conditions of production and reproduction. They therefore have the possibility, as, in some sense, capable and knowing agents, of reconstituting or even transforming that structure*» (Thrift, 1983: 29).

decision. Furthermore, she reveals the duality of the new global economy going through the complexity of networked specialized firms that, even if spatially concentrated in an urban area, lead to a dispersion of subsidiary activities in a process of outsourcing. From this perspective, major port cities belong to the category of global cities according to some parameters – evidenced by the Globalisation and World Cities Study Group & Network – such as the concentration of firms in the maritime sector (Verhetsel & Sel, 2009).

Albeit some port cities are not labelled as 'global', commercial ports prompt the cities and the territory in which they lay in global networks (Jacobs et al., 2010), that means their economy and allied spatial consequences (the space of places influenced by the space of flows and vice versa) depend on outer decision centres connected to the same network. In the port sector, globalization concerns the logistics industry; more specifically, it coincides with the container traffic and thus, originally, with the standardization of the container, a box unit that changed the transportation technology and infrastructure since it launched the intermodal transport system based on the combination of different transport modalities (truck, rail, ship, airplane) (Hayuth, 1982a; Levinson, 2006). The global network in which port cities are involved in forms of gateway and hubs is the supply chain system[40] (P. V. Hall & Jacobs, 2010; Hesse, 2010; Jacobs et al., 2010; Olivier & Slack, 2006).

Although the phenomenon of globalization affected mainly the infrastructure system, it impacted also on urban and regional assets since the port space is a combination of functions spatially close to each other and physically embedded in built environment patterns. In the global trade network, the port's competitive features also changed, and the system of structures used by the port to manage flows, gained increased relevance compared to the provision of docks, warehouses and labour forces (Delponte, 2009). The new port ambitions and expectations thus influenced the shape of the port by making finger piers and warehouses worthless and, regarding the urban context, the impact of globalization in port cities produced a growth in flows of people and goods giving rise to new geographies of production and consumption (Dicken, 2003).

The «*combined process of globalization and local-territorial reconfiguration*» (Swyngedouw, 1992: 61) has been labelled as 'glocalization' with reference to the global processes permeating aspects of the local. The notion of glocal occurs in critical urban studies to question the current meaning of concepts such as 'city' or 'urban' (Amin & Thrift, 2002; Brenner & Schmid, 2015; Graham & Marvin, 2001). These studies address new political geographies and socio-spatial formations in an era of worldwide capital accumulation, blurred spatial boundaries and dynamic actor networks that lead economic, social, cultural and political processes (Amin, 2002, 2004). According to Graham and Marvin (2001), and Brenner and Schmid (2015), ports and logistics hubs are nodal points

[40] See paragraph 2.4.

in the long-distance transportation network and they have significantly rewoven the fabric of urbanization as new spatial forms of capital agglomeration.

Hence, by embracing this perspective, the overall research approach in networked infrastructures seeks to overcome the technical, sectorial, outlook relied on engineering studies, and open itself up to urban disciplines. A multi-scalar approach is therefore essential to bind institutional and spatial aspects together and understand the urban planning entailments of new contemporary forms of glocal spaces. The role of the port as physical link between the local and the global scale conveys factors that characterize the dichotomy between the urban infrastructure and the node of the network. This conceptual coupling gives a theoretical framework through which address constraints and resources related to both logistics and environmental context.

2.6 | Positioning the Research: Institutional Turn in Port Research Beyond the Dichotomic Waterfront-Port Regionalization

The multifaceted aspects of port-territory issues show the theoretical background underlying the research study. The literature review allows us to broadly tackle the complexity of the research topic and to closely shed light on key elements of this dissertation. The building of a theoretical framework leads the steps of the research towards the tracing of research developments and outcomes.

From the systematization of the literature, some cross questions about the port research emerged:

- *Constraints of sectoral studies.* The focus on port system as research object has different fields of investigations. Urban planning studies have long contributed to the research on waterfront development since it has been seen by decision makers and developers as an opportunity to build new urban spaces, architecture, relationships, and culture. Conversely, the waterfront regeneration approach limits the research analysis to focus the city expansion on the shoreline by considering the port as moved out of urban areas. In this way, the port city actually becomes the city-with-no-port (anymore) in which the operational infrastructure is not included in urban development issues (Moccia, 2012; Pavia, 2008). An alternative case is the proximity of the city with port areas that include urban functions (passengers' areas, cruise stations, offices, etc.). Nonetheless, it excludes in the urban field, once again, the complex relationships between the city and the specialized port functions.

Aside from this, urban waterfront studies emphasize some important arguments. First of all, the port, in its spatial and historical features, is considered as part of the landscape that means it is not separable from urban fabric strategies. Secondly, being an element of the 'landscape' means that the port has to be part of the 'known' built environment, thus, urban projects have to draw subsidiary relationships also with working spaces (Viganò, 2010). In these worthwhile findings, the port literature still reveals a gap.

On the other hand, more technical research focusing on port geographies as working infrastructures, do not include social and spatial attention towards the territory, rather, they consider local constraints as an obstacle to the port development.

- *Role of design in spatial dimension.* The spatial dimension notoriously includes strategic and land use aspects. The examined literature claims the role of the design in spatial studies and, therefore, the design of the spaces of flows plays a role in urban as well as infrastructural and logistics areas. Following this statement, the dissertation aims to shape urban policies by including a remarkable boost to the value of the design in infrastructural projects as a sensitive way to plan the relationships with the urban environment.

- *Limits of a spatial approach.* The literature review emphasises the multi-dimensional aspects of port issues. Although the spatial disciplines have long addressed port-territory changes, spatial strategies merely reveal a partial approach and partial outcomes. The range of actors involved in the port arena is indeed extremely important for decisions concerning the governance of port territories and thus structural plans and future visions. Institutional frameworks shape the governance processes taking into account the national and local system of regulations and the variety of agents that, also informally, affect the decision making processes and the governance structures. This aspect is underlined both in waterfront and port regionalization studies, and thus it is considered to be the starting point of this dissertation.

- *Need of empirical exploration of theoretical concepts*. Conceptual theories build the general framework of the research study by giving an inspirational interpretation of phenomena, and prompting insights to investigate the research subject. However, empirical studies contribute to clarify and test some concepts and, furthermore, to implement theories by highlighting overall considerations after specific analysis.

Furthermore, as regards the aim to overcome the gap between global infrastructure and local dynamics in the framework of Italian policies, the dissertation draws its trajectories and inspiration from a national research conducted in the early 2000s by a team of scholars in the field of urban studies. The MIT (Ministry of Infrastructures and Transport) commissioned a research study on 'territorial strategic platforms' that were introduced in the 'National Strategic Framework 2007-2013' (Quadro Strategico Nazionale). The main research objective was the drawing of 'medium-term scenarios' to connect 'territory-areas'

and ‘territory-networks’ through the integration of European and national policies with local infrastructural contexts (MIT-DiCoTer, SIU, 2006). With this purpose, the research identified territorial overlapping layers tied together by infrastructural networks. In particular, the strategic strengthening of the infrastructural nodes was considered as a tool to define the metropolitan relevance of ‘junction territories’ (junction between external and local flows) and therefore to channel national resources for the development.

Although the MIT’s mission was mainly oriented to transport issues, the research highlighted the national texture of local territories made by nodes, corridors and local production layouts. By following this research path, the dissertation focuses the local implications of vast scale strategies in which port related infrastructures are embedded.

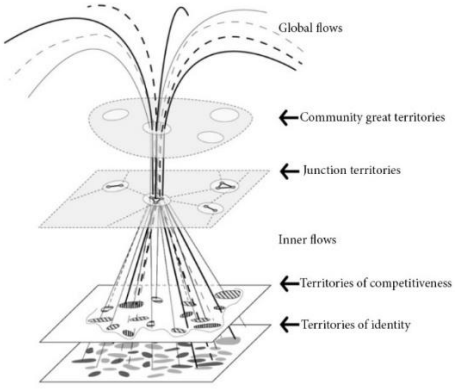

Fig. 9 | Multi-layer territorial model. *Source: MIT-DiCoTer, SIU research report, 2006*

Framing the area of analysis: moving beyond waterfront and port regionalization

In literature, a remarkable separation between waterfronts and inland infrastructures has characterized different approaches to the port research. The geographical studies on port development clearly explain the reasons why waterfronts and inland terminals have become two specialized sectors. The proximity with the urban areas, the opportunity to design brownfields and the paramount conflicts with existing urban spaces have drawn the urban disciplines’ attention to waterfront areas. As a result, urban planners have enhanced a sensitive approach to the urban regeneration projects at the shoreline by focusing studies – and thus masterplans – on concepts belonging to technological, historical, design, and social aims such as historical preservation, sustainable technology, public reclamation. On the other hand, the infrastructural geographies of port regionalization have long been excluded from urban development strategies since logistics functions were commonly conceived as ‘not urban’ that means not significantly embedded in urban fabrics and practices. Thus, only through research studies deriving from other disciplines, it is possible

to understand pragmatic matters and issues that the regional system of port geographies entails in spatial and institutional terms.

Theoretical studies, from sociology and critical urban theory, intervene to overcome this dichotomy. Through a conceptual re-reading of the urban space, networked infrastructures are recognized as spaces in which flows meet places shaping physical aspects of the landscape. Furthermore, the planetary urbanization (Brenner & Schmid, 2011) is a recent concept that prompts to recognize form of urbanization radically reconfigured. Some aspects of this theory play an important role in framing the port constellations phenomenon in an urban perspective. Indeed, socio-spatial transformations listed by the two authors include port development effects. First, 'the blurring and rearticulation of urban territories' (Brenner & Schmid, 2011: 11) frames the theme of the dispersion of functions in suburbanized spaces towards small and medium towns and along infrastructural corridors. Second, 'the disintegration of the hinterland' (Brenner & Schmid, 2011: 12) tackles the functionalization of internal areas as spatial trajectory of urban services development (industrial areas, recreational facilities, waste disposal areas, energy fields, etc.).

By embracing these concepts, and in accordance with Fläming and Hesse (2011) and Raimbault and colleagues (2016), we claim that port geographies scattered also in the hinterland are urban matters.

Moreover, the transformations of waterfront and port regionalization are parallel effects of the port development. This argument is asserted by Hesse (2008), Raimbault, Jacobs and van Dongen (2016):

« […] *structural changes are creating new geographies of distribution, as an outcome of supply chain management and logistics network design and in response to a changing macro-economic framework. This transformation of urban places includes, first, the re-development of warehousing districts, inner-city rail yards and freight consolidation facilities, in favour of more valuable and competitive land uses, such as housing, retail or business services; this also applies to the increasingly popular conversion of city ports into urban waterfronts*» (Hesse, 2008: 167)

«*Port regionalisation shows that the development of inland logistics hubs in semi-urban and semi-peripheral locations are as much a part of the wider structural changes as the actual retreat of transport activity from waterfront locations in urban cores*» (Raimbault et al., 2016: 30)

Hence, the dissertation attempts to transfer notions learned from urban regeneration studies related to waterfront development issues to the analysis of inland areas. In particular, we

introduce in the landward study areas, concepts such as 'conflicts and cooperation' at the interface (between infrastructures and territory) (Hoyle, 1989), and 'coexistence' of functions and actors (Bruttomesso, 2011).

The focus on design aspects is also a step forward in the awareness that a keen urban vision includes logistics areas in landscape regeneration projects. This suggests approaching urban development and transport policy by assuming a clear trajectory in order to enhance design processes in infrastructural projects.

The expansion of the area of study also implies clarification of the leap in scale assumed by this dissertation. According to Ducruet (2009), we endorse the blurring of the term 'region' when referring to regionalization phenomenon. Especially in the Italian tradition, the region is a defined area within an administrative boundary. Conversely, the main concept that the port regionalization phase aims to highlight is the ramification of logistics centres from the coast to the hinterland. Thus, the region in port research literature is a conceptual entity with no shape or system of regulation. By fostering this vision and pursuing the aim to avoid ambiguity in the use of the term, we refer to the area in which port networks are embedded, with the comprehensive term 'territory'[41] rather than 'region'.

This choice has two reasons: on the one hand, it leads to a decoupling of the extension of the port network and the administrative levels of regulation systems (in the case of main ports such as Rotterdam and Hamburg. Indeed, important logistics connections go beyond the 'region'); on the other hand, the 'territory' has an overall range of reference and allows us to include coast and hinterland dynamics, while the 'port regionalization' in literature is exclusively related to inland infrastructures.

Space and institution in port research: a developing research path

Research studies on port issues underline the limits of a merely spatial perspective. The development of strategies and projects need complex decisional processes, and, furthermore, these processes are shaped by a variety of external agents. Thus, addressing seaports or inland terminals means also dealing with a complex set of organizations and actors.

In order to do so, as the analysis of previous studies has shown, many scholars have decided to address institutional dynamics[42] to analyze their research topics on port governance issues. This 'institutionalization' of port research rises from the growing disconnection

[41] The term 'territory' is widely used in worldwide literature and European documents. Nevertheless, a more complex underlying meaning of the word is highlighted by Pasqui (2017) that includes in the 'territory' the reference to the relationships between human practices and material elements (houses, infrastructures, factories, green areas, etc.) of spaces.
[42] For an overall explanation about the institutional approach, see paragraph 1.5.

between governments and port authorities (Hall & Jacobs, 2012) and it evolved in order to also address the complexities that characterize port regionalization issues (Witte et al., 2014a, 2016) and urban waterfronts (Daamen, 2010; Daamen & Vries, 2013).

In particular, we have identified a set of research studies, generally mentioned in the previous paragraphs. These research projects help to trace the developing institutional approach applied to port research as a distinctive branch of this research field.

It is worth underlining that the institutional analysis has been previously applied in the context of transportation (Héritier et al., 2001 mentioned in Ng & Pallis, 2010) and then, mainly approached in economic and political geography – defined as 'institutional turn[43]' (see Jacobs, 2007; Witte et al., 2014a) . Hence, a spatial focus within an urban perspective is a scientific advancement.

Firstly, Jacobs (2007) applies the institutional analysis to the economic geography in order to assess political economic questions such as the way institutions affect the competitive strategies of and between port authorities. In his dissertation, Jacobs underlines the wide institutional framework in which ports are embedded besides distribution regimes of commercial flows:

«*Ports are therefore not only embedded within these networks or chains, but also within a particular territorialized institutional framework. This implies that we have to take into account the (scalar) structure of the state, the role of its agencies and its 'capacity to act' within increasingly globally organized and privately controlled supply chains and production networks*» (Jacobs, 2007: 14)

Similarly, addressing the dimension of proximity in the maritime sector, Hall and Jacobs (2010) tackle the 'institutional proximity' as a mediating variable to regulate collaborations between neighbouring ports, and thus, to improve innovation and upgrading. Furthermore, they clarify the relationship between institutions and governance processes by defining the former as the set of 'rules of the game' and the latter as the action to 'play the game' (Hall & Jacobs, 2010). Given this perspective, Ng and Pallis (2010) frame a comparative study on port governance reforms (in the Netherlands, Greece and South Korea) by assessing local/national institutional frameworks.

In port research, the institutional approach has quickly expanded from seaports to inland terminals (Monios, 2016). Monios and Wilmsmeier (2012) first introduce the aim to

[43] Quoting Jacobs «*Martin (2000: 79) defines the institutionalist approach to economic geography as an attempt to answer the following question: 'to what extent and in what ways are the processes of geographically uneven capitalist economic development shaped and mediated by the institutional structures in and through which those processes take place?' The implicit assumption is that, although institutions are unlikely to be the sole cause of geographically uneven development, they enable and constrain economic development in spatially differentiated ways*» (Jacobs, 2007: 19).

analyze the connection between space and institutions as «*the potential missing element in understanding the landside spatial development of ports*» (Monios & Wilmsmeier, 2012: 1553). Witte and colleagues (2014b, 2016) focus the governance of inland terminals attempting to also consider urban externalities. As a result, they analyze spatial and institutional aspects of inland port development (along the Rhine-Alpine Corridor ranging from Rotterdam to Genoa) (Witte et al., 2016) by using the framework proposed by Daamen and Vries (2013). This methodological framework organizes the results of the comparative analysis by partitioning institutional impacts into three sections: governance structures, laws and regulations, and development orientations.

Finally, the institutional turn has also been applied at the port-city interface. Daamen (2010) uses the sociological institutional approach to study how structural forces affect actions, and thus, the way institutional changes take concrete shape on the level of projects. Daamen's research study focuses on interactions between spatial strategy and institutions at the port-city interface through a case study method (Daamen, 2010) and, later, through a comparative analysis (Daamen & Vries, 2013). By applying and developing this theoretical research approach, Daamen and Vries investigate urban governance processes in managing relevant spatial changes at the European waterfronts.

Following this developing research approach, the dissertation aims to contribute to the institutional turn of port research by applying it to our model of investigation that expands the interface concept to the variety of port-territory interplay.

Scientific relevance of the research study

This dissertation is the result of multiple scientific interests and curiosities that arose while investigating theoretical, political, and pragmatic matters. The framing of those interests in a methodological research path defines several implications that the research study aims to address in a multiscalar range of knowledge.

As previously mentioned in the first chapter, the main aim of this research project is to contribute by drawing a more inclusive approach in the (urban) development of port infrastructures by giving directions to territorial policies. In order to achieve this aim, previous studies have led the background of the research topic through a wide set of scholars and research frameworks. From this theoretical knowledge, the dissertation has drawn notions, trajectories and inspiration.

Hence, the research study attempts to contribute to the scientific expertise by providing an innovative comparison between different typologies of port-territory interactions. Therefore, we have found a gap in research studies that address port transformations

without comparing the variety of changes that the port development produces in the territory. Although former studies have focused on a specific port system area (the waterfronts or the inland terminals), the dissertation follows the insights argued by Hesse (2008) and Raimbault and colleagues (2016) by considering those different spatial phenomena – the waterfront redevelopment and the port regionalization – as rooted in the same 'port turn' caused by globalization, and thus both suitable for a comprehensive research study. Indeed, no previous study compared the spatial and institutional differences embedded in different port-territory interactions (the urban, the peri-urban and the hinterland interface) within one region.

Nevertheless, the ambitious inclusive research approach is not framed to force similarities in the structures of different port geographies, rather it is considered a necessary step forward to actually affect the urban policy dimension. The research study, investigates interplay between port system infrastructures and multiple territorial patterns in order to tackle the variety of issues addressed in port development policies which generally tie together seaports and inland port geographies. Particularly, the Italian port reform includes seaports – and thus the relationship between ports and urban systems – and logistics infrastructure in a unique system of regulation. We claim that only a research study including a multiscalar and multidimensional perspective can provide valid arguments in order to suggest a more social-led integration between port infrastructures and urban tissues.

Besides this specific goal, the research project is shaped by theoretical milestones deduced from important research studies. The basis of knowledge that defined the research framework (in particular hypothesis and methodology) has, indeed, been built by theories which affect the researchers' points of view and, thus, the way to approach the research study. This theoretical contribution frames the research object in a wider set of knowledge that tries to observe the reality by providing new explanation to a specific set of phenomena (Brenner & Schmid, 2015). As Brenner and Schmid claim «*categories of analysis, and object of investigation require a foundational reconceptualisation in order to remain relevant to the massive transformations of worldwide socio-spatial organisation we are witnessing today*» (Brenner & Schmid, 2011: 12). The research study assumes a 'reconceptualization' of port issues, and this process of reconceptualization is entrenched in the systems of organized and accepted knowledge focused on themes such as the global regimes of flows (Castells, 2000), the fragmentation of contemporary urban areas (Soja, 1989, 2000) and the relevance of networked infrastructures as socio-technical drivers of urban transformations (Graham & Marvin, 2001).

The dissertation positions itself in this framework of overall categories of analysis as a pragmatic application of urban theories. In this way, the research outcomes contribute to transfer theoretical notions to practical cases. Vice versa, pragmatic aspects deduced from specific studies enhance and reframe the theoretical asset. Thus, while the theoretical

approach has been developed from the literature, it will be modified and developed by the empirical observations.

To summarize, the research project aims to provide scientific improvements in the theoretical and pragmatic field through the following actions: contributing to the institutional approach (combined with spatial efforts) in port researches; expanding the theoretical concept of the interface developed in the waterfront regeneration literature; tackling a wider range of port geographies and analyze them in the port territory in which they are embedded; providing an empirical study to urban planning theories.

Finally, this study is addressed to decision makers and urban planners in order to develop port territories by improving infrastructures as well as urban areas in a comprehensive planning approach.

Chapter 3.

Reframing Port-Territory Interplay

The Expansion of the *Interface* Concept

3.1 | Introduction: The Port-Territory Interfaces as Areas of Analysis

The research project aims to highlight the variation in the system of interactions between different configurations of port-territory interplay. With this purpose, we stress and enhance a pioneer concept of port research: the interface. We broaden a term that is, in the scientific literature, strictly related to the urban waterfront. Thus, we apply a rescaling process by adapting the seaport concept to the regional dimension. In this way, the port regionalization is reterritorialized in an urban perspective by analyzing local assets in spatial and governance dynamics of local administrative layers.

The notion of the interface generally underlines a contact between two, or more, different entities. The 'contact' element is the key factor for defining the kind of relationships between the interacting agents. It assumes the task to separate or link opposite elements and it can have characteristics of porosity or temporary permeability. For all these meanings, the term interface has been widely reported in port studies to name the contact zone between urban areas and port infrastructures.

The first use of this concept has been applied by Hayuth (1982, 1988) to bring attention to a sensitive in-between area of strategic significance, instead of addressing only maritime or land (behind the waterfront) developments. In the Hayuth's essay, the port-urban interface had a mainly geographic meaning in which spatial and environmental changes have been studied as drivers of transformations trajectories.

Hoyle (1989) gave a remarkable boost to the 'port-city interface' by stressing its role of 'zone of conflict and/or cooperation'. Firstly, he used the geographic area to draw an overall explanatory model of port development phases. He clarified the former Hayuth's definition of the interface as 'area of transition' by considering the action of the time and by showing how, and through which global external processes (industrial growth and advanced maritime technology), the interface changed over time shaping the history of port-city spatial relationships. Following Hoyle (1989, 2000) also Norcliffe and colleagues (1996) focus on spatial changes in land use as main consequence of the evolution of the port-city interface, and all the authors do not focus on overlapping relationships between the city and the port.

Secondly, Hoyle outlined the factors operating at the interface that have an influence in the interfaces layouts. Technological, economic, environmental, political and legislative factors all contribute to shape the interface beyond the chronological and spatial issues. Furthermore, it is a place with a pluralistic community of actors.

The interface, thus, acquired a wider meaning besides the geographical 'zone'. It also implies a conceptual framework that, methodologically, ties together the interactions among heterogeneous forces influencing the port-city relationships. The conflicts at the

interface are between several urban dimensions such as logistics development and other functional land use, and social and political goals that should be negotiated in cooperative arenas. In this perspective, the interface is both a space and a set of processes.

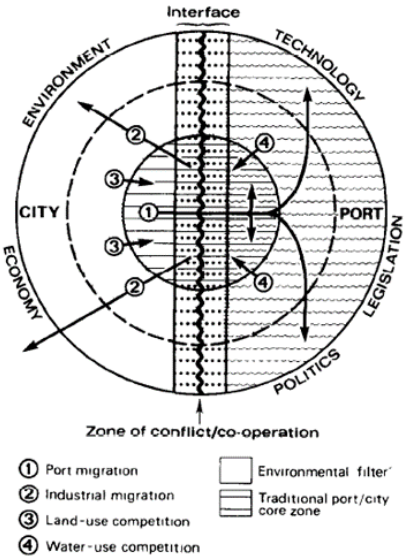

Fig. 10 |Waterfront redevelopment: factors and trends at the port-city interface. *Source: Hoyle, 1989*

«*The port-city interface is well-known to become the place where the struggle between a variety of port–urban forces are played out and take physical shape*» (Daamen & Vries, 2013: : 5).

In the duality port-urban forces/physical shape lies the deep meaning of the interface notion. This multi-dimensional theoretical principle sets a fruitful background, and it is the reference point of this dissertation.

To tackle the phenomenon and concept of port-territory interplay we first elaborate a conceptual framework. The expanding of the interface concept defines our model of investigation. We claim the need to frame the port-territory analysis in order to develop a scientific, repeatable, research process. Moreover, the research project very much owes scientific interests and insights to waterfront development studies, the interface is thus, the place where strategic port-city asset takes place, and the first approach to the research field and its intrinsic meaning permeates the port research literature. From this assumption, we stress the urgencies to take a step further by exploring and experiencing a dilated meaning of 'port-urban forces' that interfere at the interface. Given the literature legacy, indeed, the concept of the interface has long been confined to waterfront studies, only recently, a wide use of the term, has been expanded also with reference to other kind of sectoral transport infrastructure (such as the airports) (McDonough, 2015).

In this dissertation, first of all, the expansion of the interface concept stems from two research statements underlined in the previous chapters: (1) the port system consists of multiple different geographies; (2) port geographies are placed in different territorial context.

Hence, to accomplish the aim to study the port-territory interactions, we start from these assumptions, and draw a range of analysis by selecting specific goals and focus areas: (1) to tackle the main changes imposed by global trade networks, we focus three geographical levels: urban seaport, logistics port area, inland terminal; (2) to study how the port system's areas affect the institutional and built environment (and vice versa) we identify three territorial typologies that constitute, for their physical and institutional characteristics, the territorial context in which each port geographies' model operates. The three territorial patterns are: urban, peri-urban and hinterland areas.

The research strategy to analyze the port-territory interplay in three sections is not an attempt to unbundle and fragment the research topics and outcomes, rather, it aims to address these very different typologies of port system-territory relationships through their specific features, and finally, to collect and assess all the remarkable aspects of the three interfaces in order to improve the knowledge about the whole set of port system-territory interplay.

Furthermore, by embracing the wide meaning of the interface, the research analysis does not focus only on the contested space between port geographies and urban tissues, actually, it addresses the multifaceted relationships between global flows of cargo and local milieus. The elements, the actors and the relationships that characterize the three port geographies-territory interfaces are the subjects of this section. In this chapter, we address the urban, the peri-urban and the hinterland interface by highlighting, in different specific paragraphs, the peculiarities of these territories and by generally identifying the main agents that exist in infrastructure-territory processes.

In the conclusions, the notions explained, are transferred into the methodological framework of investigation exploited in this dissertation. By applying the spatial and institutional research approach to the port-territory interfaces, we develop a method of investigation which aims to provide an overview of the multi-dimensional port system interferences across territorial scales.

3.2 | *Interface I.* The Urban Interface: City, Water and Port Identity

The port-city interface is the space of the waterfront redevelopment, and the core of urban port researches. Even though it has a clearly defined spatial scale within the administrative borders of the city, the efforts and outcomes of the waterfront regeneration projects involve the metropolitan, regional and national scale[44].

The interface between city and port, more than the other two interfaces, is the experimental zone for the attempt to build new hybrid land in which the urban and the port shapes can come together and provide an interesting laboratory for port-urban design research. Indeed, especially historical ports, are infrastructures born with their surrounding urban settlement with a strong underlying chance to connect the city with the sea rather than create barriers. Hybrid spaces and dynamic landscapes (Hein, 2011) are the cultural roots of the urban interface that can led to create new identities through new urban projects. For these reasons, the shaping of this fluid interface (Carta, 2013; Carta & Ronsivalle, 2016) is usually defined by blueprints that very much involve the architectural dimension within the regimes of international events or competition. Thus, the analysis of this interface is surely more related to the urban regeneration dimension and the local scale.

The concept of the port identity broadly emerges in the port-city interface and it bases its principles on the relevance of tangible and intangible values that build the culture of human beings. In the urban port environment, intangible values are elements such as meanings, customs, tradition, daily practices. Alongside these, tangible values are warehouses, infrastructure, artefacts, etc. The urban interface is thus deeply rooted into the understanding of the sea-related culture and in the involvement of the maritime community (fishermen, boat builders, entrepreneurs, etc.). Given this, it is evident that place-based strategies are necessary in the development of this interface.

Despite the opportunity that this interface offers to develop fruitful relationships between the port and the city, it is worth highlighting that a strong conflict exists between operational port areas and urban spaces. Moreover, the separation occurred in this interface is enhanced by sector-specific planning instruments. The concept to perceive the port as place, together with the need to organize the port space through efficient rules, led the development of inner port plans that exclude the relationships with the land. In this regard, legal and political divergences between two different administrative bodies (usually a port authority and a municipality) may become the drivers of spatial conflicts or also of stuck situations. Governance issues are thus one of the main conflict ground of this interface.

44 «Acting on that part of town that has a liquid interface, often floodable, is to set its effects to the entire local context not only revitalizing the urban tissues directly connected, but also producing more sustainable development opportunities and connecting the waterfront to the territorial life cycles» (Carta & Ronsivalle, 2016: : 4).

Spatial and functional solutions based on a possible integration of the two system, the port and the city, develop the concept of hybrid strategies where the urban functions are mixed to underutilized port areas. This strategy is pursued in port areas with compatible functions such as passenger zones and cruise terminals. Moreover, the development trajectory of hybrid port-city spaces is not broadly diffused in large port cities where global ports moved far from urban areas. Conversely, this planning strategy is institutionalized in Italian port policy that, indeed, attempts to build spatial relationships between ports and historical cities taking advantage of the small size of ports and their physical entanglement to urban settlements.

The urban-port interface has not a standard typology, rather it has different configurations that vary according to spatial, institutional and functional factors. Here, what emerges as bigger challenge, is the spatial proximity of the port and the city. By recalling the concept of the interface as a process, relations of coexistence between the port and the city could be addressed in order to develop both an institutional and spatial cooperation between port and city. The coexistence paradigm (Bruttomesso, 2011) underlines that the resolution of conflicts at the port-urban threshold are not merely related to spatial projects. Common arenas are the fundamental element at the base of 'coexistence strategies' that go beyond the selfish aims of port and cities to prevail on existing functions.

The emerging issues related to the port-city interface define what we consider the meaningful focus. The processes underlying port-city strategies at the local scale are the key elements to address institutional organization and local resistance to changes.

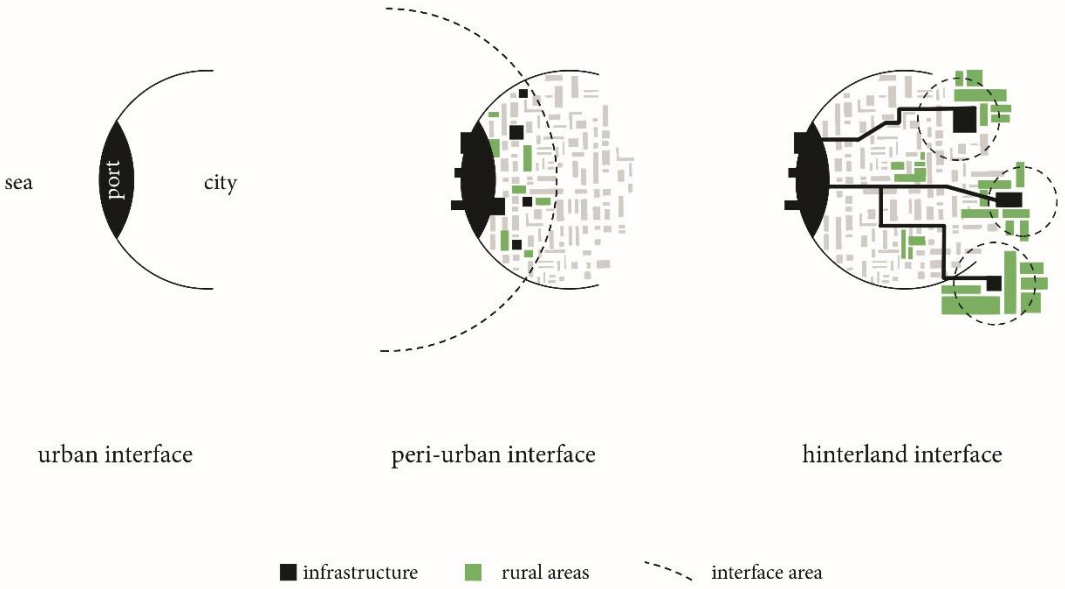

Fig. 11 | Areas of analysis. Expansion of the interface concept. *Source: Author's elaboration.*

3.3 | *Interface II.* The Peri-Urban Interface: Suburb, Logistics and Port Activity

Industrial and logistics port activities are considered undesirable land uses at the local level, thus, they are confined in peripheral areas. Outskirt urban contexts have a complex background of functional segregation, economic cycles layering and fragile planning rules. The urban tissue is generally fragmented and polarized and it offers room for industrial development also by taking advantage of financial externalities and benefits. More recently, the suburban drift of distribution relates to locational problems within cities. the flexible, 'fluid' pattern of contemporary logistics is likely to disrupt other urban functions, such as housing. Conversely, suburban sites offer the desired 'robust' environment for 24-hour operations (Hesse, 2004).

In this area of analysis, we are referring to extra urban territories that can vary in a wide set of morphological and functional characteristics. The concept of the interface, indeed, starts from the geographical identification of the commercial port expansion beyond the historical (pre-industrial) boundaries. These geographies trigger new relationships and balances with the surroundings, furthermore, they are not part of the development logic of former port areas, and thus, they constitute a new level of investigation.

The geography of port related expansions is deeply influenced by environmental condition. Distriparks, land reclamation for terminals, inner commercial and industrial port areas, and private industrial zones shaped the coast by providing labour and economies of scale, by producing pollution, marginal conditions and structural changes in the built environment. The weaving of new territorial relations of coexistence, very much depends on the territorial pattern in which the port logistics areas are located. Hence, the understanding of territorial patterns' variations is necessary to analyze spatial configurations, processes and actors that characterize the port-territory peri-urban interface.

Since extra-urban areas are the low-density zones close to urban centres, they hosted the dispersion of urban activities resulting from the lack of development space in city cores. With the urban expansions, the mainly natural, often agricultural, surrounding areas have been compromised by the overlapping of multiscalar functions such as new residential neighbourhoods, industrial sites, regional infrastructures, and so forth. Besides planned expansions, in some European contexts, especially in Italy, suburbs underwent to a process of uneven development in which diffusion and low-density land use cohabit with individual initiatives and the lack of planning visions or effective planning instruments of local and regional administrations (Indovina et al., 2005).

The fragmented urban condition is the result of the expansion of the city in the countryside and it is the evolution of the compact city as a consequence of the end of social forces – like feudalism, religious orders and military defence – combined with the coming of roads, railways and electronics networks. The extended and scattered urban settlement defines a

landscape having both urban and rural characteristics. The new hybrid landscape, made by the undetermined combination of houses, infrastructures, green and cultivated areas, goes beyond the key concept of the 'city' still related to the historical palimpsest. In reference to this urban phenomenon, many attempts to define a new label tried to overcome the concept of the city as compact and organized form. 'Urbanized landscape', 'city agglomeration', 'city archipelago', etc. summarize the same characteristics of an international spatial phenomenon:

«[…] *a structure of completely different urban environments which at first sight is diffuse and disorganised with individual islands of geometrically structured patterns, a structure without a clear centre, but therefore with many more or less sharply functionally specialised areas, networks and nodes*» (Sieverts, 2003: : 3)

In this overall description, we decide to use the term 'peri-urban[45]' referring to areas surrounding the urban core in which multiple activities occur. The choice of this term is due to the will to consider, on the one hand, areas that are still 'urban' (in the meaning that, sometimes these areas can be embedded in municipal borders but particularly because they include, among others, urban activities) excluding the other common term 'extra-urban', and, on the other hand, the Latin meaning of the prefix 'peri-' that identifies the general proximity (or the side position) to a subject.

In this wide meaning, the definition of 'peri-urban area' opens to different subtle interpretations essential in specific case study analysis but that are also worth to generally being identified in this research phase. In order to do this, we refer to the work of Caruso (2001). As he argues, the nature of the link between peri-urban communes and the centre is functional and is characterized by commuting flows. Furthermore, peri-urban areas show rural character due to the presence of an agro-forestry sector which counts for an important part of the total surface and therefore implies low population densities with residential consumers and agricultural producers that coexist. Peri-urban zones include therefore rural communes as well as urban units. These criteria are however often used in defining classes within an urban-rural gradient. In this definition, more than morphology, it is the functional link with the city that is important. The rural aspect is probably one of the main differences

[45] We are aware that the term 'peri-urban' is not often used in the English-speaking literature as Caruso already highlighted in his report on the peri-urban situation in Europe (Caruso, 2001). In fact, in this literature, it is more common to identify zones in transition between rural and urban areas as 'fringe' areas (Kurtz & Eicher, 1958) although in a more limited extent.. Nevertheless, we claim that a recent diffusion of the term 'peri-urban' is characterizing the scientific literature and that it will affect also the English-speaking sector. Furthermore, the main choice to use the term 'peri-urban' comes from the efforts to consider, on the one hand, areas that are still 'urban' (in the meaning that, sometimes these areas can be embedded in Municipal borders but particularly because they include, among others, urban activities) excluding the other common term 'extra-urban', and, on the other hand, the Latin meaning of the prefix 'peri-' that identifies the general proximity (or the side position) to a subject.

between the definition of 'suburban' and 'peri-urban' areas. The former should appear more agglomerated or dense. However, we will refer to suburban areas as variant (in terms of amount of natural sites) of the peri-urban port-territory interface.

In this territorial pattern, the port activities found fertile ground to develop industrial and logistics zones as predictable expansion of seaport areas. According to Hesse (2008), suburban areas are the major logistics 'organization space'. The geography of stretched port related expansions is deeply influenced by environmental condition. Therefore, port spatial development faced with the vulnerability of peri-urban areas. Where the matter of safeguarding has prevailed, natural sites have been protected through national port-region agreements, such as in the case of Le Havre, Barcelona, and partially, Rotterdam. In more compromised area, where, for example, agricultural activities are shreds in-between small enterprises and urban amenities and functions, the port-territory interplay goes beyond the port perimeter by shaping a wider territory and rescaling the peri-urban interface in a metropolitan perspective.

3.4 | *Interface III.* The Hinterland Interface: Inland area, Inland terminal and Port Echo

The spatial dimension of logistics area is deeply changing the development patterns in the hinterland. Distribution centres, logistics platforms, satellite terminal, freight villages, etc. are part of a development involving an integration between maritime and inland freight transport systems (Notteboom et al., 2017). As stated by Rodrigue and colleagues (2010) a unique definition of 'inland terminal' is not unanimously developed in the scientific literature. Given this, in this dissertation, with this term we refer to the multitude of infrastructural typologies that have a role in the distribution and storage activity of freights in hinterland areas.

The phenomenon of the spread of logistics significantly increased with the development of new technologies and market changes. As a consequence, logistics needs entered in the field of real estate and began to shape land patterns also driven by new practices such as e-commerce. With the 'terminalization' of port activities (Ng & Ducruet, 2014) and the involvement of ports in supply-chain, logistics areas are considered as a 'sub-harbourisation' (Hesse, 2004): a spatial expansion of port functions in the hinterland. In this regard, the relationship between the inland infrastructure and the seaport has the same consistency of an 'echo': the inland terminal is conceived as a port related infrastructure (also in national policy) but, in most cases, it has its own economic and administrative autonomy.

From a land perspective, the location of logistics areas in the hinterland is related to the proximity to advantageous marketplaces and access to transport networks, on the one hand, and the distance to urbanized areas, on the other hand. These conditions are satisfied in extra urban areas, spatially discontinuous and mainly rural, where cheaper lands allow the building of wide infrastructural sites. In the spatial dimension, the positioning model of inland terminals has been specified in relation to a dependent role to seaports (Outside-In), and on the contrary, an independent role where the development starts from the autonomous power of the inland terminal (Inside-Out) (Monios & Wilmsmeier, 2012). In this way, the phenomenon of port regionalization has been revisited by considering an opposing force of the logistics development that from the hinterland connects to the sea. In the first Outside-In model, the development of inland terminal is driven by port authorities or companies operating in the port area such as terminal operators. In the Inside-Out, the development is land-driven and led by transport companies, rail operators, public organization, etc.

This expansion of the concept of port regionalization underlines some differences in the institutional and spatial behaviors of inland terminals that should be considered in the research study on inland logistics areas.

The spatial structure of inland terminals changes also according to new services on which supply-chains are based. The former landscape made of warehouses developed into the shape of distribution centres where the attention to the quality of the built environment is rarely taken into account. Despite this, a growing attention for the 'economies of beauty' (Forte, 2009) is recently emerging as witnessed by few examples such as the case of Barcelona with the logistics park designed by Ricardo Bofill and the logistics area of Zona Franca with buildings designed by famous architecture firms (Zaha Hadid, Frank Gehry, Enric Massip-Bosh). The role of quality spaces emerges where intermodal hubs and distribution centres are part of business parks in logistics district. These clusters concentrate financial capital in hinterland areas and constitute the new spatial mark of this era, the 'spaces of flows' related to freight distribution.

Moreover, the agglomeration of economies contributes to attract other firms since the centralization of market and services lead to lower the transport costs. This assumption led to consider two aspects. First, logistics areas tend to develop and to increase their spatial dimension. Second, the spatial dimension is very much related to public policy and governance that are in charge to plan and influence the infrastructural development of a territory. Hence, the logistics development is not unbound from local circumstances even in a globalized market economy (Hesse, 2004).

Even though the logistics development is embedded in public policy, when development is led by private companies, conflicts easily emerge between public and private.

The hinterland interface, focuses mainly on governance issues. This is due to the location – usually settled in rural areas, far from urban centres – and the high conflicts that the land use generates between private companies, with a strong economic power, and local institutions that attempts to transfer benefits to the local community. Nevertheless, the spatial dimension has also an important role even if less oriented to the concept of integration. Actually, new models of space with public uses are shaping the spatial model of inland terminals. Indeed, in order to vary their functions and to meet the local demands, new areas are becoming part of these port geographies such as shopping malls and huge space for events.

3.5. | Setting Investigative Tools: Governance Structure and Processes, Compensatory Measures, Spatial Model of Coexistence

Through the interfaces paradigm, we aim to investigate the system of infrastructural threshold-spaces. The expanding of this concept allows to identify the main areas in which the port-territory interplay take place. In fact, by settling the typologies of port geographies and the related territorial patterns, we clearly frame the focus of the case study analysis – that is the set of investigated areas. The multiscalar approach lies in the role that the infrastructural geographies have in the port system structure – more specifically, in the range of flows from seaward that they intercept and organize (within the port-city, in its metropolitan area or in the port region) – and in the set of main actors involved in port decision making (municipalities, metropolitan areas/regions/provinces[46], state). However, a specific attention to local issues, in terms of spatial and institutional conflicts, is considered as paramount aspect of the investigative lens in order to address the local effects of global flows.

Through this conceptual framework the case studies are investigated in three in-depth sections. A conclusive analysis of the elements that emerged in the three interfaces allows to have an overall framework of the port system-territory issues within a specific port region. In order to drew up the comprehensive analysis of the interfaces conceptual model, we propose to read the case study by summarizing the research outcomes in defined topics. These interpretative categories arise from the research approach. Therefore, spatial and institutional entailments of port-territory interfaces are the materials that guide the research path towards the accomplishment of research goals.

[46] This administrative layer, in-between the local and the national scale, depends on the governance structure of each specific country. This is why it is herein reported as set of variables.

Spatial and institutional framework focuses projects and governance issues by considering, on the one hand, spatial strategies established through masterplan, visions or programs to induce changes in the built environment, and, on the other hand, the array of decision-making processes and actors involved in political arenas to define spatial transformations. Thus, with this purpose, the outcomes of the interfaces' analysis are framed in specific investigative fields: governance structure and processes, compensatory measures, spatial model of coexistence.

Governance structure and processes. In the dimension of governance processes, port infrastructures and territories attempt to solve economic, social and environmental conflicts. In the way through which these conflicts are addressed and overcame, we frame the governance processes of the analyzed port territory by highlighting limits and/or achievements. These processes involve institutional actors with the task to define common strategies for spatial development. Hence, these processes are paramount aspects in the shaping of port territories' landscapes.

The complexity in governing conflicting processes lies in the contrasting actors' goals. Delicate management of these processes led to increase the chance to transfer theoretical aims into actions. Usually, these processes are stepwise rounds of meeting with partial or temporary results. Therefore, they finally provide shared visions and planning tools. In this regard, the governance process is the ground of spatial projects, the backbone bolstering changes.

Governance efforts much depend and affect governance structures. The framework of organizations and other actors – that are part of the decision-making arenas – varies according to each interface. Indeed, the role of public bodies, the presence of administrative joints, the property of land, and the system of regulation that defines actions and tools, intervene to shape port-territory relationships and to orient spatial projects. Furthermore, by negotiating a balance, some forces could become predominant and influence governance structures. In example, the relevance of Port Authorities and/or the economic dominance of terminal operators can shape municipal governance structures and define an economy-led transformation.

Compensatory measures. As result of economy-led spatial changes, the logic of compromise becomes the heart of decision-making processes. By analyzing the interfaces, it is evident that more conflicts arise where final compromises are not achieved or not generally accepted. In conflicting arenas, the compromise is the building of a common ground all the parties agree on. Particularly, the compromise is the definition of compensatory measures through which negative externalities (provided by infrastructures) are negotiated and counterbalanced. Given this, in the planning perspective, compensatory measures are often drawn in spatial terms such as the building of public spaces, urban amenities or safeguard of natural resources.

Throughout the history of port development, compensatory measures have led the spatial development since the containerization era. Therefore, the shift of the infrastructure, and thus the consumption of available land, was publicly accepted due to the subsequent opportunity to reclaim historical waterfronts for urban expansion. In this regard, we underline how this planning sensitivity is changed in the last decades – also according to a substantial chance in the size of ports' spatial expansions – and how the setting of compensatory measures is going through more attentive and inclusive processes of negotiation. Nowadays, compensatory measures are mainly implemented on a voluntary basis, rooted in agreements between project developers, nature conservation trusts, landowners or other stakeholders.

Spatial model of coexistence. The spatial form of successful compensatory measures is based on the design of spatial model of coexistence. In this framework, we aim to address the physical dimension of port-territory interfaces questioning the spatial design and strategies occurring in the interplay between infrastructure and territorial pattern. In other words, we address the strategic visions, the design project, the realized plans that shape (or aim to shape) the multiscalar interfaces. In the definition of this investigative category, we use the terms 'model of coexistence' both in an objective and purposeful meaning. Therefore, infrastructure and territorial fabrics surely coexist in determined areas (interfaces): on the one hand, we examine the spatial relationships occurring at the interface, on the other hand, we highlight the need to plan and design these in-between spaces on the principle of 'coexistence' (Bruttomesso, 2011) by which different functions have to find a balance rather than an unfruitful – and not negotiable – integration. We claim that the case study outcomes converge on these main categories that give evidence about our research focus. In these fields, indeed, the systematization of the three interfaces' outcomes, provides an overall knowledge about the multiscale elements that occur in every port territory by framing the port as a system constituted by several elements, and the role that these port geographies have in planning issues (governance, decision-making processes, spatial plans). Additionally, the development of this method of investigation opens up to comparative research studies since it sets a common ground of interpretative tools in the field of institutional and spatial planning.

Fig. 32 | Infrastructural lanscape and public spaces. Rotterdam. Source: Author's picture.

Chapter 4.

Exploring the Dutch Case

Framing questions in the European Model of Port-Territory Strategies

4.1 | Introduction: the Dutch Case

In port research studies, the Netherlands are broadly considered as successful experience in the field of port development and port-city relationships. Furthermore, the relevance of Dutch ports in worldwide cargo flows also underlines the high performances in the infrastructural and economic sectors. These conditions frame the Dutch case as good testing ground to stress research questions about port development.

This chapter focuses the port areas of Rotterdam and its functional port region. In the areas of investigation, important spatial changes shaped, or are shaping, port areas and port territories. These development plans are part of national and regional strategies aimed to enhance port economies by attempting to reduce the impact on surrounding territories. In particular, the case of Rotterdam historically experienced the interwoven development between the infrastructure and the city. Its wide expansion throughout history involves, nowadays, an area bigger than the urban core. This phenomenon increased the number municipalities involved in its changes, and, even more, the relevance of these changes in national policy and regional plans. Given this, the transformations occurred in the three interfaces, are framed in the national background to better understand geographies, institution and strategies related to the port of Rotterdam.

In order to pursue the research goal, the dissertation outlines the Dutch case in three specific areas that embrace different territories and spatial scales. The first area is included in the boundaries of the city of Rotterdam and it is an ongoing redevelopment of underutilized old docks. The area, currently known as Stadshavens, is very close to the west side of the city centre, and it underlines a new approach to the regeneration of former industrial areas: an integrated development that the city and the port of Rotterdam are experiencing in the last decades. Besides the functional and spatial changes of this area, the evolving processes underlying the definition of the main strategy provide important assumptions in the field of port-city negotiations.

The industrial and logistics expansions of the port highlights the evolution in the Dutch approach in dealing with infrastructural improvements. Recently, the underway project of Maasvlakte II tackled the contemporary challenges of environmental and cultural resistance providing fruitful elements to the resolution of conflicts in the port-territory interface.

Finally, the focus of the Dutch case covers an area that goes beyond the port region. Besides the main infrastructural network of the port, the third area of investigation is located on the Dutch-German border. Following the expansion of the economies of the PoR, the case of Venlo arose by the investment of a powerful company working in the port of Rotterdam. In this regard, more than other cases of PoR's scattered infrastructures, the inland terminal

of Venlo is emblematic to understand the spatial and institutional implications of port geographies' expansion and fragmentation.

In conclusion, what emerges from this analysis is an important contribution of the Dutch case to governance structure and processes, compensatory measures and spatial model of coexistence. The insights of this study, in its positive practices and tricky challenges, can provide useful direction to the research purpose.

Fig. 43 | Dutch Port Infrastructure. Rotterdam Port System and Venlo
Source: Author's elaboration

4.2 | The Port of Rotterdam in the National Framework: Geographies, Institutions and Strategies

The Dutch economy is trade-oriented and it is largely based on port performances of the two main seaports in the Netherlands: Rotterdam and Amsterdam (see Merk & Notteboom, 2013). The city of Rotterdam is commonly identified with its port also according to the national government's goal in developing the city of Rotterdam as the 'industrial capital' of the country. Furthermore, the port strategy of Rotterdam is pointed towards logistics

challenges as is stated in the port plans. The Port of Rotterdam (PoR)[47] is the largest European container port and it represents a global hub for goods transport between Europe and other continents. In this regard, Rotterdam is involved, with Schiphol airport, in the 'main port strategy': a governmental program that enhances the goods distribution within a system of networks and hubs according to a fundamental neo-liberal driven paradigm shift in the Dutch political economy (Jacobs, 2007).

The role of the city in this port-oriented development strategy is also relevant. The awkward set of relationships between the urban context and port infrastructure has a key role in the decision-making policies as well as in the spatial configurations and transformations of the port territory. Moreover, questions related to the port such as its historical roots, economic issues and environmental goals, make the port infrastructure a big challenge for the city. The port is a resource that has to be preserved and fostered by defining development directions according to shared values and goals between the city, the port, the region, the province and the state.

The complex processes carried out to build strategies between different actors – together with the array of port relationships within different typologies of territory – underpin the research objects. The physical extension of the port goes beyond the municipality's borders involving surroundings towns such as Schiedam, Vlaardingen and Maassluis, located along the river Maas. Besides, the port influence has multiscale effects thanks to its economic and infrastructural relationships. The port attracts employees from all over the region, it is connected with subsidiary container terminals and inland ports located in the whole country, it maintains cross-border cooperation especially with the German industrial site of the Rhine-Ruhr area (that, with Rotterdam, is one of the most important industrial clusters worldwide) and the Belgian port of Antwerp (Rotterdam-Antwerp is the second port cluster in Europe)[48], and it also operates in the global dimension with the port of Shanghai. These extended physical connections are due also to the favorable geographic position that allows the port to provide access from the sea to a large hinterland and immediate entry to the most important European inland waterway, the river Rhine.

Besides the physical infrastructural network made by waterways, roads and rails, the corporatized PoR is expanding the area in which it operates. It has been directly involved in the development of two inland terminals: Alphen aan den Rijn and Alblasserdam, and it is building new co-operations with other logistics areas. Indeed, the port system is developing into satellite port areas physically located in distant places, albeit they work as a unique engine under the same direction and control. The ports of Rotterdam, Dordrecht, and Moerdijk have launched a strong partnership that will redefine their role in the port

[47] In Dutch: Havenbedrijf Rotterdam NV (HbR).

[48] Furthermore, the ports of Antwerp and Rotterdam, and Rhine-Ruhr Area constitute the ARRRA cluster, a chemical industry cluster that accounts for 40% of chemical production in the European Union (Source: Port of Rotterdam website. Date of access: 4th July 2017).

network from individual competitors to one integrated cluster. The PoR has thus recently contracted cooperative ventures with surrounding nodes and the conclusion of these partnerships is said to have a policy background. This vision is part of the port goals to be fulfilled in the coming years, and it has begun with the incorporation of the inland port of Dordrecht into the PoR in 2013, according to the mandate that the Municipality of Dordrecht gave to the PoR.

The partnership with the Port Authority of Moerdijk is an ongoing negotiation process and it aims to develop a strong logistics hub to also reinforce the Maasvlakte's capacity by using the port of Moerdijk as an extended gate. This economic strategy redefines the geography of the port of Rotterdam by assimilating areas belonging to other administrative boundaries. Therefore, Moerdijk is a municipality not included in the Rijnmond region and it is also part of the North-Brabant Province (whereas the port of Rotterdam is in the Zuid-Holland Province). The new co-operation structure between the three ports is based on the strengthening of their economic power led by efficiency aims. The economic force, through the flows of goods, is defining new patterns of operational infrastructures that generate multiscalar effects of the territory changing its layout. These new economic geographies are addressed in the last port strategy plan and contribute to define the extra-boundaries planning approach.

Structure of port governance: the institutional framework and the regional context

The territorial multiscale interests related to the port infrastructure are evident in the structure of the institutional body of the Port Authority of Rotterdam. The PoR is a public-owned private corporation since 2004, when it ceased to be a municipal department, moving away from the political control of the city (see de Langen & Heij, 2014). Nowadays, the Municipality of Rotterdam owns two-third of the PoR, while one-third is owned by the Dutch State[49]. This administrative condition means that the PoR has private-oriented goals and missions, since the port performances are based on economic incomes, and thus, on the port's capability to attract private capital. On the other hand, port performances are yearly reported to the Municipality and to the Dutch Ministry of Finance whereas, from an economic point of view, part of the port's profit are given to the Municipality. The two public shareholders (the State and the Municipality) are not part of the Supervisory Board – the leading authority in the port management with technical competences in transport and management – although they participate to the annual

[49] The involvement of the State in the structure of the PoR governance (since 2005) is mainly due to economic and political reasons: (1) Its financial support in the execution of the project Maasvlakte II, (2) Its mediation role between the PoR and the EU in order to facilitate PoR's transnational projects within the Trans-European Transport Network policies.

shareholders' meeting with the opportunity to influence strategies and investment choices (de Langen & van der Lugt, 2006).

The government involvement is relatively limited although it finances large-scale infrastructure investments and port expansion projects. The presence of the Dutch State in the PoR governance pertains to the supervision of the exploitations of public resources whilst it is not oriented to secure public interest. The government participates in the port-city development also through the setting of 'Key Projects' for which it allocates funds. This process does not necessarily have a top-down direction; actually, as the first waterfront development case proves[50], the definition of national interest projects could also be claimed by local actors. At a lower level, the Province of Zuid-Holland is mainly involved in the environmental tasks concerning the PoR such as the protection of green areas, the improvement of beaches and the building of a heat network. Officially, the province also determines the development of infrastructure by allocating funds, whilst the management of funding is then established by regions.

In-between the state and the province levels, the PoR is one of the main infrastructure and industrial cluster of the Randstad (*Ring City*) metropolitan area known also as Delta Metropolis. This level is not included in the tiers of the Dutch government (State, Province and Municipality) and it has no official boundaries. The Randstad covers the four provinces of the main urban agglomerations: Rotterdam, Amsterdam, The Hague and Utrecht. It has been defined as a polycentric metropolis or a city-region (Hall, 1975) and it is a polynuclear urban conurbation made by a ring of physically separate cities surrounding the 'Green Heart', a less-densely populated, agricultural core. The spatial configuration reveals also a functional disjunction between the cities' specializations albeit they collectively form the economic core of the nation. The concentration of commerce and industries in Rotterdam, governmental activities in The Hague, tourism and culture in Amsterdam, and knowledge and education in Utrecht, was considered, in the 1960s, as a competitive feature able to lead the Netherlands into the global market (van der Burg & Vink, 2008). Although the Randstad has no formal decision-making power, it reveals a synergic mechanism based on co-operation networks between cities, on matters such as transport, traffic, regional spatial development, housing, employment, economic issues, and welfare (Meijers, 2005).

The economic performance of the PoR has a strong relationship with that of the Rotterdam-Rijnmond, the region in which the port is located (see Heijman et al., 2017). Therefore, in this region, there is a highly comprehensive widespread range of companies specializing in cargo handling, transportation, storage, warehousing and distribution, industrial processing, and various auxiliary services. The regional area has been established taking into account the strong economic port influence in the conurbation surrounding the city of

[50] In the Kop van Zuid project, the municipality demanded the involvement of the state to support the urban regeneration, particularly, by financing important public infrastructures such as the Erasmus bridge and the subway.

Rotterdam. The Rijnmond (*Rhine mouth*) region, known as *Stadsregio Rotterdam-Rijnmond*, indeed, is a collaboration between 40 municipalities that collectively define an area with homogenous characteristics based on economic reality. The region is an entity that has been introduced by a state decree with the task to lead decision-making processes based on common economic interests, for example in terms of infrastructure and environmental questions. The Rijnmond region is a not democratically-elected entity in-between the administrative levels of the province and the municipalities and it represents the decisional level in which the political parties of the 40 municipalities take decisions on the management of funding allocated by the province. For its economic-based roots, the Rijnmond region is the main 'area of influence' of the PoR, and the formal establishment approved by the state highlights the relevance of the port in the nation.

In 2014, in the range of unofficial cooperation based on economic pattern, the state recognized the Metropolitan Region of Rotterdam-The Hague (MRDH) as a collaboration between 23 municipalities surrounding the two main urban centres of Rotterdam and The Hague. The aims underlying this urban network are economy-driven and based on transport accessibility, energy transition and cultural promotion in a shared vision with the PoR. Furthermore, the improvements of metropolitan performances are pursued by increasing the network and involving other parties such as private companies and knowledge institutions.

The Municipality of Rotterdam is the main shareholder of the PoR although, as well as for the Government, it is not involved in economic-oriented strategies and executive procedures. It is also the owner of the land and the water leased to the PoR which, in turn, subleases the land to private firms. Within the local economic department, there is a Port Aldermen in charge of port issues. In conjunction, the head of the Harbour Master Department, a division of the PoR, is directly appointed by the municipality. Due to the physical proximity and the historical relationships with the port, the city of Rotterdam is always involved in port challenges. Actually, the decision-making policies about port transformations are matters of various actors even though they are chiefly promoted and discussed by the PoR and the City.

The mainport strategy and the port plan

The corporation of the PoR in 2014 with the direct, even if partial, involvement of the government in the port's tides, has stated the national role and prevalence of the port of Rotterdam in the national dimension. The port development is therefore part of an economic government strategy known as 'main ports'. Since the 1980s, the government has established the two main national gateways (the Dutch *mainports*), the port of Rotterdam and the airport of Schiphol, as central hubs for goods flows as well as railways. This strategy served as a transport expansion agenda to define the spatial concentration of

investments in the development of the infrastructure with national interest such as the Betuweroute, a freight rail connection between Rotterdam and the German hinterland. Recently, the national interest in directly focusing on the main hubs is changing, and this task is gradually shifting towards a regional scale by fostering the competitive performances of the Randstad metropolitan region (Merk & Notteboom, 2013). This policy also implied the enhancement of strategic aims. Logistics and commercial improvement started to be extended to the ensuring of high quality of life. In the Rijnmond region, the room for business and nature became the dual objective of the Rotterdam Mainport Development Project (PMR) settled in 1997 and defined in 1993 and 2001 with the ROM-Rijnmond and 'Visie en Dur' (*Vision and Daring*) covenants entered into between the Government, the Rijnmond region, the Municipality, the NGOs and the PoR. The PMR main physical transformation is the expansion of the port by building new land in the Voordelta area, a protected area (Natura2000) in the North Sea and mitigate and compensate this high-impact project with the improvement of quality of the surrounding living environment. The Maasvlakte II, a huge container terminal at the western end of the port of Rotterdam is being built and it catalysed the development strengths becoming the convergence project of multidisciplinary interests. With this, other environmental projects were also boosted such as bike lanes surrounding the port, the construction of river parks in the urban environment and the realisation of an impressive 750-hectare new nature and recreation area in the immediate vicinity of the city of Rotterdam (Port Vision 2030). The complexity of this project is the consequence of interactions between an array of actors connected in different arenas which will be further addressed later on.

The transcalarity of the port development is evident in the PoR plan program which concerns future challenges. The PoR has two main guiding plans besides other official documents such as annual reports and mid-term plans although it lacks a proper spatial plan. The business plan focuses on the economic development and thus on PoR corporate aims for a five-year period. The Port Vision is indeed a strategy plan based on the fulfilment of long-term objectives for the development of the port. The main change in the evolution of port plan documents, later defined as 'vision' plans[51], is the change from a focus on physical expansions to a strategic approach that enhances smarter uses of existing resources.

[51] Daamen (2010) underlines that whereas the word *havenplan* would normally be translated as 'port plan', the port authority of Rotterdam translated the title of the document as 'Port Vision 2020' (www.havenplan2020.nl). Herein, it is worth reporting that in the Port Vision 2030 document (approved in 2011), known also as Port Compass 2030, the PoR refers to the Port Vision 2020 as 'Port Plan 2020'.

Following on from the Port Plan 2010 (1993) and the Port Plan 2020 (2004)[52], the Port Vision 2030, also known as Port Compass[53], continues the long-term strategic approach of the development of the port and industrial area with the improvement of ongoing projects such as Maasvlakte II, Stadshavens and the development of the right bank of the river Maas. Furthermore, it broadens the port strategy beyond the port boundaries (Port Vision 2030, 2011). This leap reveals the new port's trajectories and puts the port's premises into a new light. If the port is a 'space of flows' and it is part of a global network, its spatial strategy also changes and covers territorial pattern defined by economic and environmental needs.

The Port Vision 2030 was approved by the Rotterdam City Council in 2011 after close collaboration with other parties. The process involved several actors and went through a step by step design procedure. The Port Authority of Rotterdam wrote a first draft on the basis of shared objectives in collaboration with the municipality by taking into account the needs and proposal made by the National Ministries and the port business association Deltalinqs[54]. The draft was later discussed by involving other users such as the Netherlands Bureau for Economic Policy Analysis (CPB), the Environmental Protection Agency Rijnmond (DCMR) and NGOs. The covenant was then signed by six partners: Deltalinqs, the Port of Rotterdam Authority, the Municipality of Rotterdam, the Province of Zuid-Holland and the Government, represented by the Ministries of Economic Affairs and Infrastructure and the Environment. Finally, local citizens and residents from surrounding municipalities also joined the decision-making process by attending public meetings, although the series of meetings were mainly focused on the spreading of information and the knowledge improvement of port communities.

The structure of the Port Vision document reveals the communication strategy of the PoR. Instead of lists of sectoral programmes and technical duties, the PoR attempts to be visionary-friendly fostering the local roots of the port and promoting the port development as a community matter and a common aim to be pursued. Hence, it draws fascinating 'visions' to justify executive actions and meet the private demands that will reflect their accomplishments in the improvement of the national economy. However, the port visions are set out by port users assessing structured scenarios based on 'trends, estimates and

[52] The Port Vision 2020 (2004) was the first plan in which the city and the Port of Rotterdam cooperated after that the PoR became a publicly owned limited company.
[53] The term 'compass' was introduced by the PoR to sharpen the principle of flexibility assimilated by the port to address wide goals which could be fulfilled with a not linear path since the surrounding circumstances could considerably vary (Port of Rotterdam website. Date of access: 20/02/2017).
[54] Deltalinqs is an industrial organization made by the companies working in the port. Since these companies have a substantial role in the Dutch economy, they have historically built a strong cooperation with the national government. Through the Deltalinqs organization, the companies work as a lobby; therefore, they are involved in key development debates such as the economic and social policies in general, the need of space for industry, the infrastructure, and the environment.

prospects'[55] corroborated through analysis and statistics. This method highlights the economic trajectory and the main objective of the port that, besides spin-off goals based on welfare policy, remains focused on monetary income. The economy-led development is also pointed out in approaching environmental issues «Nature in the port is important for the quality of the surrounding area. The port should be a place where people like to work and spend leisure time. *The port's primary purpose is economic. But if wildlife doesn't interfere with this* [emphasis added], it is more than welcome» (Port Vision 2030, 2011: 60).

According to the port globalization trend, the two main visions chase logistics and industrial goals. The aim to invest in the 'global hub' and 'Europe's industrial cluster' both reveals the port strategy to enhance the network dimension. On the one hand, the management of cargo flows is going to become more efficient by strengthening the coordinated logistics system of hinterland terminals, sea terminals and hinterland transport. On the other hand, the fostering of the industrial cluster aims to increase the volume of production in the petrochemical and energy complexes. The cooperation with industrial sites that are located also beyond the port borders, such as in Antwerp and Moerdijk, seeks to build synergies of economic interests and to compete successfully with industrial clusters in other part of the world.

Moreover, the two visions share environmental goals such as the transition to bio-based industries; the commissioning of LNG terminals; the development of systems for carbon capture, transport and reuse. The environmental dimension is certainly approached by the PoR as a cooperation ground between multiscale actors. First, sustainable features will increase the economic allurement of the port and will attract a large number of companies. Furthermore, the developing of pragmatic measures to reduce the negative impact on the surrounding areas will contribute to improve the quality of life in the region. The focus on sustainable aspects steers the aim to develop a planning system – in collaboration with all the interested parties – in which decisions are made via a single environmental plan that covers nature, the spatial element, and the environment.

55 This part of the document contents four economic scenarios aiming to assess future cargo handling. The forecasts are drawn up by the CPB and the European Commission, and they are based on four variables (influential factors): economic growth, volume of world trade, oil prices and environmental policy.

4.3 | Historical Development and Geographical Configuration of Rotterdam Port Area

In this dynamic port environment, the spatial form of the infrastructure is the result of several historical, economic, political and geographical processes. Therefore, the spatial dimension of port areas and surrounding spaces witness the historical urban palimpsest and, above all, it shows the impacts of contemporary policies. The port city of Rotterdam has long been studied because it represents a 'model' of port city development in which the balance between the needs of the port infrastructure and the renewal of urban waterfront has been led by collaborative far-seeing strategies between cooperative actors.

Throughout history, port evolution affected the urban structure of Rotterdam until the port expansion, after the improvement of industrial activities, when extra-urban areas were involved in port issues, and thus other municipalities began to experience the port influence and to join the decision-making arenas. Nowadays, the port of Rotterdam, a wide strip of infrastructures along the Maas, is a unique authority that operates in several urban regimes. From a geographical point of view, the port horizontally overlaps multiple administrative boundaries, and this produces a new operational layer that crosses various territorial patterns and affects the topography of surrounding places. By exploring the development of the port, the spatial extension of the relationship between the port infrastructure and the territory is shown as a process of adaptation to external factors. The shaping of urban tissues launched by the port began within the city of Rotterdam and, together with the increase of the port competitiveness, it rapidly affected new, natural, and urban sites by building new infrastructures as well as new urban settlements.

The city of Rotterdam was founded in the XIV century, in an inland area 40 km from the estuary of the river Maas. The historical development of the city traces the deep relationship between the river and the urban settlement therefore the transformations of the port city have followed the movements of dikes and dams. The name of the city itself arose with the building of the dam in the 1260 aiming to protect the small fishing village of 'Rotta', the historical core of Rotterdam. In the XVII century, the aim to increase the economy of the city and pursue the industrial boost, marked the detachment process that let the port to progressively shift away from the city. Therefore, the development of the industrial area of the city was planned beyond the main dyke that separated the city from the river. This expansion plan led to the spatial and functional detachment between the urban area – *Landstad* or *Polderstand* – and the port area – *Waterstand*. During those years, the trade and the industry increased, and the image of a flourished harbour with the building of warehouses, distilleries, and shipyards growth. Furthermore, with the improvement of daily life activities in the port area, the urban features – such as houses – began to be mixed with the port buildings. The city also moved towards the sea by transforming the coastal

spaces from a mainly infrastructural sites to accessible and pleasant places through the design of boulevards (*Boompjes*). This planning action had a remarkable effect on strengthening the relationship between the port and the city since it combined functional and representative qualities in an area that had a leading role in shaping both cityscape and city plan (Meyer, 1999).

A remarkable boost to port growth was given by the opening of the artificial estuary Nieuwe Waterweg (*New Waterway*) completed in 1872. The waterway facilitated the sailing road towards the sea avoiding the long journeys through the southern lands and it also efficiently connected the industry along the Rhine and Meuse rivers to the North Sea. At the time, the improvement of port facilities was due to the development of the steel industry and the related growing of the German Ruhr region that became, and still is, an important hinterland for the port of Rotterdam.

During the late 1800s, the ambition to develop the city included the expansion of the port in a comprehensive plan. After a short period in which the municipality collaborated with a private organization in the developing of the new port area (the Rotterdam Trading Association that went bankrupt in 1879), the municipality gained increased autonomy in leading the spatial development of both the city and the port. In 1887, the Ministry of the Public Works, decided to expand the city westward and to build new port land in the southern area of Kop van Zuid (*Head of South*). After the First World War, the expansion of the port became an economic priority aiming to meet the demand of the industrial expansion through competitive features and services. In 1932, a new administrative institution, the Municipal Port Authority, led the port decision-making policy leaving the guide of the Department of Public Works. The latter, some years later, defined an independent 'Department of Urban Development' to deal with the urban expansion. The plan was based on a radial growth of the city around the historical core and it didn't interfere with the port expansion on the west side.

The economic development of the port also led the spatial expansion after the Second World War. As a consequence of the extensive damage caused by the bombardments, Rotterdam gained the opportunity to rebuild many areas of the city and the port. By benefiting from the increase of the petrochemical and oil industry, the port exponentially grew in former agricultural lands and nature reservations with the building of two new areas, Botlek and Europoort (*Gate to Europe*). When the Europoort was not yet completed, the City decided to invest in the logistics service as well as chemical industry and refineries. Thus, the government (the Department of Public Works) allowed the Municipality of Rotterdam to launch the building of Maasvlakte I (1970-2008) a new container terminal that was followed by the second expansion, Maasvlakte II, started in 2008 and still underway.

Although the city was gaining international relevance thanks to significant port results in the competitive trade environment (during the 1960s the port of Rotterdam outdid the port

of New York, first in the world in terms of handling goods), it wanted to reinforce the image of an attractive place to live in. Hence, according to the global phenomenon of the abandoned threshold (Bruttomesso, 1993), Rotterdam tried to gain benefit from the underutilized historical port areas. The urban development of port areas concerned two waves of development (Aarts et al., 2012). The first one, occurring in 1980 in Kop van Zuid, was characterized by the allocation of new activities such as housing, offices, and leisure activities and, at the same time, by the preservation of the port image through the renewal of quays, docks, and historical building such as the White House and the New York Hotel (see Box 1). The second wave, started in 2002 as a large-scale transformation plan, ran into a more difficult process and encountered the financial crisis of 2007. This gave impulse to change the strategy to a more flexible approach pursued by a series of agreements and public-private partnerships in the Stadshavens area. The efforts to define an official blueprint shifted to the development of an adaptive plan based on concept and strategies open to tackling changes and adjusting stepwise actions.

Besides the spatial changes led by the port development, the national policy contributes to shape the urban structure in the port region. The interest of the government in bolstering the development of industrial clusters increases the port influence by fostering collateral functions such as new neighbourhoods and infrastructures.

Whereas the city of Rotterdam adapted already-existing urban places to accommodate dynamic port needs, the port contributed to urbanizing the natural and rural areas along its borders. The spatial configuration of the port's borders is therefore characterized by small villages nestled in-between cranes, fences, and roads. Especially on the south bank of the river, green towns such as Hoogvliet and Spijkenisse, were built to house the workers of the port of Rotterdam around the 1960s and the 1970s. Before these, other villages such as Heijplaat and Rozenburg, rapidly lost their agricultural characters and were developed into residential districts (see Kuipers, 1962).

In the long run, the development of the port of Rotterdam followed a different path from the city growth. The most important port of Europe expanded rapidly its areas by moving closer to the open sea, and taking advantage of the Dutch skills of building land on the water. Local expertise, together with a wise national and regional guidance, have invested in the expansion of the port changing the morphology of the coast, and by doing so, 'colonizing' new land. This development strategy partially preserved the urban settlement of Rotterdam since the port city experienced the shift of infrastructural activities from its historical core, and it used the port landscape (old docks, warehouses, cranes, basins, etc.) to build a new image of post-industrial, fascinating, city. This events led to generally consider Rotterdam as a city that does not have a port anymore. Actually, this is not completely true. Even if nowadays the historical docks host leisure activities (in the area of Oude Haven and Leuvehaven), the expansion of the city led the western peripheral urban areas towards the port infrastructural sites creating a new kind of local contrast between

the city and the port (in the area subsequently called Stadshavens). Moreover, it is true that the port experience in Rotterdam is changed and has a new form developed by innovative urban policy oriented to mix technological and urban activities as point of contact between port and city's goals. On the other hand, the changed spatial structure of the PoR involves a wider surrounding environment that goes beyond the city of Rotterdam and embraces a regional area. Also thanks to the extension of the infrastructure, the resonance of the port economy gave rise to the Rotterdam Urban Region, the Rijnmond, that is a metropolitan area surrounded the port more than the city. Hence, the Dutch institutional framework is very much influenced by the port, therefore, the dimensions and the relevance of port-territory interfaces have a huge impact also on a national scale.

4.4 | *Interface I.* Planning in Old Port Areas: Stadshavens

Creating new value on the edge: a contemporary approach to the waterfront development

The development of the port of Rotterdam changes the relationships between the port and the city over time. The former fishermen village of the XIII century developed into an industrial city and then into a 'transitopolis' (van de Laar, 2013), to finally become one of the most popular modern port city thanks to the economic relevance of the port and the cultural renaissance of the urban core (Buursink, 1999; van Ulzen, 2007).

The focus on the contemporary approach of Rotterdam in transforming the actual port-city interface allows to bring some important questions into the research study. First, it sets the concept of the (European) waterfront into a new context closer to the Italian cases that are characterized by the planning issue to design a coexistence between port and urban activities. Therefore, the general focus is not anymore on coastal lands completely available for the urban colonization (as it was for the area of Kop Van Zuid in 1990s). Second, it frames the redevelopment process into the contemporary sustainable design approach based on a flexible scenario that is more sensitive to global and local changes. The understanding of the redevelopment process and approach occurring in the port-city interface of Rotterdam provides lessons on the decision-making structure that changed over time, and on some of the results achieved so far.

The port area located on the west side of the city, inside the rim of highways surrounding Rotterdam, then named Stadshavens (*CityPorts*), has been the second opportunity to redraw the waterfront of Rotterdam. Indeed, this redevelopment project has been classified as a 'second wave' of waterfront transformations (Aarts et al., 2012) to underline the deep differences in times, strategies and spatial overcomes between the Stadshavens and the Kop

van Zuid (Box 1) projects. The broad relevance of the case of Stadshavens is to provide experience in the developing of a contemporary approach to urban transformations. This approach is thus based on sustainable principles such as the re-using of local resources and the recycling of spaces and buildings. It reveals a slow transition from port to urban functions aiming to create synergy between commercial and residential activities. It deals with suburban areas in which there is a lower urban pressure from the land side even if the urban expansion has been already planned as future goal by the city. This shifts the goal of port-city integration from 'returning the edge' to 'creating new value'[56]. Furthermore, the economic strength has been focused on the improvement of the technology industry that seeks small-sized businesses based on innovation and culture. Thus, the building of a creative cluster leads the redevelopment project and it fits with the aim to mix residential functions, urban proximity, and port's demand of innovative technologies.

Box 1.

Kop van Zuid

Kop van Zuid (*Head of the South*) is the first significant project of urban regeneration in Rotterdam. In the frame of waterfront redevelopment projects, it is considered a successful example of urban renewal thanks to the mix of functions that extended the urban character of the city centre – on the north bank of the river – to the suburb area of Kop van Zuid (KvZ). The project started at the end of the 1980, its construction lasted more than twenty years, and it could be seen as a flagship project for the construction of the new image of the city (Bianchini et al., 1992; Crilley, 1993). It is part of the 'New Rotterdam' policy ('the city as a whole', 1987) undertaken by the municipality to regenerate the city after the recession of the '70s due to the oil crises, by promoting a new image of Rotterdam (van Ulzen, 2007). This strategy headed to the improvement of both the port-logistics sector and the urban facilities, according to the Dutch national aim of 'balanced development'[57] (URBED Ltd & van Hoek, 2008: 15). The new neighbourhood was designed in a new shape not related to the former port area built at the end of the XIX century. After around one hundred years, the area that was considered as the poorest part of the city became the space of the renewal with the opportunity to improve the socio-economic condition by providing the area with infrastructures, houses, and employment.

[56] Indeed, the subheading of the redevelopment project, reported in the implementation plan (2008), is 'Creating on the edge'.

[57] It is based on the awareness that the economic growth would not have been homogenous in the whole area of Rotterdam. Given this, the goals of urban strategies are pragmatically oriented to diminish the economic and social gaps within the urban community.

The urban project was developed as a municipally-led regeneration program with the City of Rotterdam in charge of planning actions (Doucet, 2013). This led to the success of the project; the planning visions were indeed guided by a strong leadership[58] and based on a long-term expectation for the maximisation of profits. The public control of the municipality avoided compartmentalizing the project structure by defining a set of key objectives with economic and social goals to be achieved through spatial interventions. In the decision-making process, all the administrative levels were involved. The City Council was represented by several municipal bodies – the Municipal Development Corporation (OBR)[59], the City Planning Department (*dienst Stedebouw en Volkshuisvesting,* dS+V), the City Transportation (RET) and the Port Authority. The project was coordinated by a dedicated Project Team which included a Communications Team and a Mutual Benefit Team. The Project Manager had the task to report to a Council Steering Committee which also oversaw the external Quality Team, an architectural review board which advised on design issues. The City Council approved the masterplan for KvZ in 1991 and it was approved by the national government in 1994. The public leadership of the project was possible thanks to the property of the land. As KvZ was an old port area, the land was owned by the municipality and it had the chance to manage the transformations without external interferences. Although the main decision-maker was the City, the building process was settled with public-private partnerships. The involvement of private investors in the project was encouraged by the building of public infrastructures such as the metro station, the tram line, the bridges and water lanes. The commitment of the government in supporting this initiative as a 'key project' (*sleutelproject*) was one of the main aims of the City Council which needed the economic support of the state. Thus, the national government funded the new metro station and the Erasmus Bridge (completed in 1996) giving a strong impulse to the development of KvZ. These infrastructures indeed had a role in improving the accessibility of the area as well, as they were the tangible proof of the economic and social interest of the national government in the redevelopment of the area. Furthermore, the obtaining of private funds was not an easy task for the City Council, since the KvZ waterfront project had to compete with the nearby development of the northern area of the city, around the central station, which was of course more promising in terms of economic return. The private sector was represented by big international companies involved in the role of developers and mainly focused on the building of offices. In this business strategy, the role of the Port Authority was to work as anchor tenant by moving

[58] The project was strongly supported by Riek Bekker, Director of the city's Department of Urban Development who also oriented the strategy of the development towards mixed use functions and social purposes.

[59] The OBR, owner of the land, controlled the release of the city's land bank and acted more like a private company with public interest (Walzer & Jacobs, 1998). It is a large body, responsible not only for spatial planning but also for organising the provision of infrastructures.

in the new World Port Center, a skyscraper designed by Foster, and to attract in the same area the private companies whose business is in the port.

Fig. 54 | Redevelopment of KvZ, Rotterdam. *Source: Author's picture.*

The project was launched in 2002 with the foundation of the Rotterdam City Ports Development Corporation (RCDC)[60] in which both the City of Rotterdam and the PoR were involved[61]. The Stadshavens project became a dual ambition embedded in both city and port plan, and it was later included in the comprehensive port-city policy 'Rotterdam Gateway to Europe' in 2006 in which some development priorities gained economic support from the state, the province and the regions[62]. With a long term vision, it was planned that the successful logistics activities, still existing in the port area of 1600ha – including Vierhaven and Merwehaven (on the north bank of the river), and Waalhaven and Eemhaven (on the south) – will be moved to the new land of Maasvlakte II in the next 15 to 35 years. The ambitious project has been significantly resized after the delays in the expansion process of Maasvlakte II and the awareness that the economic incomes of port activities were still significant for the PoR as well as the importance of providing work for many employees. Hence, the long process of reshaping policies and planning directions

[60] In Dutch: Ontwikkelingsmaatschappij Stadshavens Rotterdam (OMSR).
[61] The founding of the RCDC was gradually defined with the process of privatization of the Port Authority, finalized in 2004.
[62] The development strategy was also embedded in the Plan Rotterdam Region 2020 and in the National Spatial Planning Policies 2020.

demonstrates flexibility and ability to redefine a new strategy (Daamen, 2010). In the first document elaborated by the RCDC in 2005, the project was communicated with a lack of planning visions also after the consultation round with other actors (Daamen & Van Gils, 2006). In the formal strategy plan, the Structure Vision document (*Structuurvisie*), the role of actors was redefined, and concrete decisions were pointed out within three time periods (short, medium and long term visions) (Programmabureau Stadshavens Rotterdam, 2011). Already in the implementation plan (Projectbureau Stadshavens Rotterdam, 2008), the port area was divided into four different districts according to their existing functions and vocations: Rijn-Maashaven, Waal-Eemhaven, RDM-terrain and Merwe-Vierhavens. The aim to integrally develop the area was abandoned in favor of different degrees of changes. The Structure Plan of 2011 established three main changing actions: transformation, restoration, intensification.

Flexibility and negotiation: the split of a single vision

The transformation actions are twofold: in the Rijn-Maashaven, on the east side, the urban transformation provides residential functions; in the RDM-terrain, the transformations that are oriented to implement education and creative businesses, have already changed the old port area through the establishment of a campus (RDM Innovative District); in the Merwe-Vierhavens, in the northern river bank, the residential functions are mixed with education and creative features. Restoration actions are planned in existing neighbourhoods to implement the quality of life. The consolidation of port economies is instead promoted on the south bank, in the Waal-Eemhaven, where the maritime cluster will be sideways combined with improvements to public space and amenities. The distinction in the development trajectories of Stadshavens reflects the strengths of local economies and, above all, a new political asset. In 2006, the RCDC disappeared and the project was led by the PoR and the Municipality directly. Officially, the closure of the RCDC activity was justified as the legitimate end of an organization that fulfilled the goal to negotiate city and port aims in the development of Stadshavens. Indeed, the two parties concluded an agreement (the 'north-south' deal) by drawing two different development path (Daamen, 2010; Daamen & Van Gils, 2006). According to their interests, the PoR and the City separated the responsibility in the developing of the ex port areas: the northern side became mainly led by the municipality with a focus on urban functions (low-dense residential and business districts for new economic clusters) the southern bank of the river pursues port activities (maritime service cluster) headed by the PoR.

The decision-making process is a joint effort between the City and the PoR and it is steered by a committee involving the aldermen and the CEO of the PoR. Several rounds of informal and formal consultations gained the visions of many actors such as private companies, knowledge institutes and inhabitants. Finally, the Structure Plan definitively stated the lead of the PoR in the development of the Stadshavens. The PoR formally controls the land and

thus the economic process of conversion into new business activities, although the property rights subject to negotiation and the areas undergoing to residential transformation will be transferred back to the municipality.

Fig. 65 | Spaces for exhibitions, M4H Rotterdam. *Source: Author's picture.*

The case of Stadshavens witnesses the influence of political and economic changes in the project direction and in the building of strategies. The ambitions of the waterfront redevelopment plan have long been discussed and led, nowadays, to a fragmentation of the spatial program. Although 'Stadshavens Rotterdam' is still labelled as a unique area under a compact control, the planning aims and the characteristics of all the areas embedded in the transformation process are better pursued and explained through sub-projects with their own autonomy and identity. More than other actions, the RDM site and the Merwe-Vierhavens (M4H) shed light on the shifting economies of the waterfront area and testify the attempt to integrate city and port aims. The renovation of the RDM-terrain, the area of the old shipyard *Rotterdamse Droogdok Maatschappij* (RDM), was planned at the end of

2006 and had a slow start in 2011. It will host a mix of functions such as education and research, living and technology businesses, and the development of the RDM Innovation District, with the RDM campus, already having given a remarkable boost to this area. The concept of the education and research campus arose from a covenant between the Albeda College, a technical school related to the maritime sector, and a department of the Hogeschool Rotterdam focused on automotive production. They both needed large working spaces and became the first tenants of the area followed then by other education and research institutes as well as private companies (see van Tuijl & Otgaar, 2016). The innovation cluster fosters also other improvements and, in addition, it attracted public subsidies from the Province of South Holland and the State. The development of the Innovation District, on the one hand, encouraged the renovation of the nearby village Heijplaat, though on the other hand, it is a concrete example of the currently policy of the PoR to foster specialized education in the maritime and port sector in order to hire high skilled employees and enhance its performance.

In the M4H area, the main strategy settled for the Stadshavens is still pursued. This means that the north side of the river, the former port fruit trade area, is experiencing a slow reconversion which will replace the port activities with innovative businesses (clean tech, medical technology and food sectors), and will expand the urban area westward. The location of these areas is also an advantage for this kind of development, as two major motorways are in close proximity, and trams, metro, and bike lanes are other efficient links to the city centre. The predictable scenario is flexible and it will adapt to the market demand, thus there are no structural plans for the development of housing until 2025. Furthermore, the flexible approach is due also to the timing of the current real estate contracts that will expire gradually. This strategy also allows the area to not lose its attractiveness and economic value by promoting an inviting transformation before the port area becomes neglected.

Two main competitors, three shades of development: the port, the city, and the (next economy) interface

The Stadshavens project demonstrates a new planning approach that is shaped by external factors occurring on different scales: the economic crisis, the technological turn, the political variability, the twofold local needs of jobs, and quality of life. The flexible strategy tries to mediate the pressures of the city and the port that hardly seek win-win solutions in an area that is still a ground of competition. The division of the area in four districts above mentioned shows an effort to balance the trajectories and to draw a new concept of integration of functions. Here, an important economic sector has been identified as an attractive challenge for both urban and port growth. The innovation in ICT and other technology products (such as drones, 3D printing, water management, floating construction, bio-based plastics, etc.) meets the aims of a smart port with worldwide

leading ambitions, and of a modern city that wants to improve the liveability of its urban spaces and the quality of life. This purpose led to spatial, policy, and institutional changes. The 'industrial atmosphere' is seen as a resource[63] and a characteristic of the identity of the place to be preserved by adapting warehouses and docks to new functions (such as the RDM building with the new campus and the Ferro Dome, a gas holder converted into a theatre and a space for events). Furthermore, the boundaries of the former port areas are developed as public spaces with the twofold function to improve the quality of the surrounding residential neighbourhoods and to enhance the accessibility to the docks area. Bike lanes, green walking paths, and a new roof park (the Dakpark in the M4H area) are also part of the port tasks to improve the port image.

The new technological functions are promoted by urban and port policies through the development of special programs that aim to attract economies in conjunction with private stakeholders (i.e. the PortXL, a startup accelerator program, and the SmartPort, an institution that acts as a driving force in the field of port-related knowledge).

The governance process revealed the complexity of managing the transformation of the area and it underwent changes over time. The RCDC, the development agency, in which the PoR and the City were the two shareholders, has been replaced by project teams responsible for each district.

The Stadshavens redevelopment project highlights a changed planning approach. Indeed, the development trajectories try to include the industrial vocation of the area by absorbing the new turn of the next economy[64] (small and medium enterprises oriented to technological and sustainable products), and to produce benefits for both the city – with new residential needs and public spaces – and the port – by promoting port related research studies and investing in education that will enhance port performance.

[63] This is highlighted in the document 'Summary of The Development Strategy for Merwe-Vierhavens, Rotterdam', 2014.

[64] With this widespread term we refer to the economic turn affecting our society based on high technologies and re-using of already existing resources. In planning, this term underlines a development approach oriented to the design of adaptive actions related to local practices and cultural environment.

4.5 | *Interface II.* Meeting the Global Demand in Industrial and Logistics Areas along the River: Boetlek, Europoort, Maasvlakte

Framing a complex interface: the delicate balance of industrial sites, natural areas, and small towns

During the 1950s, the port of Rotterdam developed westward guided by economic logics. The petrochemical and oil industry, that were subsequently followed by containerization, constituted the trajectories of the port economic development with several spatial implications. The need for wide, technologically advanced areas, the opportunity to facilitate the seaside accessibility, and the increasing environmental disadvantages, drove the port expansion out of the city, defining a leap in scale in the port's national and worldwide relevance.

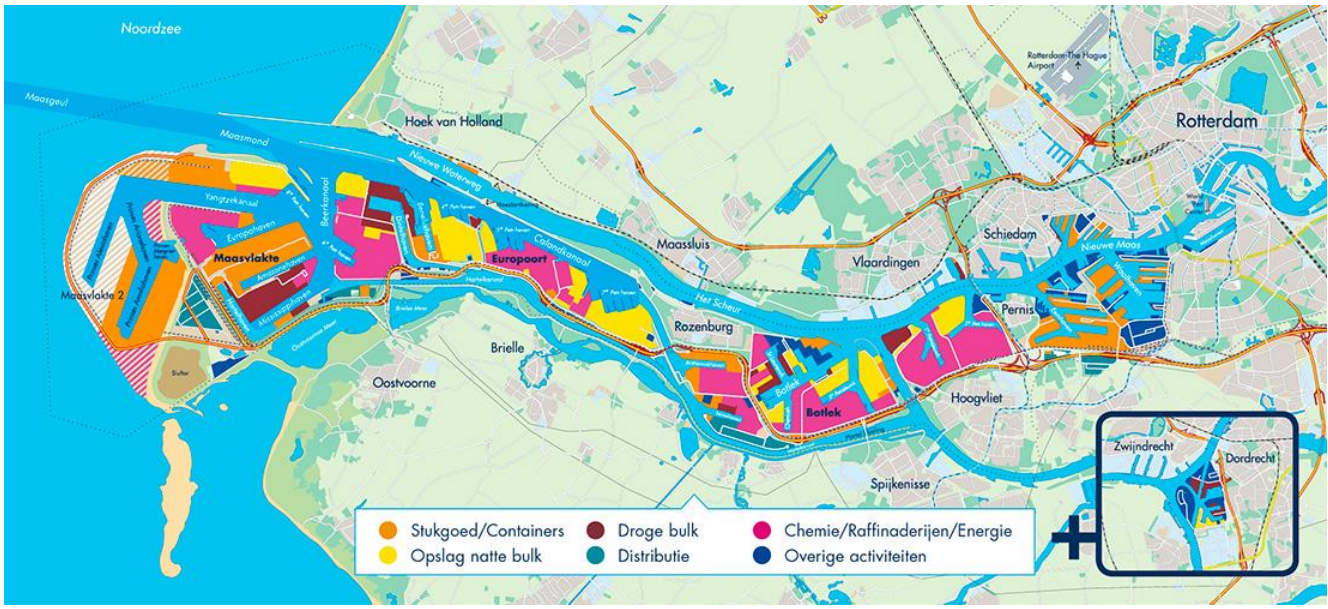

Fig. 16 | Port of Rotterdam functions. *Source: vrouwenvannu.nl*

Besides the economic port development, natural reservations (such as the national park De Beer[65]) and other land uses (agricultural areas and small villages) were sacrificed to appease

65 The 'De Beer' was a natural reserve between the river Brielse Maas and the New Waterway. It was made a national park in 1935 and it was run by the De Beer Natural Monument Foundation. In 1950s, the natural reserve was to make way to the expansion of the port: the construction of the Europoort. Despite the numerous opponents of sacrificing De Beer, in 1958, the entire north-eastern part of the nature reserve was filled in, and, thereafter, construction began on the expansion of petroleum harbour. Other expansions followed the first one and in 1965 there was nothing left of De Beer, except for a little plot of 12 hectares called 'little Beer' (van Heezik, 2008). Even though implementation of port areas prevailed on nature defence, this episode played an important role in the rise of the ecological movement in The Netherlands.

the port needs. Thus, even though the port moved away from inner city settlements, it deeply shaped the environment of natural and low urbanized areas along the river. This spatial development defines a new dimension of the port-territory interface that is less related to urbanized areas (such as the inner-city of Rotterdam) as it shapes the environment of small towns and peri-urban or natural sites. In the case of the port of Rotterdam, the shape of this interface is a broad area and it is a metropolitan, regional, and national issue. Furthermore, the relevance of this development in the national economy and its environmental impact gives a key role to the institutional process underpinning the spatial changes.

In this paragraph, we briefly address the first industrial expansions of the PoR in order to understand which kind of interface they have produced. Subsequently, a focus on the ongoing project of Maasvlakte II is depicted to frame the recent upgrades in the governance processes regarding large port expansion.

The focus on different typology of territories and different port activities, compared to the first (urban) interface, highlights that other kinds of port-territory interplay fulfil a different role in the balance of coexisting functions within the Rotterdam-Rijnmond area. Furthermore, in the case of Rotterdam, the peri-urban interface covers a very broad area due to the significant extension of port industrial zones. In reference to the main sectorial port activities – port zones in which technical, private property, and safety issues imply a high level of restricted and controlled access (i.e. container terminals and industrial sites) –, the focus of this paragraph is on the western part of the PoR's area, a long strip of about 35 kilometres between the areas of Eemhaven (in the eastern part, beside the Stadshavens area) and Maasvlakte II (in the western part). In this study, the expanse of the spatial scale implies also transformations occurred in several phases (variations over time), and thus several goals, actors, and tools involved in the changing port-territory interrelations. Moreover, the geographical structure of this area defines a peculiar case of peri-urban interface since the boundaries of the port land are mainly outlined by buffer zones made of water (the waterways). Nevertheless, by embracing a wider meaning of the concept 'interface', and considering all the spaces and elements that are shaped by the nearby presence of the port activity, the area under investigation covers the villages in-between the port area (Heijplaat, Pernis, Rozenburg) and the northern and southern banks of the Nieuwe Waterweg (north) and Brielse Meer (south).

The logistics and industrial expansion of the port of Rotterdam can be framed in three phases characterized by different areas, plans, and development techniques and approaches[66]. First, the areas of Eemshaven and Pernis (1929-1949) represented the port

[66] In literature, the functional criterion is usually the main parameter that leads the grouping of these areas. I.e., Frijhoff and Spies (2004) wrote about the 'Pernis-Botlek-Europoort' complex because it is the area of oil industries. Maasvlakte (I and II) is, instead, the zone mainly allocated to containerization. In this dissertation we use a different parameter. We address the difference of

expansion towards the available land in the south-west of Rotterdam. Moreover, the beginning of port transformations imposed by oil industries took place in Pernis. These activities rapidly became predominant in the port of Rotterdam; indeed the port needed to further expand its industrial area. Second, the Botlek-Europoort complex, in order to host oil and petrochemical industries, intervened on the reclamation of land by annexing a mainly rural island in the Maas river. Finally, the project of Maasvlakte (I and II) testifies the contemporary Dutch planning approach in dealing with port expansion and territorial issues through important territorial changes and attentive planning processes of negotiation.

The spatial development of PoR: the rapid building of an 'empty landscape'

Actually, it is worth underlining that one of the main container terminals of the PoR is in the eastern area, the Eemhaven[67]. This area was formerly included in the Stadshavens project supposing a future transfer of companies in Maasvlakte II, conversely, in 2005, Eemhaven was ruled out from the urban regeneration project since the transfer of activities was not considered cost-effective, and the container handling activities still provide very significant income to the port economy. This area was built in 1934 and it lies between the small villages of Heijplaat (east) and Pernis (west). Despite the coexistence of different functions (residential, and container storage and handling), the boundaries of Eemhaven are not perceived as distant and 'extraneous' to these residential areas. Rather, on the eastern side, the port related origin of the village[68] is celebrated through art installations and notice boards as symbols of a collective industrial memory. On the western side, an attentive design of the village's borders defines a deep green buffer zone that outlines the

these areas by highlighting the port changes imposed on the territory. Firstly, the initial expansion followed the westward expansion in the southern bank of the river; secondly, Botlek and Europoort were built on the island of Rozenburg by annexing the independent agricultural territory to the port infrastructure; thirdly, the area of Maasvlakte was built through land reclamation. According to these clusters, we emphasize a correspondence in three different planning approaches, and particularly, in three different levels of involvement and influence of neighbouring areas. These differences are underlined in this paragraph.

[67] In 1966, the first container transhipment (from New York to Rotterdam) occurred in these docks. It is an historic event reported in many publications since it was the first container vessel handled in Europe.

[68] In 1930s, the village of Heijplaat became the residential area of the ship-building company RDM (*Rotterdamse Droogdok Maatschappij*) thanks to its proximity to the port area (at that time the south bank was indeed difficult to reach). When during the 1990s the Municipality decided to demolish the village due to low environmental standard, the residents protested. Thus, the settlement has been renovated, and it is now involved in the regeneration aims of the Stadshavens project in connection with the redevelopment of the RDM Campus.

residential area as an oasis. Hence, on both sides, the port-territory interface is not effectively a conflict zone.

Substantial changes in the Dutch landscape occurred with the building of Botlek-Europoort-Maasvlakte complex. Indeed, the port witnessed a shift from the transit to industry-oriented activities due to the increasing importance that oil, petrochemical industry, and mechanical automation were having in the economic sectors between 1945 and 1969 (defined as the 'Golden Age' of the port of Rotterdam). This industrial development followed a widespread phenomenon emerging after the Second World War: the tendency to locate industries around the seaports rather than nearby primary sources' sites (i.e. ore deposits and coalmines). This spatial and economic process was pivotal in the Rotterdam region and definitively changed port-territory relationships.

The Botlek Plan, which was conceived during the war, became official in 1947. The name of the new harbor derives from the waterway that connected the Brielse Maas with the Nieuwe Maas and that was converted into 3500 acres of industrial and port facilities. The harbour was connected to the land by a bridge and, subsequently, by a tunnel that's part of the highway A15. The development of this area was led by the petroleum and oil refinery industry, and it was possible thanks to engineering works provided for by the Delta plan, a national programme of protection against the flooding. From a global perspective, this trajectory was enhanced by the difficulties in Iran in 1948, as the axiom of an efficient vicinity between refineries and oil fields was replaced by the increase of the capacity of refineries in consumer countries (Kuipers, 1962). Companies such as Shell, Esso, and Caltex came to shape this area and to attract chemical industries that can obtain raw materials from refineries. In 1960, the construction of pipelines allowed to connect the areas of Botlek and Pernis with cross-boundary refineries in Germany improving the international relevance of the expansion.

Simultaneously to the port expansion, the new urban highway around Rotterdam's inner-city was built. The Ruit (Diamond) aimed to link Rotterdam with the national and international highway network as a completely new structure, not just as an improvement of existing roads. This new structure gave a boost to the whole national highway system in 1969 independent of the cities centres that means cities were connected with each other not directly, but through a system of beltways. This highway system became the logistical chain for seaport industrialization.

In the period from 1947 to 1969, the rapid rise of the port industry led to an 'empty landscape' of 10.000 hectares (port and industrial terrain) that became the image of the Dutch technocracy (van der Burg & Vink, 2008). The industrial expansion of the port was part of a development policy supported by the Municipality in accordance with the industries. Thanks to this strong and co-operative institutional network, the speed of the

decision-making processes were permitted to easily define the development of the port before the coastal areas became widely desirable. These expansions met the opposition of surrounding town and villages that start to feel narrowed by the industrial landscape of the port.

The government influence on the port development intervened for the first time in the design of Europoort. Indeed, the state set some constraints such as the indirect connection to the New Waterway, the safeguard of the village of Rozenburg, and the preservation of the Brielse Maas as a recreation area. Nevertheless, the boundaries of the new area included the site of the nature reserve De Beer. In this regard, the location of the new port area was challenged by the Province of South Holland (the public body that focuses mainly on environmental issues) and the Vereniging Natuurmonumenten (the Dutch Society for Nature Conservation) (van Heezik, 2008). In contrast, the Port Authority and Rijkswaterstaat (Directorate-General for Public Works and Water Management) supported the development of the new port area, and the natural reserve was almost completely destroyed. With the Europoort Plan, the PoR built the forth petroleum harbour and the port area finally reached the North Sea by locating different kind of industries and storage activities on the island of Rozenburg which was already connected to the land through the Botlek area and the bridge of the highway on the eastern side.

In 1964, the need for a new expansion led to plan the development of Maasvlakte I. The PoR fostered the port expansion by claiming the need to build a new area close to the sea in order to prevent the dredging of channels further inland. On the contrary, the natural wealth of the Brielse Gat, the former mouth of the Brielse Maas closed in 1950, was in danger of being lost with the construction of Maasvlakte (Beeftink et al., 2012). Finally, a boundary was defined, and port activities were planned on the northern side of the Brielse Gat[69], while the southern side was preserved as a natural site. After the demarcation line was established, harbor designers were more inclined to take natural and environmental values into account. Moreover, engineers of Rijkswaterstaat and the City of Rotterdam created rows of dunes along the industrial site of Maasvlakte to increase the natural values of the area.

In the new land of Maasvlakte I, the oil sector was located in the north because it needs deep-draft ships, while ore throughputs have been placed on the southern side. However, the planned establishment of steel industry factories in Maasvlakte encountered several problems. Environmental and safety issues were met with fierce opposition from the local residents. Moreover, inadequate infrastructures for transportation played an important role in the final decision to avoid this function, and the establishment of the steel industry was finally not carried out. By coincidence, this unexpected event left room for the rise of

[69] In 1966, the construction of Maasvlakte led to the closure of the Brielse Gat into a lake: the Oostvoornse Meer between the North Sea and the Brielse Maas.

container transhipment in the early 1980s. Thus, the new available port area was a great advantage for the PoR that could benefit from the decision of ECT[70] to build its Delta Terminal in Maasvlakte.

Planning the industrial development: policy and strategic instruments towards a new approach

Since the 1960s, the port expansion was included in a regional spatial development vision. Indeed, in Plan 2000+, published in 1969, the spatial planning scenario foresaw the extension of the port as an integrated regional program of development that, by overcoming the municipal and provincial borders, offered a coherent plan also for living, working, and traffic. The expansion scheme was planned within the southern wing of Randstad since the Delta region was considered as the region with the capacity to host new port related industries. The top-down plan and blue print planning model were broadly contested by environmental groups that gave rise to movements of rebellion against the establishment all over Europe in the late 1960s, early 1970s (Salet et al., 2003). Plan 2000+, a symbol of technocratic planning, was finally rejected. It was withdrawn and the planning approach shifted into a more human-oriented spatial planning based on healthier living and working situation. With this event, a new phase started. The planning approach proceeded gradually by combining formal visions of administrative organizations together with citizens' involvement. Given this, the emphasis gained by the welfare policy defined a separation between the interest of the port and the city, and thus the end of a symbiosis that existed in the regional policies until the late 1960s[71].

In this framework, the oil crises of the 1970s led to a loss of power for the economic activities of the port of Rotterdam, and this decline caused deficiencies also in other sectors, i.e. the issue of high unemployment led to social discrepancies such as the concentration of ethnic minorities in marginal urban areas. In the 1980s, a reaction to the welfare state regimes occurred all over Europe and a 'strategic' approach to spatial planning was addressed to introduce elements of negotiation in planning processes. The port was included again in the national goals also thanks to the powerful relations between the harbor barons and captains of the port and the municipal port authority (Kreukels, 2005).

More recently, from the end of XX century, a further expansion of the area of Maasvlakte has been planned to deal with the growing flow of containers. After the government denial of the first plan in 1970, due to environmental claims, the project was accepted in 1990s and it opened up in 2008 after years of planning, discussions and protests. The project was

[70] ECT, European Combined Terminal, is part of the Hutchison Port Holdings and it is a major player in the port of Rotterdam.

[71] This symbiosis arose from the public acceptance that the port expansion would improve the level of employment, and that an economic growth would led to a general prosperity.

introduced again (after a first attempt with Plan 2000+) in Port Plan 2010 by showing the Maasvlakte II project as a key action of an economic renaissance after the crises – and the related unemployment – of the 1970s. By learning from the environmental movements' pressure, the government linked the building of the new port area to the creation of 750 ha of new nature reserve. This final agreement was the result of public discussions enhanced by the Scientific Council for Government Policies that encouraged the involvement of citizens in the first steps of the decision-making process in order to avoid delays and conflicts (Koppenol, 2014). After a long process, the parties agreed upon the main aims of the project: the development of natural areas and the efforts to support an economic growth. The decision making phases, made of several rounds in the whole region, were based on the involvement of many actors and resources to come to a satisfactory solution (Giebels & Teisman, 2015; Van Gils & Klijn, 2007). Finally, the collaborative process between public organizations, the PoR, environmental groups, and other associations of citizens led to drawing compensation measures through a mutual gains approach (Koppenol, 2014). Besides the natural areas, it was decided to plan an urban expansion in the old port area next to the city centre (the Stadshavens), and to move port companies from the city to the new site of Maasvlakte II. On May 2013, Maasvlakte II was officially inaugurated with around 1000 hectares of port-related activities (290 hectares of infrastructures, 230 coastline protection, 510 waterways and port basins). This project has been based on three port development principles: safety, economy, and nature (De Vlieger, 2017). Indeed, besides the economic relevance (in terms of employment and national income), an environmental compensation program has been implemented to compensate the negative consequences in the natural habitat (loss of plants and animals). Safety issues led to the creation of a protection area in the sea and a new dune along the Delfland coast. Other compensation measures included in the Project Mainport Development Rotterdam (PMR) are recreational beaches along the North Sea coast and recreational natural areas in Barendrecht. The environmental compensation measures off the coast and in the new dune area are carried out independently of the 750 ha. Indeed, the former is required by law since Maasvlakte II is built in the Voordelta, a protected nature reserve (Natura2000 area), while the 750 ha of new nature and recreation areas are the result of negotiations and are part of the PMR quality of life objectives.

Even though the main logistics areas of the port of Rotterdam are geographically distant from other land functions, their huge impact affects numerous areas, and has resonance in several fields of national interest such as economy and environment. The Rotterdam case emphasizes three fundamentals issues that highlight how the interplay between the port and the territory – specifically the interface shaped by port industrial and logistics area – change the planning approach as well as the spatial dimension.

Firstly, geography and land morphology are not a limit and they are subordinate to economic goals. The improvements in technological and construction expertise are changing the way in which to plan the port space by including the sea into the range of

'possibly available land' and prompting the concept of 'sea consumption'. In this regard, the port logistics expansions are key players in developing new forms of urbanization, even on the water. This led to the second issue: spatial planning. The development of port areas in the Rotterdam region deeply influenced the general planning approach; actually, it traces the evolution of the Dutch planning. Indeed, the planning approach changed as a consequence of an increasing social awareness that worked on two aspects: by exerting an external pressure on economic objectives, by forcing a different 'planning language' evolved from technocratic blueprints to common visions. Thirdly, to complete the circle, the social awareness, through planning actions defined in public arenas, amplify the resulting spatial implication by expanding the scale of compensation measures. In other words, an institutional level made by several actors separates the idea of a spatially pleasant buffer zone from the concept of infrastructural proximity, and, by doing so, it leads the planning of this port-territory interface on a wide spatial scale that is not stuck around the logistics area's perimeter.

4.6 / *Interface III.* Territorializing Logistics Forces: Inland Terminal of Venlo

The power of logistics in developing hinterland

The inland terminal of Venlo attests to the role of the port of Rotterdam in the global supply chains and witnesses the geographical dispersion of logistics activities in the Netherlands. It is an inland logistics hub for rail and inland shipping located between Rotterdam, Antwerp and the Rhine-Ruhr area in Germany. The inland terminal offers multimodal options since it is directly connected by major highways with both Rotterdam and Antwerp and it is also accessible by the waterways. Albeit Venlo is also considered an important riverport, this paragraph focuses on the development of its logistics site, the inland hub.

The case of Venlo is considered to be a successful example of the interplay between the logistics private sector and the public realm. In conjunction, they shaped policies to enhance economic investment and spatial development over the years. In literature, the example of Venlo is seen as a typical 'outside-in' approach, implying that the development of the inland terminal is driven by the maritime side (the seaport or, as in this case, a terminal operator) (Wilmsmeier et al., 2011; Witte et al., 2014). The focus on this inland terminal is emblematic in transport studies since it is a key example about a remarkable economic improvement led by an agglomeration of international firms in a medium sized city. Indeed, the scientific attention paid to the inland terminal of Venlo underlines the strength that the maritime-led logistics has in heading local policies and shaping the institutional structure in the hinterland urban governance. In addition to this, the spatial

consequences of governance interplay have produced wide industrial sites and changed the landscape of the rural area outside the city of Venlo. Actually, the developing process that occurred in the Dutch town, shows that the enhancement of urban policies in the territorialization of logistics activities (associated with global firms) leads to a separate development approach between industrial and urban areas. In this framework, we address this case stressing two main questions: how logistics-led institutional changes influenced the spatial structure of sectorial areas, and how a shared development path between public and private institutions (towards logistics) influenced the whole urban dimension.

The development of Venlo as an important intermodal hub is a combination of multiscalar factors involving local ambitions, national policies, and private interests. Since the late 1980s, many activities, especially in the sectors of transport and distribution, moved from the municipality of Rotterdam to surrounding areas. This process was mainly due to the availability of cheap land, the efficiency of the transport links and lower labour costs (van Klink, 1998). With the advent of the European Common Market, many companies decided to spatially disintegrate their activity taking advantage from control operation situated in Rotterdam and founding accommodation for storage and distribution in inland areas outside the region. The city of Venlo, in the province of Limburg, benefited from this process of outsourcing thanks to its location along the Brabant-route, the main east-west transport route of the port of Rotterdam. In 1982, the European Combined Terminals (ECT), one of the major container terminal operator, invested in the inland terminal of Venlo to use this area as an extended gate to its deep sea terminals located in the port of Rotterdam[72]. Since then, the ECT, in a joint venture with the locally based firm Seacon Logistics, contributed substantially in developing the territory by providing a second rail terminal in 1991, and a barge terminal in the riverport area in 2010. Foreseeing the capabilities of the area, the municipality focused the local agenda on the development of logistics. The first incentive came from the local demand of logistics services. The region of Venlo was already an important site of agro-food production and it also houses a small innovative business electronics cluster which demands for exports and storage solutions (Raimbault et al., 2016). Thus, during the 1980s, the logistics-based development was led by local policies focused on the industrial development of the western land of the city lately named 'Venlo Trade Port'[73], an area previously characterized by farm lands along the main infrastructure corridors, and owned by the municipality. This development trajectory was borne by a reorganization of the urban governance structure with expert managers acting as aldermen or specialist employees directly involved in promoting private economies as public goal.

[72] The ECT company transports many containers into the hinterland and it operates at three inland container terminals: Venlo, Duisburg and Willebroek.
[73] Nowadays this area is about 1400 ha and it houses the rail terminals and the barge terminal.

Hence, the negotiation about the development of Venlo as port and logistics hub underwent a dialogue between the local firms and the municipality. The joint strategy was oriented to the design of port areas as well as the improvement of communication programs in order to enhance the competitiveness of firms. Logistics firms gained importance since they formed cooperative associations in order to be included in the decision-making processes. Their main focus was the innovation programme 'Viaport Venlo', founded during the 1990s. This programme was financed by the municipality although the agenda was set by the firms. By doing so, the City Council institutionalized the participation of firms in local policies since the logistics sector was perceived as a collective economic goal pursued by both private and public interests (Debrie & Raimbault, 2016). Furthermore, Venlo gained the status of Port Authority and this provided it with rent and economical incomes in order to finance other policies.

Governance interferences: the paradox of private-led public strategies

The results achieved in the economy of Venlo were soon acknowledged and improved by national policy. Indeed, since 2006, Venlo has been included in the greenport-policy frame becoming one of the six Dutch Greenports[74]: horticultural hotspots with a concentration of activities in the fields of cultivation, trade, logistics and supply. This sector is very important for the Dutch economy (Port Vision 2030, 2011) and its performance is strictly related to the port. The port is therefore necessary for the Greenports in connection with its capacity to store and transship fruit and vegetables from overseas. In the field of the maritime transport, the increasing importance of this business area is supported by the development of Rotterdam Cool Port in the Waal-Eemhaven (one of the port districts of the Stadshavens area) that has a direct connection with the Trade Port area of Venlo and it also pursues environmental challenges[75].

According to Debrie and Raimbault (2016), despite the historical vocation of the region as a horticultural centre, Venlo has always been a port hub. Nevertheless, the local governance has managed to adapt its logistics-based development to the greenport national policy by involving, in the fulfilment of its goals, private investors operating in the horticulture

[74] It is one of the four economic sector (mainports, brainport, greenports and valleys) proposed in the 'Summary National Policy
Strategy for Infrastructure and Spatial Planning' (spatial-economic structure).

[75] Also by a sustainable point of view, greenhouses represent important nodes in the port network. The growth of plants needs CO_2 and a small proportion of the CO_2 produced by the industry in the port area is captured and transported by pipeline to the greenhouses. The same logic will be pursued for the transportation of residual heat from industry, whilst plant waste from the Greenport can be used as biomass for co-firing in power stations. The sustainable aspects developed between the port and the Greenports are very important to improve the collaboration between Greenport, port and knowledge institutions for creating a global knowledge centre in bio-based chemicals (Port Vision 2030, 2011).

sector. Admittedly, the inland terminal of Venlo took advantage of the greenport programme to improve its capacities and to strengthen its role in the supply chain. As a result, the local policies shifted their operational administrative layer and opened a dialogue with other actors across the scales. The institutional framework also changed with the constitution of a new organization, the Greenport Venlo Foundation. It is in charge of the 'Greenport Venlo': the development of a wide logistics area in the west side of the city that was set out in the urban plan[76] of 2008. The foundation operates as a private institution headed by the municipality, the province and the local employer associations and this status allowed it to have fewer constraints in taking decisions in economic and land development policies. It is responsible for allocating subsidies to private companies, a task that was totally under the public control of the municipality (Debrie & Raimbault, 2016). Moreover, the foundation controls the land development through a publicly owned company, the Development Company Greenport Venlo (DCGV) that, with international property investors, is developing 5000 ha of the Greenport Venlo area. This is also considered a shift in the national policies since the Dutch planning system is mainly based on a municipal-led development of new urban areas. Furthermore, it demonstrates that an autonomous company has more power to attract private firms than a municipal office. Admittedly, also the institutional structure of the municipality changed with the increasing relevance of the logistics dimension. Indeed, it not rare that public figures, such as civil servants and politicians, work or have worked in the logistics field (Raimbault et al., 2016).

Local benefits from global issues: urban design for economic spaces

Economic and spatial improvements are the main drivers of the regional development of Venlo as an important logistics centre. Thus, this achievement implied spatial entailments in addition to the institutional renewal which has facilitated the management of economic investments. The spatial changes occurred in the industrial areas of Venlo have been framed in proper spatial plans. First of all, as a market strategy, Venlo hosted the 'Floriade 2012', a World Horticultural Expo held in the Netherlands once every 10 years. Thanks to this worldwide event, Venlo globally affirmed its position in the logistics chain and, at the same time, gained additional funds to develop its rural areas. Furthermore, running concurrently with the design of the masterplan for the Floriade – a huge park designed by the Dutch architect John Boon with the firms Arcadis and Copijn –, the urban spatial strategy was already planned to include the area of the exhibition in the logistics development. The spatial plan covers an extensive area straddling three municipalities (Venlo, Horst aan de Maas, Sevenum en Maasbree) and it was entrusted to the urban and landscape design studio Urban Affairs. The design project 'Klavertje 4' (*Clover 4*) focuses

[76] The '*Bestemmingsplan*' in the Dutch spatial planning system is actually a zoning plan.

on the sustainable and morphological aspects of the Greenport Venlo area[77]. It has been appointed by the region of Venlo, the Province of Limburg and the three municipalities in 2007 and it is now controlled by the DCGV after its institution in 2009. The aim of the Klavertje 4 (K4) was to build an Agro Business Park by merging the development of logistics and agricultural zones with the landscape through a design approach that balances economy and ecology. There is also deep attention paid to the spatial and sustainable quality. The concept of the clover leaf as a module of spatial typology aims to improve the working areas with a water management system and collective spaces for the benefit of employees. Therefore, the design project attempts to reduce the impact of the logistics area on the landscape not only by an environmental point of view but also on the social aspect by drawing public spaces such as bike lanes and parks. Green parks are integrated in the area such as the former Floriade's site (Venlo Green Park) that hosts offices in its buildings, legacy of the Expo, and the Zaarderheiken Park, a natural site that will host a golf area in the forthcoming years.

[77] This project is based on an important environmental issue. Thanks to this project, Venlo is the first municipality in the world to have fully adopted the principle of C2C (Cradle to Cradle) on a regional scale. The C2C is a sustainable approach of the circular economy and it aims to create systems that are not only efficient but also essentially waste-free.

Fig. 17 | Design concept of the infrastructure boundaries. Source: Hauben Architects website

Fig. 78 | The Klover Masterplan. *Source: Hauben Architects website*

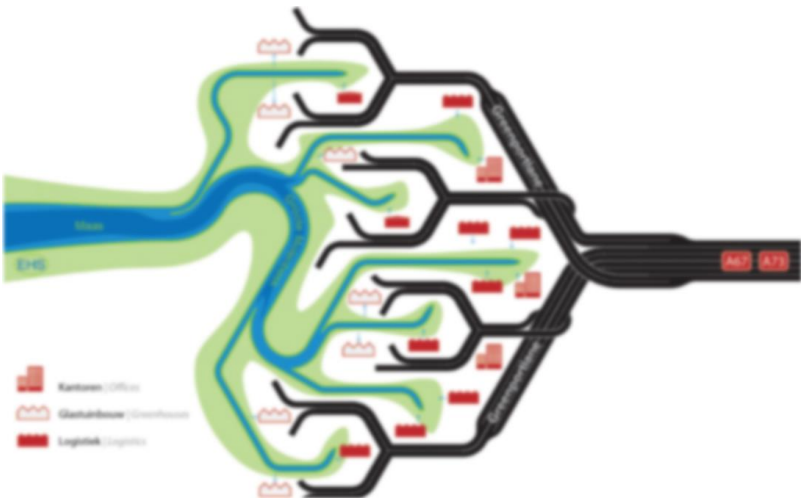

Fig. 19 | Inland terminal Venlo spatial concept. *Source: marcovermeulen.eu*

Assessing the logistics entailment in urban governance and spatial development

The remarkable investment in the development of the logistics area ties together urban, environmental, and economic goals through executive actions – such as the development of a masterplan and the attraction of private investors – undertaken as a consequence of geographical factors, market forces, and institutional changes. The case of Venlo demonstrates that the production of logistics and industrial areas, if strongly supported by private and public sectors, could lead the main process of urban transformation. Thus, the territorialization of global flows with global firms – that is the embracement of global dynamics in the local governance – gave room for a convergence between the urban policy and the logistics trajectory. With an autonomous company heading the logistics sector (the Greenport Venlo Foundation), the power of the city decreased its neutrality, and the public planning action that shapes the urban space has completely been subdued to economic purposes. From a spatial point of view, the changed mechanism of governance highly contributed to transform the rural area of Venlo region although it did not produce significant changes in the city of Venlo that is spatially located 10km away from the logistics area, on the eastern side of the river Mose.

The urban fabric of the historic city centre has not been involved in the spatial transformations resulted from the logistics development. At the same time, the availability of wide areas for the logistics expansion and the support of the city Establishment were fundamental to allow the economic transformations.

With the increasing of specialization and autonomy of the logistics district, the relationship with the PoR became blurred. The collaboration between the two systems is merely based on the exchange of mutual services. On the one hand, Venlo is an important intermodal hub and key node to provide efficiency in the PoR's hinterland, and to export goods coming from the PoR. On the other hand, the frequent transport connections between Venlo and the PoR assure the private investors who consider the proximity of the PoR as an economic guarantee. Finally, regular meetings between the PoR and Venlo facilitate the dialogue and thus the collaborations. The logistics improvement also laid the basis for a new form of horizontal administrative collaboration. Indeed, the neighbouring municipalities of Venlo ceased to act as competitors and they joined a collaborative approach to support important events and opportunity such as the Floriade and the Greenport initiative.

The relevant aspect of the inland terminal of Venlo, an example of Dutch hinterland interface, lies in being an extreme case of logistics development. With this, we stress the predominance of logistics actors in the processes of spatial and economic development of the city. Thus, the effects of port regionalization can influence and promote a new development approach in the hinterland. In this case, the outsourcing of maritime economies shifted from an issue imposed by globalization into an opportunity to intercept global flows and to increase the local economy. These two sides of the same coin are generally confined in the dimension of private capitals and efforts, with the public

administrations as counterparts in decision-making process. In the case of Venlo, the logistics goals became also the purpose of public policies. Moreover, the opportunity to prompt local aims into national measures and strategies (with the Greenport) allowed the logistics function to lead the development projects of the municipality, and alongside this, to increase the relevance of logistics actors in real estate issues: the source of power of regional and urban development.

However, the logistics development trajectories have been planned through a masterplan based on sustainable principles and oriented towards a low-impact integration with the local place, although it is limited to the boundaries of the logistics area. Despite this, the plan of the inland terminal is completely excluded from urban spaces. Paradoxically, the impact of the wide inland terminal on the municipality of Venlo is confined to the cooperation, or even the overlapping, of institutional competencies, and to the social issue of employment, rather than on the spatial dimension.

4.7 | Learning from the Dutch Case: Good Practices and Tricky Challenges

The analysis of the Dutch port-territory interfaces constitutes a prolific scenario of port transformations embedded in regional and urban planning. Particularly, the Dutch case highlights the relevance of port issues in all the planning levels. This condition is due, on the one hand, to the role of port economy in the national incomes, and on the other hand, in an advanced spatial planning tradition (Faludi & Valk, 1994). Hence, the Dutch case provide significant insights and trajectories to the research study. At the same time, it reveals that it is not possible to easily develop a set of infallible rules, conversely, a flexible approach to negotiate solutions is necessary to do not run into deadlocked situations.

The main parameter that frame the Dutch lesson as positive practice is the close consequential connection between development trajectories, strategies, tools and planned spatial transformations. Furthermore, principles of environmental, social and economic sustainability underlying the planning processes, and guarantee the supervision of impacts on the territory.

In this analysis, a side consideration sheds light on the social relevance that the Dutch policy ascribes to infrastructural transformations. In this regard, hard infrastructures such as the expansion of a container terminal and the building of a logistics area are publicly promoted as collective achievements, *common good*s, that are celebrated through marketing strategies and events. Besides the smart commercial approach, the Dutch planning policies have been able to include the attitude towards the logistics development as a ‘soft-value’ in the local culture. This means that infrastructural landscapes are not highly perceived as enclaves by citizens, actually, it is accepted as the landscape in which they are culturally embedded. This consideration has a strong impact in the planning phases

of these infrastructures. Indeed, people have a greater awareness of the economic relevance of port development, and thus are more oriented to discuss measures of negotiation instead of hinder transformation processes.

Moreover, the relevance of port questions – and therefore the spatial dimensions of Dutch port-related infrastructures – prompts port planning issues of port territories into a framework of national interest, with effects that involve regional territories and a large number of people. These considerations explain the state of progress that the port of Rotterdam and its network have in reference to other countries. Nonetheless, the study of the three interfaces allow to focus the similarities and differences occurring in three different port geographies and their surrounding environments by assuming the three categories in which to frame institutional and spatial patterns: governance structure and processes, compensatory measures, and spatial models of coexistence.

Governance structure and processes

The system of institutional formal rules such as the governance structure of port transformation is differently shaped in the three interfaces. This observation led to understand the level of cooperation between actors the and logistics engagement in the three port-territory relationships.

As we expected, the involvement of private companies in shaping governance structures is growing from the waterfront to the hinterland. This is easily understandable by considering the port authority as main actor in the urban and peri-urban interfaces.

In the case of Stadshavens, the development of old port areas was led by a development corporation, the RCDC, in which both the City of Rotterdam and the PoR were involved. In this framework, also the gradual process that led to the corporation of the PoR in 2004 (formerly led by a Department of the City) should be taken into account. Indeed, in 2006, the greater autonomy of the PoR has worsen the port-city conflicts and the corporation was not able to drive the development anymore. This change can not be explained by addressing the mere level of public bodies evolution. Indeed, as stated by a relational perspective, the turn in the governance structure was influenced by external factors such as the delay in the building of Maasvlakte II and the economic benefit of efficient working companies in the southern port areas. Hence, when the PoR tendency

to the negotiation decreased, the development at the urban interface changed its spatial goal and its leading actor.

At the interface of the industrial and logistics area of the port of Rotterdam, the governance structure changed throughout history according to the evolution of port administration. Besides, the transformation processes of port areas have always been led by the port with

the aim to attract firms, and thus orienting port strategies to increase land and improve infrastructural performances. In the shift from a municipal department to a landlord model, the port governance structure changed the actor arenas in which it is embedded. In addition to the City of Rotterdam and the other surrounding municipalities as counterparts of the negotiation, other actors such as NGOs and groups of private firms come to shape the strategies of the port.

In the third interface, the power relationships between firms and local public administration determine the allocation of funds and goods flows. In this case, as already mentioned, the governance structure of the City of Venlo is completely changed to accommodate private capitals.

Compensatory measures

Compensatory measures are essential parts of spatial transformations project of port-territory interfaces.

What emerged in this study, is that the Dutch planning policy promotes the infrastructural development and, at the same time, it takes advantage of this sectorial expansion by fostering regional and urban regeneration plan. In this way, it produces spatial value in urbanized areas, and uses the spatial regeneration as 'bargaining chip' to improve port and logistics performances.

In the case of Stadshavens, the whole redevelopment strategy arises as compensatory measure of the port expansion Maasvlakte II. This process is not an innovative solution. Indeed, since the XX century, the development of the city of Rotterdam has followed the port shifts (Meyer, 1999). Thus, compensatory measures derived from port growth have always characterized the urban structure of Rotterdam, even if promoted by different planning procedures.

Besides Stadshavens, Maasvlakte II led to realize natural areas and recreational sites. Actually, this outcome of the decision-making process is supported by EU regulations. Nevertheless, it stresses the emerging of a new era, more focused on environmental and social issues, in which extended port geographies have to be discussed into public arenas with multiple stakeholders and actors.

The development of the inland terminal of Venlo introduced a new concept of compensatory measures. The twofold character of agro-business park (logistics and agriculture) allowed to integrate recreational areas (green parks) in the wide space of the infrastructure and to include 'compensatory measures' in its masterplan. The masterplan was indeed commissioned by different actors: the Province of Limburg, the three municipalities of Venlo, Horst aan de Maas and Sevenum en Maasbree, and private firms.

Spatial model of coexistence

The outcomes of negotiation processes reveal different spatial consequences.

The project of Stadshavens, more than others, is a model of spatial coexistence between port and urban functions. Admittedly, the choice to separate the development of the two areas of old ports (in northern and southern river banks) facilitate the functional conversion of the area M4H in the northern docks. It also has relevance that the port shift in the field of real-estate values has been developed as a stepwise process. Furthermore, the functions planned in Stadshavens allow a win-win solution where port strategies invest in future technologies and skilled employees as well as the city gains new urban spaces for research, leisure and sustainable activities. Moreover, flexible scenarios are perfectly compatible with this kind of slow regeneration, and it opens up to further negotiations.

A different condition occurs in the case of Maasvlakte. For its geographical characteristics, it is not physically embedded in urban areas thus its rules of coexistence with the territory are limited to environmental control with no spatial elements of integration included in the design project.

Conversely, the integrated masterplan of Venlo is part of a unique strategy focused on the coherent design of a new logistics zone. Since it started from a worldwide event (the Floriade) as a functional park, the development of this area has always been 'citizens-friendly'. Despite this, the spatial strategy took advantage from the inland terminal condition of being geographically distant from urban areas.

Hence, the Dutch case reveals that, although the governance structures and compensatory measures are shaped in all the interfaces by port-related transformations, not each spatial outcome provides a space of coexistence, between infrastructural and urban activities.

Chapter 5.

Campania Region Case Study
Addressing Challenges in the Italian Context

5.1 | Introduction: the Campania Region Case Study

The fruitless policies applied in the Campania region reveals a framework of an unchanging scenario. The case study focuses the areas in which the institutional and land use conflicts have suspended, postponed or caused legal disputes regarding spatial transformations (infrastructural and urban projects).

The explanatory case exposes peculiar issues that reveal national trends such as the construction of an artificial platform on the coast (in order to improve cargo traffics), the waiting condition of the waterfront redevelopment, the scattered logistics platforms in the fragmented territory. The study focuses on peculiar aspects of local conflicts, nevertheless, local issues reveal gaps in the national system of regulation. This allows to expand some general considerations from the case study analysis.

More specifically, the regional case addresses the Neapolitan area through the waterfront, the peripheral area and the hinterland. It is meant to point out that the regional framework, fostered in the port policy by the recent port reform, includes the Port of Salerno (as well as the smaller ports of Castellammare di Stabia, already included in the Port Authority of Naples). The Port of Salerno is gaining a growing importance in the region especially regarding the recently increased volumes of traffic and urban design projects at the waterfront. Nonetheless, it has minor relevance in the network of global flows since it is part of the comprehensive European network of transports (the subsidiary network). Moreover, what we aim to address is not the economic benefits of the new regional system that is enhanced by an economically-led policy. Indeed, the logic of the 'Port System Authority of Central Tyrrhenian Sea' is settled by the port reform in order to improve the performances of competitors that operate in the same area. In the Campania region this joint venture is progressing slowly since the Port Authority of Salerno aimed to keep its autonomy. For this reason, during the development of this research study, it has not been possible to pragmatically consider the two ports as a 'system'.

In a planning perspective, the aim to rebuild the connection between the port and the city underpins the waterfront project addressed in the *interface I*. The infrastructural eastward expansion, the 'hard core' of the port, is apparently a less problematic area since it is not related to the historical centre. Actually, it rises serious conflicts in the development of the Neapolitan outskirt that are addressed in the *interface II*. By moving towards the hinterland, the inland port of Nola was conceived as an important resource for the port of Naples but the infrastructural gap in the physical link between the two infrastructural areas loosened this relationship. The main conflicts in the *interface III* are indeed related to the surrounding environment and therefore to the nearby town of Nola.

Fig. 80 | Campania region main port infrastructures. *Source: Author's elaboration.*

5.2 | Framing the Italian Port Policy. The Establishment of Port Planning Principles

The port question lies in multiscalar policy systems concerning transport issues. In the framework of regulations and planning instruments, the development of Italian ports can be addressed and understood.

In the late 1980s, the European Union (EU) focused the transport sector as key factor to improve international networks of infrastructure, and therefore to ensure the economic and social cohesion. Firstly, with the 1993 White Paper on Growth, Competitiveness and Employment, the EU established measures to overcome the structural economic crises by also allocating funds in order to promote an equal access to international transactions, and to jointly achieve economic growth, and global competitiveness and accessibility. The fundamentals of these European aims are set out in the 1992 Maastricht Treaty in which a large scale infrastructure investment program was set up by introducing the Trans-European Networks Transport (TEN-T), subsequently developed in the 1997 Amsterdam Treaty.

The concept of TEN-T aims to improve transport, telecommunication, and energy infrastructure. Therefore, it implies free movement of freights and people by overcoming

internal frontier and connecting central as well as peripheral areas within the European Community. Through this programme, the image of a homogenous Europe, tightly connected with virtual and physical links, became an item on the European policy agenda (Albrechts & Coppens, 2003) and it gave development directions to national plans.

The White Papers of 2001, which shed light on the environmental impact of the transport sector, also introduced the need to focus on sustainable transport alternatives. Thus, maritime and rail traffic gained importance in the European debate and led to the improvement of TEN-T with the 'Motorways of the Sea'. The aim to invest in sustainable transport was also supported through funding programmes such as the EU's 'Marco Polo programme' in two three-year periods: 2003-2006 and 2007-2013.

Actually, the TEN-T is a network which comprises roads, railway lines, inland waterways, inland and maritime ports, airports, and rail-road terminals. It is based on existing and planned infrastructures in the Member States and it consists of two planning layers: (1) a 'comprehensive network' to be completed in 2050 in order to provide sufficient accessibility to all the European regions; (2) a 'core network', part of the first global network, that defines strategic objectives developed by the EU. As Costa and Maresca (2013) argue, recently, with the 'Union guidelines for the development of the trans-European transport network[78]', the European policy shifted from a '*Europe as a single market*' logic – aiming to build a mere physical armour for the internal market –, to a sturdy policy for developing global competitive performances ('*single Europe in a global market'*). Furthermore, according to the authors, the legislative instrument of 'Regulation' implies compliance with decisions of Member States that must fulfil the TEN-T development. Four of the nine core corridors lie in the Italian territory and all of them include seaports[79].

In regard to the port planning, the EU does not define any specific system of regulation or policy within a common vision. This lack is due to the close interrelation between the port governance structure and the national historical and political contexts. Indeed, the strong differences among Member States' port structures, led to avoiding a complicated and restrictive process for building a single model of common port regulation. Hence, the port policy is not drawn in a homogenous European framework, rather it is transferred to the national administrative level.

[78] Regulation (EU) n. 1315/2013 of the European Parliament and of the Council of 11 December 2013, repealing Decision n. 661/2010/EU.

[79] The four corridors are: the Baltic-Adriatic corridor and the Mediterranean corridor with the ports of Trieste, Venice and Ravenna. The Scandinavian-Mediterranean corridor with the ports of La Spezia, Livorno, Ancona, Bari, Taranto, Naples and Palermo. The Rhine-Alpine with the port of Genoa.

Towards port regulation and planning principles: the law 84/94 and the PRP

In Italy, the port system regulation is entrenched in transport policy. An initial outlining of the planning of port system infrastructures was included in the *Piano Generale dei Trasporti* (PGT)[80], approved in 1986. Subsequently, in the *Piano Generale dei Trasporti e della Logistica* (PGTL)[81] of 2001, the infrastructure was addressed in an integrated planning approach through an economic-oriented approach and, in the national objectives, became the source of territorial development and economic growth. Furthermore, in this plan, the notion of 'integrated logistics' was broadly used with reference to the whole cycle of freight distribution, and it was highlighted as key element, predominant in all the decision-making fields (finance, infrastructure, regulation), in order to improve the final goal of intermodality.

In 1994, a port reform, the national Law 84/1994 introduced a new port regulation structure[82]. This was the first attempt to include European trajectories in the national system of regulation since the former 'Codice della Navigazione' (*Code of Navigation*) – the only port legislation in Italy at that time – was incompatible with European items[83]. More recently, the Law 84/1994 has been overtaken by a new port reform that provides a central role to the logic of the 'system' in port governance. Even though the new port reform (D.L. 169/2016) is the currently effective 'port regulation framework', the process of adaptation of port governance to recent institutional changes promises to be particularly lengthy and complex as it is witnessed by the long political process that led to the legislative decree (see Parola et al., 2017).

Furthermore, the L. 84/1994 has been an important milestone in Italian port governance history, and it is not possible to completely understand recent progress without considering the main changes introduced by the L. 84/94. Although the L. 84/1994 has long been conceived as an obsolete and ineffective rule, it deeply changed the port regime (see Valleri et al., 2006). Firstly, it aimed to separate private interests and public administration through

[80] General Transport Plan, law 245/1984.
[81] General Transport and Logistics Plan.
[82] The Law 84/94 is named '*Riordino della legislazione in materia portuale*' and it aimed to define a new governance framework in the matter of ports. It is worth underlining that the first article of the law ('Objective of the Law') sets up that port goals have to be drawn according to the PGT objectives and that port's aims can update planning tools and regional transport plans.
[83] « *Italian ports before 1994 were characterised by:*
- *The bureaucratic presence of the Public Administration;*
- *A strong connection between administrative and entrepreneurial activities by port organisations;*
- *A regulation of port activities imposing bonds and organisational models also to private operators, in virtue of concessions and/or authorisations;*
- *The compresence of different models of management in different ports;*
- *The monopoly on the supply of manpower in port operations in favour of the workers of port companies*» (Valleri et al., 2006: 144–145).

the establishment of Port Authorities (PAs). The law classified seaports in two categories: the first one is referred to ports with military defence functions, the second category includes ports that are then sub-divided into three classes according to their economic relevance[84]. With the PA as administrative institution, there was a transition from the public to the landlord model, therefore, even though the seaport areas are public domain, the PA was defined as the organization that run the port governance[85]. The PA was a public institution with no economic purpose, that meant it had to pursue the public interest (under the supervision of the Ministry of Infrastructure and Transport, MIT). Thus, the PAs were not directly involved in port activities, although they could manage private concessions.

The port planning instruments, introduced by the Law 84/94 are the *Piano Regolatore Portuale* (PRP)[86] and the *Piano Operativo Triennale* (POT)[87].

The PRP defines land use and main functions, while the main actions (already done or forthcoming) are framed in the POT. The regulation system does not define a relationship between the two planning instruments that are indeed not clearly structured as consequential plans (Delponte, 2009).

Furthermore, in the law, many items in terms of the role and the design of PRP are still blurred. By addressing the PRP's main objective, it could be defined as a sort of PRG[88] confined to the port area. Given this, PAs and municipalities had to co-operate to define agreements about overlapping border areas and topics such as environment, traffic, road and rail infrastructure, etc. If on the one hand the law asks the port and the city to co-operate in the planning process – as actors operating on the same level –, on the other hand, the PRP was the planning instrument of a national domain area, and thus it drew the actions of a greater power than the local. Nevertheless, the government had only a marginal role in the PRP's approval process. Indeed, except for the technical acceptance of the Public Works Council (*Consiglio Superiore dei Lavori Pubblici*) and the supervision of the

[84] class I: ports of international economic relevance; class II: ports of national economic relevance; class III: ports of regional and interregional economic relevance. The ports that are included in the first two classes have a Port Authority. The other ports are ruled by a Maritime Authority with security functions.

[85] Initially, the Italian PAs were in 18 ports (Ancona, Bari, Brindisi, Cagliari, Catania, Civitavecchia, Genoa, La Spezia, Livorno, Marina di Carrara, Messina, Naples, Palermo, Ravenna, Savona, Taranto, Trieste and Venice). Later on, the number increased to 24 by considering the relevance of traffic volumes (Piombino, Gioia Tauro, Salerno, Olbia – Golfo Aranci, Augusta and Trapani).

[86] Port Master Plan.

[87] Three-Years Operative Plan.

[88] *Piano Regolatore Generale* (PRG) is the Italian local planning instrument (Municipal Plan) that defines the urban system of regulation focused on functional zoning and development trajectories. In Campania region, it has been replaced by the *Piano Urbanistico Comunale* (PUC) by the regional Law 16/2004.

Ministry of Environment on environmental assessment issues, the objectives of the PRP were not framed in a national vision and only the regions had the formal task to approve the port plans.

The law failed to provide directions to drawing up port plans, thus, in 2004, a research conducted by the Public Works Council produced the 'Guidance on the Preparation of Port Master Plan' in which the port was considered as a spatial and functional articulation of two typologies of space: (1) the operational areas that are functional at achieving port's technical aims, (2) the port-city spatial interactions, in which port and urban activities have a strong correlation[89] (di Venosa, 2003). In this division lies the dual nature and condition of Italian ports that are technical infrastructure strictly embedded in the urban fabrics and thus also have a cultural role in the safeguarding of the environment and the local identity. This sharp insight paved the drawing of the PRPs to adopt a sensitive planning approach in dealing with local needs of cities and citizens besides the equally important economic-led aims to increase the maritime traffic. Furthermore, with this institutional improvement, the spatial relations with the local surroundings finally gained an important meaning in the port planning. The importance and the vantages of a partially porous infrastructure in-between the city and the sea were institutionalized by policy makers through the definition of port-urban grafts in the port planning guidelines. Transposing the international experiences about the design of port-city relations, the Italian port policy began to face the seaport infrastructure in its territorial components: the concept of a port as a place, and the spatial and cultural relationships that the port embraces with the city in which it is located.

Although the PRP's guidelines led to theoretical significant improvements in port planning matter, the operational actions in both planning and procedural fields had not benefited from the new regulatory framework. Amongst other things, the effort to define the PRP as a 'structural' plan offered the advantage to define a fixed background of existing infrastructure as well as provide a flexible feature to the port plan in order to gradually assess and adapt trajectories to specific projects and actions. Needless to say that the national goal to provide a flexible planning instrument to Italian ports has never been achieved. As stated by Messineo (2016), this failure is due to several critical issues of the law, particularly the undefined role of the PRP in the national, regional, and local planning levels. Indeed, according to the L. 84/94, the PRP was supposed to have a wide range of contents, from a general vision with national purposes to precise operational plans for defining land use and building infrastructures. This uncertainty made the development of the PRP a difficult challenge for the majority of Italian PAs. After more than 20 years, many PAs still have very old port plans – approved before the law – since they were not able to fulfil all the formal requirements. Thus, even though the PAs have been committed

[89] This section includes the waterfront areas, as parallel strip and 'urban view' of the port, and the urban grafts that are filtering axes connecting vertically the port and the city through multi-functional public paths.

to improve their tools, many planning processes have been halted by the Public Works Council due to the lack of well-structured visions and environmental issues.

5.3 | The Port Reform and Future Perspectives. The 'System' as Driver of New Port Governance

The need for a new port reform lies in the loss of competition of Italian port system compared to other Mediterranean ports (in particular the growth of Port Said in Egypt, Algeciras in Spain, and Tanger Med in Morocco), and to global port rank. According to several parameters such as institutions, infrastructure, macroeconomic environment, health and primary education, Italy is not a leading country in the port sector. In particular, infrastructure is the weakest field due to the scarcity of its quality and the subsequent low efficiency. Nevertheless, even though the dream of the 'rich natural logistics platform in the Mediterranean' has been debunked, the maritime cluster has still a remarkable role in the national economy[90]. Furthermore, Italy had demonstrated having strong economic stability in the movements of cargos, ro-ro and liquid bulks (SRM, 2016). Therefore, the port cluster revealed itself as a successful economic sector worth investing in, despite the worrisome global competition that still remains a national challenge. In general, the Italian great gap has been pinpointed by politics and legislators that, through official documents, admitted the lack of a comprehensive strategy in the port sector. Indeed, the firm governance structure was not suitable to understand and react to the global questions embedded in the rapid changes of the maritime economic field.

These premises led to the port reform as a result of a political turn in which new national regulations were promoted by the central government to stimulate the Italian economy especially in the building sector. Therefore, article 29 of the law n. 164/2014 (that comes from the legislative decree '*Sblocca Italia*' n. 133/2014) sets out the basis for a new 'strategic planning of port and logistics systems'. The main aims of this measure are the improvement of competitiveness in port and logistics, the fostering of goods and people movements, the promoting of intermodality, and the definition of a new port governance structure. The latter goal has been achieved and officialized by the recent 'new port reform', the legislative decree n. 169/2016, that is formally the upgrade of the law 84/1994 about the reorganization of the institutional port structure.

[90] According to the '*V Rapporto dell'Economia del Mare'* (V Report on the Economy of the Sea) by *Federazione del Mare-Censis*, 2015, the activities related to the maritime cluster amount to the 2,04% of the national GDP (Reported in 'Italian Maritime Economy – 3° Rapporto Annuale' by SRM, 2016).

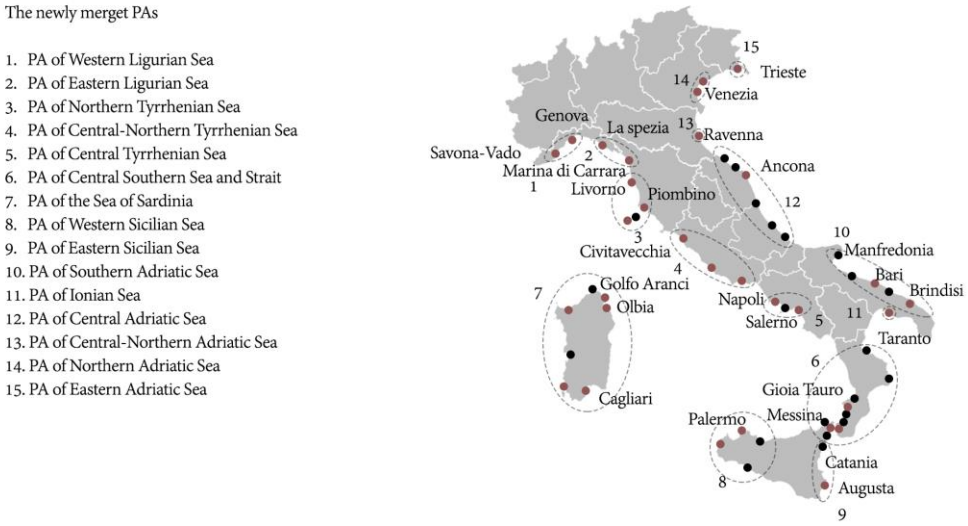

Fig. 21 | Port System Authorities. *Source: Author's elaboration.*

With the law n. 164/2014, the *Piano Strategico Nazionale della Portualità e della Logistica* (PSNPL)[91] became a pivotal planning framework of the Italian port regime. Even though the MIT run the building process of the plan, it fostered a cooperative approach by taking into account local issues through the support work of PAs. The development process of the PSNPL was based on preliminary documents assessing the *status quo* of ports and logistics areas. Already in 2010, after several requests for the updating of the l. 84/94, the Department for Planning and Coordination of Political Economy (DIPE) launched a study about the Italian port system. The first report 'Studying Initiative on the Italian Port System' was published in 2014 and it framed the main problems occurring in the port economic sector[92]. Subsequently, in the aforementioned legislative decree n. 133/2014 (art.29, clause 2), the Presidency of the Council of Ministers asked the 24 PAs to provide local reports focused on realized, ongoing, and forthcoming projects with time schedules and financial plans. The setting of general trends and issues, and the awareness of specific planning actions, led to the establishment of the PSNPL on 6th July 2015. On 26th August 2015, the PSNPL was approved by the President of the Council of Ministers but it was declared unconstitutional since the new governance system excluded the regions from the

[91] The National Strategic Plan for Port and Logistics System.

[92] The main issues highlighted are: the need to gather economic resources on common EU objectives about TEN-T, the digging up of seabed, the lack and the organization of land spaces, the link to the national railways and roads, the financial aspects.

drawing up and the approval process of port plans. On 31st March 2016, after the agreement that was achieved in the State-Regions Committee[93], the PSNPL became operative.

The PSNPL is a strategic plan that attempts to set a vision, define objectives, and plan actions. Ten objectives outline development trajectories to overcome the issues highlighted by the 'Studying Initiative on the Italian Port System'. Indeed, they are based on key topics such as implementation and improvement of physical network of infrastructure, sustainable programs, efficiency in economic funding, planning procedures and governance cohesion, and research and innovation. With an operational and centralized approach, the PSNPL is defined as a sector plan that will become part of a multi-sector and programmatic plan (the '*Documento di Programmazione Pluriennale'*) in which several national projects are framed in specific funding programs with the purpose to concretely renovate the national system of infrastructure.

In order to achieve the general will to improve the Italian port system, the new port reform introduced important concepts in the national institutional framework. First of all, it emphasizes the 'system' approach. Indeed, the core of the national strategy is the definition of a 'Sea System' that broadly focuses, in a comprehensive vision, all the aspects related to the economies of the sea also beyond the seaports. In this approach lies the significant step forward of the reform that aims to assimilate the EU directives[94]. In the new reform, ports and logistics areas are interwoven elements seen through the global logic of supply chain management rather than as two different categories of infrastructures basically disconnected. In the systemic approach, ports and logistics areas work together not merely through a political collaboration made of formal agreements but also with infrastructural connections and economic measures such as customs corridors. The concept of system claims the need to overcome the port individualism and to reorganize the port governance through a rationalization of goals and resources. From this perspective, the 24 PAs are replaced by 15 Port System Authorities (PSAa) formed by clusters of PAs and Maritime Authorities (minor ports). They are not necessarily located in the same region but can be part of the same system due to common features (such as the hinterland area) and compatible goals and functions. The PSAs have the same power and duties of former PAs, and the systemic structure is made by a unique administrative centre based in the major seaport (the office of the PSA) with subsidiaries' local offices in other ports of the system (ex PAs) called Port Directorate (PDs)[95]. With this ploy, the government aims to hinder the excessive fragmentation and overlapping of PAs' goals, and to improve the competitive

[93] It is a political body that discusses about issues regarding both the central government and the regions.
[94] Particularly, the EU Regulation n. 1315/2013 about the development of the TEN-T, and the Regulation n. 1316/2013 establishing the Connecting Europe Facility.
[95] The subsidiary offices of the PSA in the ports where there is a PD are the 'territorial offices'.

performance of regional system with organized multi-purpose features[96]. Besides this, the reform introduces a centralized approach. The strategy defined by the government aims to manage ports and logistics as one network run mainly by the State. Thus, the role of the MIT prevails in the direct appointment of the presidents of PSAs[97] and in the last approval of the *Piano Regolatore di Sistema Portuale* (PRSP)[98]. Moreover, the MIT's power is reinforced by a new dedicated department, the General Directorate of Port and Logistics System, in charge of leading the port and the logistics sector at a national level.

The PRSP is the new planning instrument through which each PSA defines the land use and the main functions for a period of 10-15 years. As with the PRP, in March 2017 the Public Works Council established the 'Guidance on the Preparation of Port System Master Plan'. The official guidance has an important task since it tries to coordinate policies and tools on a new scale in-between the local and the regional (or sometimes supra-regional) in order to clearly understand and manage the elements and issues embedded in the *port system* that is, indeed, a new planning and regulatory level in the Italian port policy. The main aim of the PRSP is to draw the basis for the building of a port-logistics cluster in which a cooperation between different actors, from administrative institutions to terminal and corridor operators, leads the allocation of resources and the planning of a comprehensive vision.

The process of drawing up the PRSP goes beyond the sum of former PRPs. Hence, the first step of this process underlines the power of the Central Government with the 'National Conference for the Coordination of PSAs' in which the strategies and the planning goals of each PSA are settled in a national framework by defining *ad hoc* development trajectories[99]. In order to include local aspects in the planning system, besides the PRSP, two other new planning instruments are added: the 'excerpt-variant' and the 'techno-functional adaptation'. These two tools refer to local circumstances of individual ports in order to provide flexibility to the port planning through simplified procedures. Moreover, in order to pursue a result-driven coherence between national objectives, PSAs' strategies,

[96] One of the Italian ports' characteristic is that most ports are multi-purpose. This had two consequences: an internal problem of organizing many flows in limited room; high competition between closer port facilities.

[97] With the law 84/94 the President of the PA was selected among three experts suggested by local public authorities (Chamber of Commerce, Province and Municipality), with the approval of the Region and the final appointment made by the MIT.

[98] The PRSP is the planning instrument, the Port System Master Plan, that substitutes the PRP of the l. 84/94. It is introduced by the art. 6 of the legislative decree n. 169/2016. The PRSP has to be established by the PSA with the involvement and agreement of municipalities and regions, and finally approved by the MIT.

[99] With the 'National Conference for the Coordination of PSAs', the process for the drawing up of the PRSP tries to avoid the top-down approach by setting a common ground of strategic decisions shared within the multifaceted actor arena.

and local actions, a 'Planning Guidelines Document' provides a framework of directions, tools, and advice to establish proper contents of the PRSP.

The institutional body that defines the PRSP and makes the main decision for the development of the PSA has changed from the Port Committee – composed of a plurality of public and private actors – to the Management Committee in which only members of public administrations have a decision-making power[100]. In this new leading regime, the other port stakeholders, such as shipping companies and terminal operators, have a consultative role, thus they are not directly involved in the decisions regarding the development of the PSAs.

Systems without surfaces: the blurred role of the territory

Although the new port reform introduces substantial changes to the port governance settings, it does not dedicate similar efforts to facing other critical port-territory dimensions. Territorial implications of scattered infrastructures of the port system have no analytical improvements and are limited to the considerations introduced in the 1990s. In the PRSP, the territorial patterns of the Italian coast are expressed only in terms of geographic inadequacy, and the hinterland dimension has no spatial reference. The port proximity to urban cores and the land morphology are mainly portrayed as limits to the concentration of port functions from an internal, sectoral, point of view. The subdivision of port areas into two parts – the operational sites and the port-city interactions – are merely transferred from the ex-PRP to the PRSP. Moreover, the definition of spatial interaction relies on political agreement between the city and the infrastructure without specific focus on how to build a decision-making process. Besides, although logistics areas have been introduced in the port matter by the new reform, and have been sideways considered in the concept of the port system, a study on logistics-territory relationships do not emerge. Territorial impacts with social and cultural consequences are confined in the port-city dimension. Beyond the urban patterns of seaports, the territory disappears, and logistics areas and corridors play only an economic and infrastructural role in land management. Furthermore, even in port-city matters, the new reform does not provide innovative insights, and planning and policy issues avoid addressing the failure of Italian waterfront transformations that occurred in the last two decades.

Certainly, national regulation and guidance have general, broad aims that do not directly entail the design level. Nevertheless, the official documents set performance requirements that have to steer the project phases. From this perspective, in the PRSP guidance, the

[100] The Management Committee is formed by the President of the PSA, the Region(s) representative(s), Metropolitan City(ies) representative(s), City(ies) representative(s), Maritime Authority(ies) and other port(s) representative(s). The latters can intervene only in decisions regarding the port in which they operate.

involvement of urban context implications is suggested as an analytical framework needed to establish strengths, weaknesses, opportunities, and threats[101] in order to define specific goals. Thus, the Italian reform on port and logistics systems faces the territorial context as a steady background, a container, upon which the port network works as a peripheral object of corridors and hot spots embedded only in mobility and supply chain issues (Perulli et al., 2015).

This dissertation developed following the ongoing process of the port reform settling. The building process of the reform was a signal of innovation in the institutional field of port issues and it surely renovated the port governance by introducing a systemic approach, new planning instruments, and a new decisional body structure. Currently, the adaptation phase to the new reform is still ongoing and it also reveals some resistance from local contexts. In example, the ports of Savona and Salerno did not join easily the 'port system' in which they have been framed by the reform, since they claimed their autonomy, thus they asked for a buffer-period to postpone the merger. This mutual influence between governmental will and local reactions witnesses an 'institutional plasticity' (Notteboom et al., 2013; Parola et al., 2017) that is the property of an institutional turn (such as a reform) being shaped by external factors, and, consequently, changing its original scheme. Given this, the final drawing of the reform is characterized by an evolutionary process in which the development of a top-down regulation is continuously adapted to local claims that change the governmental trajectories according to stakeholders' needs and emerging local factors. The opening of the government to receive territorial feedback from maritime and logistics clusters, and to discuss the reform through the publication of mid-term documents, leaves room to build a constructive dialogue between institutions and port system operators. Conversely, the centralization of the port matter on the government's decision level threatens to disregard the quickly changing global trends, to cause a gap towards internal issues and pragmatic actions in port areas, and to provide a political-oriented decision approach rather than a more efficient economic-oriented one. Therefore, local systems proved to be easily affected by the sensitive variation of the amount of flows, and thus to be in place to provide suitable, flexible solutions.

The exchange of opinions occurring during the building process of the reform allowed the establishment of a strict political structure in which the synergy between strategies and actions is facilitated only in a one-way top-down procedure. In contrast, the same synergy is not pursued in the opposite direction, where local systems could run into a long and complex procedure to propose and include local actions into the national agenda[102]. Besides

[101] In the 'Guidance on the Preparation of Port System Master Plan' a SWOT analysis is introduced to analyze the current state of port system in order to set a framework of objectives in the 'Planning Guidelines Document' as well as in the PRSP.

[102] In this regard, we recall that this bottom-up process has actually been institutionalized since it has been included in the reform through the aforementioned planning instruments of the 'excerpt-

the politically-driven institutional turn, the port reform successfully sheds light on a new level of action of networked infrastructure. Indeed, addressing 'port systems' frames the challenge of institutionally defining an Italian spatial structure of 'port region'[103] (Ducruet, 2009). At the planning level of the 15 PSAs, the reform established a governance model of clusters in which port and logistics infrastructure are called upon to potentially work together. If, on the one hand, kindred ports are embedded in a single authority (one administrative body, the PSA), on the other hand inland terminals are part of the system in a wider, functional meaning. In order to foster the operational connections between inland logistics areas and seaports, the reform attempts to include the hinterland dimension in its policy issues. With the concept of *Aree Logistiche Integrate* (ALI), the reform introduces, in the regulatory framework, integrated logistics areas as land areas influenced by port economy and affected by goods flows. These logistics districts are infrastructural zones in which a seaport system, a (potential) retro-port and inland terminals are connected to each other by railway or roads (TEN-T corridors). They are introduced as operational measures to improve the economic development in underdeveloped regions. To pursue this aim, the ALIs are defined by the Partnership Agreement 2014-2020[104], and they have a central role in the allocation of POR-FESR fund[105]. Moreover, in the strategic actions outlined to achieve the improvement of ALIs, the reform promotes the opening up of logistics-related activities and factories in abandoned industrial sites.

The logistics question beyond the seaports is a basic effort to make a leap in scale in addressing the territorial dimension of intermodality and distribution centers in a networked system of infrastructure. Thus, the studies about territorial logistics platforms (MIT-DiCoTer, SIU, 2006) are recalled within the framework of the port reform and finally transferred into the recent tool of ALIs. This tool is the first pragmatic step to draw a new planning and policy level for the governance of port-related 'spaces of flows'[106]. Therefore,

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variant' and the 'techno-functional adaptation'. Nevertheless, the leading role of the central government in this process could slow down the processes of local adaptation.

103 Herein, we refer to the definition of the concept of port region (Notteboom & Rodrigue, 2005) as spatial unit that has been challenged by Ducruet (2009). He claims the geographical meaning of the term by stating the existence of different approaches to the port region «Thus, the port region still remains a multifaceted concept embracing different realities such as the economic area around a port (i.e. the port region stricto sensu), the logistics area connecting the port (i.e. the hinterland), and the area in which inter-port relations take place (i.e. façade, range, or system of ports) » (Ducruet, 2009: 3–4).

104 The 'Accordo di Partenariato' is a formal document through which the government, together with other administrative bodies, establishes strategies to allocate European fund for the territorial development.

105 Programma Operativo Regionale-Fondo Europeo Sviluppo Regionale (POR-FESR) – Regional Operational Programme-European Regional Development Fund. It is a list of projects through which regions aim to achieve development goals through the resources allocated by the EU fund for the economic and social cohesion.

106 Actually, this 'effort' has been pursued since the PGTL 2001 through the SNIT (Sistema Nazionale Integrato dei Trasporti – Integrated National System of Transport) that was outlined as

it is designed as a restricted economy and transport-oriented issue; a sectoral cluster seeking political synergy and benefits to facilitate the fluid exchange of goods flows.

Despite this institutional progress, the territorial implications of hard infrastructures are completely excluded from the political debate and, once again, the gap between transport and urban development plans and objectives is deeply emphasized. From a proactive perspective, Italian planning policies are moving towards a systemic approach in urban and regional planning by building a 'new generation infrastructural-territorial plan' (Pavia, 2016). Therefore, in this regard, the new planning and regulatory level – the port-logistics system concept introduced by the port governance reform – is a promising improvement that can not be stuck in a sectoral system of regulation. Rather, it can gain a more effective meaning and value if embedded in urban development plans and policies where built environment changes, such as the spatial form of supply chains, are addressed by planners in their multifaceted features.

5.4 | Campania Region and Neapolitan Area in Port Development Framework

In the Italian context, the Campania region has a leading role in the southern management of flows. In the south, it is the region with the majority of infrastructural features that distributes goods mainly all over the south. During the last century, since the second half of the 1950s, the development policy focused on the economic renaissance of the southern regions especially by planning infrastructure, and logistics and industrial sites. Nevertheless, the current underdevelopment (especially compared to the north of the country) is due to the ineffectiveness of planning and economic policy that drew programs with general guidelines rather than specific plans. Despite this, the Campania region is nowadays considered as the macro-platform of southern Italy (Gentile & Marchetiello, 2010) since it is part of the Scandinavian-Mediterranean TNT Corridor, and it hosts five logistics hub: the two seaports of Naples and Salerno, the two inland terminal of Nola (in the province of Naples) and Marcianise-Maddaloni (in the province of Caserta), and the airport of Naples (Capodichino)[107].

The construction of the inland terminals has been part of a national and regional development trajectory aiming to balance the regional economy between the congested

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the infrastructural armor of Italy for the movement of people and goods. Also in the National Strategic Framework 2007-2013 the aim to focus on 'territorial strategic platforms' launched studies considering the supply-chain network as fundamental operational infrastructure (see Forte, 2009). So far, barren policies have been developed from these insights.

107 As logistics hub it is worth mentioning also the port of Torre Annunziata, a smaller infrastructure between the port of Naples and Salerno.

coast and the hinterland. In the regional plans at the end of 1960s, in the plan for the territorial set-up of 1986, and in the regional development plan of 1990, planners framed the regional divergence between the metropolitan area along the coast and the other parts of the territory (see Moccia & Coppola, 2005). In this regard, economic strategies were established by planning infrastructural and industrial-oriented development to cope the economic gaps between the coast and the hinterland. In the late 1990s, the two inland terminals where built according to the PGT of 1986 by private investors. Since then, the infrastructural armor of goods distribution quickly changed the logistics impact on regional economy. A third inland terminal in the area of Battipaglia, very close to the port of Salerno, was included in regional planning strategies with the aim to distribute the logistics economy in the southern part of the region. In 2011, several discrepancies between the private and the public sector, together with the Italian economic crisis of those years, led the region to redirect funds intended for the inland terminal of Battipaglia, and to finally reset the port-logistics system of the Campania region.

Given the five regional hubs, the cooperation between them is a lack addressed by policy issues. Since the PGTL of 2001, transport planners tried to overcome the infrastructural fragmentation by setting the goal to connect logistics-related infrastructure (such as seaports and inland terminals) through physical networks and governance agreements. This aim has been remarked also in the territorial planning instrument of *Piano Territoriale Regionale* (PTR)[108] in 2008. The current regional plan frames the infrastructural development in the regional dimension through 'Territorial Frameworks', and claims general objectives and strategies to improve the systemic connection of regional hubs. In terms of coast-hinterland relationships, the PTR introduces the concept of 'territories of interaction' to underline the resonance of economic and social improvements that, from the coast, can influence inland areas thanks to infrastructural accessibility. Except for this faint reference to the territory, regional development and transport plans of Campania do not focus on the infrastructure in terms of space and territorial interplay. Actually, in this economic-oriented planning, transport strategies have often ended up replacing spatial planning. This gap has been partially bridged in the metropolitan perspective of *Piano Territoriale di Coordinamento Provinciale* (PTCP)[109] that addresses the main infrastructures as systems made by networks and hubs shaping the functional vocation of territories within a polycentric model.

[108] The 'Regional Territorial Plan' has been approved with the regional law 13/2008 according to the national directive 'regulations on territorial governance'. It is a plan that frames and defines guidelines about infrastructure and public amenities of regional interest.

[109] This plan coordinates the spatial strategies of a group of municipalities at the provincial level (in-between the local and the regional level). After the national law 142/1990, the administrative body of the 'province' has been replaced by the 'città metropolitana': a local level that coordinates a sub-regional area formed by several municipalities strictly connected to one main city. For the PTCP of the metropolitan area of Naples see Moccia (2010).

In the Campania regional development planning and in its sectoral transport plans, general guidelines that are confined to specific and distinct domains (logistics, environment, urban settlements, etc.), miss the opportunity to foster the study and the design of spatial and institutional interferences between different territorial systems. Moreover, by respecting the directives of metropolitan and regional planning instruments, this lack is inherited by local planning tools.

The PSA of Central Tyrrhenian Sea: the Endeavor of Port Planning Policy to Promote a Collaborative System

As a result of the political aim to boost cooperation between infrastructural hubs, the last port reform changed the port governance by introducing the new regulatory body of PSAs mainly formed by a cluster of former PAs and other minor ports[110]. Before the establishment of the 'Port System Authority of Central Tyrrhenian Sea' – in which the ports of Naples, Salerno and Castellammare di Stabia are embedded – in the Campania region, the PA of Naples already launched a cooperation with the minor port of Castellammare di Stabia, in 2006, and with the port of Torre Annunziata, in 2007. Both located in the Gulf and in the metropolitan areas of Naples, the former has an important shipyard and it is a touristic port, the latter is an industrial and commercial port mainly focused on dry bulk. The protocols of agreement between municipalities and ports were supported by a research study on the improvement of economic performances provided by the regional agency for logistics LOGICA.

Thus, the systemic approach applied to scattered sea-related infrastructures along the coast was earlier embraced by the Neapolitan seaports. A different condition arose between the PA of Naples and the PA of Salerno since tough competition characterizes the relationship between the two seaports. Besides the regional affair, the competition between Italian seaports, especially those located close to each other, underlines the tricky task of PAs. Indeed, even if they are public organizations that operate locally on behalf of the government, their objectives are oriented towards the increase of private investments, and thus to act better than other (public) actors embedded in the same market. In this regional competitive environment lies the complex actualization of the governance turn introduced by the port reform through the PSAs. Therefore, Naples and Salerno have a different background with the port of Salerno that developed quickly in the last decades.

[110] Since the ports' agglomeration is based on proximity, common features and compatible goals, the PSA structure is variable. A PSA can be made by one ex PA (i.e. PSA of Ionian Sea with the PA of Taranto and the PSA Eastern Adriatic Sea with Trieste), ex PA and minor ports (i.e. PSA of Central Adriatic Sea with Ancona, Falconara, Pescara, Pesaro, San Benedetto del Tronto and Ortona), and several ex PAs with other minor ports (i.e. PA of Northern Tyrrhenian Sea with Livorno, Capraia, Piombino, and Portoferraio, Rio Marina, Cavo).

With the aim to study the interplay between sea-related infrastructure and surrounding environment in port-territory interfaces, the dissertation does not address the topic of port competition or economic improvements resulting from administrative mergers. For this reason, the case study focuses on the area of Naples and its hinterland since the emblematic complexities of the Neapolitan case, together with its leading role in the region, provide compelling insights into the research purpose. Nevertheless, it is worth framing the port of Salerno as a new actor that has recently become involved in the decision-making arena of the PSA of the Central Tyrrhenian Sea.

Therefore, the port of Salerno is also gaining a regional importance thanks to a development strategy structured in two directions: the improvement of cargo and the regeneration of urban areas on the coast also through tourism-related maritime projects (see Annunziata et al., 2013). The cooperation between the municipality and the port, led to developing urban spatial changes set as goals within the *Piano Urbanistico Comunale* (PUC)[111] approved in 2006 (see Russo, 2011), and the new PRP approved in 2016. As opposed to the port city of Naples, the port structure of Salerno is less interconnected with urban spaces. Indeed, the sectoral commercial zone is on the western area, outside the city centre, and close to a mountain chain. Even though this location causes less interplay with urban activities, it defines a different kind of limits to the port growth. Therefore, the boundaries of the port area are a natural physical barrier, common also in other Italian ports (such as the ports of Genoa and Ancona). To overcome this limit, the network of corridors is going to be improved in order to provide easy accessibility to hinterland areas, and thus to forthcoming logistics economy. In this already started project, the 'Salerno Porta Ovest', an orographic gap between the scenic highway A3 and the port area will be bridged by a new underground infrastructural connection. On the east side, close to the city, the Molo Manfredi hosts the touristic functions of the port with the recently inaugurated maritime station designed by Zaha Hadid. The urban centre faces the sea with a promenade in-between two developing areas: the Piazza della Libertà by Ricardo Bofill and the expansion of the leisure harbor Masuccio Salernitano.

The growing relevance of Salerno as an improving hub reduces the gap of power that exists between the authorities of Salerno and Naples. If, on the one hand, Salerno delayed its full involvement in the PSA of Central Tyrrhenian Sea[112], on the other hand, it demonstrated the will to affirm itself as significant infrastructure for the metropolitan area of Salerno,

[111] It is a local plan (the Municipal Plan) that, with the regional law n.16/2004 has replaced the former local planning instrument of the *Piano Regolatore Generale* (PRG).

[112] After the period following the first draft for the PNSPL, the PA of Salerno claimed its independence threatening the bad administration of the PA of Naples in the last years. Finally, on January 2017, Salerno obtained the financial independence until the 30th December 2017 and it is temporarily run by a member of the Council of the PSA of Central Tyrrhenian Sea. The same agreement has been established for the port of Gioia Tauro with the PSA of Central Southern Sea and Strait.

and thus to not have a subsidiary role in the new institutional structure. Moreover, the coexistence of the same port functions in the two main ports of the PSA gives rise to a fragmentation of resources that could weaken the governance process of flows distribution and funds allocation but, at the same time, it strengthens the local environments by providing differentiated economies. The connection with the same hinterland, also in terms of physical links with inland infrastructural hubs, reinforces the cooperation between elements of the regional system. In this regard, in July 2016, the ports of Naples and Salerno, with the MIT, the Campania Region, the Agency for Territorial Cohesion and RFI[113] signed an agreement to establish and collaborate in the improvement of the regional ALI. This 'area' without an outlined boundary includes the two inland terminals, the two seaports, the logistics retro-port and the network of railways, and it attracts measures and investments to develop an efficient circulation of goods.

Urban Port Planning Issues in the Port City of Naples

In the port city of Naples, port issues are rooted in urban history, and are deeply interwoven with the urban fabric (Toma, 1991). Indeed, the port area, with commercial functions is located in the core of the historical city centre. The relation between city and port is a key issue within the debate on the development of Naples, as its changes evolved with the whole urban system. Since the second half of the XIX century, the relation between the urban activities and the infrastructure changed dramatically. This period has been characterized by massive changes in the spatial structure of the port, which became more and more specialized, generating consequently consistent impacts on social issues. In 1918, the autonomy of the port area improved with the establishment of the *Ente Autonomo del Porto e per la Zona Industriale di Napoli,* an administrative body that developed the port as a 'small-sized port city' (Amirante et al., 1993). In addition, since the 1960s, the transition to the modern port and its containerization processes definitively interrupted the historical and functional integration of port and city. In the past, the port represented the main entrance to the city. It was the place of market and, at the same time, a public space and meeting area for different cultures (Colletta, 2006). The evolution of the conflict enhanced with the expansion and the consequent closure of the port, and with the building of new docks and the rail system parallel to the cost. To remark this spatial separation, also a broad coastal road was built alongside the port fancies highlighting the spatial and physical border of Port Authority's area.

This physical separation is locally perceived as an urban deficiency that should be solved through an attentive spatial design (Gravagnuolo & Adriani, 1994). In order to fulfil this

[113] *Rete Ferroviaria Italiana* (RFI) is the limited company owned by the public agency *Ferrovie dello Stato* that runs the Italian railway system of infrastructure.

aim, a cooperation between the city and the port must be achieved in urban and port planning.

With the law 84/94, the PRP became an autonomous planning instrument unrelated to the urban plan. This condition also characterizes the Neapolitan planning apparatus. Indeed, in the PRG amendment of the municipality of Naples (2004), the port area is given as a functional (and sectorial) zone regulated by the PRP. The lack of contact points between the two planning departments should have been avoided according to the 'Guidance on the Preparation of Port Master Plan' of 2004. Despite these efforts, the establishment of the PRP (Amirante, 2001) had a complicated development. Indeed, in 2013, the proposal for the PRP of the PA of Naples was rejected by the Superior Council of Public Works due to some deficiencies in the definition of the new location of oil-bearing areas, and the absence of documents about port environmental performances. Given this, the port of Naples is actually ruled by the last official PRP of 1958.

This episode can easily explain the complexity of the Italian ports and, even more, the planning issues related to spatial changes and flexible scenarios.

5.5 | *Interface I.* Towards an Urban-Port Waterfront. Conflicts in the Port Governance

The waterfront of Naples: a meaningful place, a tricky planning issue

In Naples, the relationship between the city and the sea has been an important urban question throughout history. Since the city of Naples developed from its port area, the waterfront (long before this label) was its urban core, the area where the liveliness of the city took place through market and leisure activities. Therefore, the subsequent spatial detachment between the city and the sea has been seen as emblem, also a metaphor, of social problems and unhealthy environment[114]. In this cultural and historically rooted background, spatial and institutional issues related to the port-city interface of Naples have to be framed.

The proposal to regenerate the waterfront of Naples opened up in 2004 and, since then, the urban project has been a latent and unrealized chance to revitalize the city. Nowadays, the historical port area is still compressed between the *città bassa* (the southern part of the city

114 This concept is very noticeable in the famous novel 'Il mare non bagna Napoli' (Ortese, 1953) a collection of stories about Neapolitan people that reports the social marginalization after the Second World War. In this literary context, 'the sea that does not wet' the city highlights the remarkable relevance of the sea as vital element of Neapolitan urban life.

centre next to the port) and the sea, and it is mainly characterized by passenger areas, parking lots, and underutilized old and historical buildings.

This paragraph addresses the process behind the urban design project planned for the historical area of the port between the two docks of Molo San Vincenzo (more specifically the Darsena Acton) and Molo Immacolatella. In this framework, we witness the weaknesses and constraints that have frozen the redevelopment goal of the port city of Naples.

Compared to other European port waterfront, the Neapolitan port area, next to the city centre, is spatially a thin piece of land, although it is actually a wide barrier between the dynamic urban core and the strict system of regulation of the port infrastructure. In 2000, physical barriers on the west side of the city centre, were removed in order to launch a fruitful integration between the urban spaces and the porous port areas such as the ticket offices and the maritime station[115]. Nevertheless, this process of developing a port-city permeability has been stuck for a long period after a first promising start.

The very first boost derived from the transport strategy promoted for the development of the regional metro system (RMS) (Cascetta & Pagliara, 2008) included in the Municipal Transportation Plan of the city of Naples and in the Naples 100 Station Plan. The strategy underpinning the transport plans led the reorganization of the infrastructural system to improve train and metro connections, and it set the construction and restoration of metro stations to enhance the design quality of urban and suburban terminals (Gravagnuolo, 2005). In particular, the metro-station and archaeological site[116] of Piazza Municipio – the square where the offices of the municipality are located – exploits the proximity to the port area by creating a spatial continuity from the city to the sea through the port (see Papa, 2004). Therefore, the project by Alvaro Siza and Eduardo Souto de Moura includes a broad slope on the main dock (Molo Angioino) as direct link between the port and the metro-station. The spatial and functional reconnection between the two urban spaces settled a paramount co-operation between the municipality and the Port Authority. Since then, the aim to re-establish a spatial link between the two systems has led to the ongoing process of the waterfront regeneration in Naples. The complex development path shows the

[115] On 11th May 2000, the big square from Palazzo San Giacomo (the office of the Municipality) to the maritime station was opened, and the Varco Angioino – the gate that separated the port area from the city – was permanently removed. This event launched a process of collaboration between the port and the city witnessed by a formal Protocol of Agreement between the Port Authority of Naples and the municipality.

[116] During the construction for the metro-station, many archaeological finds of the ancient port were unearthed. These finds, together with the finds of ancient elements of the near castle (Castel Nuovo or also Maschio Angioino) have been included in the underground spaces of the metro-station developing a public archaeological museum perfectly integrated with the subway.

institutional efforts to realize a spatial change, and the obstacles that a conflicting actor arena can impose on the feasibility of planned transformations.

Rise and death of a design process. A story of institutional turbulence and unchanging spaces

In 2002, the Port Authority of Naples (PAN)[117] commissioned a feasibility study from an external company in order to verify the prospective economic benefit to regenerate the waterfront. The peculiar vicinity of the historical city centre (just beyond the port perimeter) was assessed as an extremely valuable resource that would have justified the spatial transformations and functional changes in the port area.

Given this, the PAN launched the renovation process by promoting a formal collaboration between public entities to facilitate the decision making. In 2003, the PAN established the holding Nausicaa, a joint-stock company made by the Port Authority (52%), the Campania Region (16%), the Province of Naples[118] (16%) and the Municipality (16%). The Nausicaa company «*has the social aim […] to lead the project and the construction process of the redevelopment of the historical area – waterfront – from the Immacolatella Vecchia to the Darsena Acton. The redevelopment focuses two goals: (1) To promote the accessibility of spaces according to the concepts of spatial continuity between port and city through the transformation of the port in an attractive core for the citizenry; (2) To promote productive activities based on tourism, cruising, hospitality, culture, commerce, etc.*[119]*»* (Port Authority of Naples, 2003: 9).

[117] Autorità Portuale di Napoli (APN), in Italian.
[118] As already mentioned in this chapter, the Province is a public entity, an administrative level between the region and the municipality, that has been replaced by the Città Metropolitana (Metropolitan City), a local body composed of an agglomeration of cities around a major node-city. The Città Metropolitana has been established by law 142/1990 and has definitively acquired the province's tasks since the 1st January 2015 according to the national law 56/2014.
[119] Translation by author.

Fig. 92 | Magazzini Generali and Maritime Station, Naples waterfront. *Source: Author's picture.*

As mentioned in the annual report 2003, the Nausicaa S.p.A.[120] has also had the assignment of exercising the institutional tasks on behalf of the PAN. Through the establishment of the holding Nausicaa, the PAN introduced a modern 'hybrid' policy instrument (Leonardi & Nanetti, 2008) that means the company has entirely public assets, although it can operate with private management criteria and with decision-making procedures negotiated by intergovernmental actors. Through this covenant, the institutional structure changed in order to facilitate the redevelopment project. In this respect, it is worth stressing the policy alignment in the different administrative levels that allowed a fruitful co-operation between region, province and municipality.

In 2004, the Nausicaa S.p.A. decided to launch the process of the design project by promoting an international open competition. This choice was largely considered to be an institutional change since the entrenched tradition of locally managing the future of the port area was finally overturned by a more transparent and open-minded process. Nevertheless, the Nausicaa initiative also had adverse considerations. Indeed, the public opinion reported by local newspapers wrote about its shifting from an innovative management model to the source of wastefulness and wrongdoings (del Mese, 2014).

The international open competition was structured in two phases: the first one concerned an 'ideas contest', while the second phase covered a preliminary project about the public features involved in the area. The prescriptive approach of the competition gave guidelines for the participants by pinpointing objectives (such as the integration between urban and port areas, and the improvement of port passenger operations), areas of intervention, expected impacts, feasibility and design phases. The Administrative Board of the Nausicaa

[120] S.p.A. is the Italian acronym for '*Società per Azioni'* that is herein translated as 'joint-stock company'. In 2008, the Nausicaa S.p.A. turned into a S.c.a.r.l. '*Società Cooperativa a Responsabilità Limitata'* to facilitate the management of operational activities.

S.p.A., with the collaboration of professionals and professors[121], on the 20th July 2004, selected three projects for the second phase. Subsequently, it organized a public conference to show the selected projects as well as an open exposition with all the twenty participant projects.

The second phase ended on March 2005 with the final selection of the winning project: the 'filtering line' proposed by the team of the French architect Michel Euvé[122] (see Box 2). The project focused on the coexistence of urban and port activities by developing a walking promenade in which commercial areas, public spaces and port activities are organized in variable road sections creating spatial connections although preserving port security. After a prompt development process, some events slowed the port-city aims down. Thus, the efforts to realize a renovation program for the city of Naples became blurred and vague, until the project took the traits of a general utopia.

Box 2.

Waterfront Project: the 'Filtering line'

The winner project of the 2004 competition, covers the western area of the historical zone of the port of Naples by defining a linear system of accessorized areas and public spaces from Molo Beverello (on the west) to Immacolatella (on the east).
The 'filtering-line' is a complex linear system with a variable section. The project aims to reshape the system of public spaces at the waterfront and to assure a visual continuity towards the port, and therefore the sea. The design concept is based on several layers that reshape the ground and organize flows of people, cars and cargo. The street level climbs slightly to create a protected pedestrian promenade with a sea view. A new path, parallel to Via Nuova Marina, dugs into the ground, and develops a strip of commercial areas and leisure activities that intersects the underground space of Municipio metro station. The new strip is a pedestrian space for social gathering with facilities to serve port's functions. It is designed as a panoramic promenade and, below the strip, parking levels are planned with physical connections to the port areas. The renewal of Magazzini Generali designs a doubling of the original size of the building (according to the original drawings of the famous Neapolitan architect Marcello Canino) through a complex hybridization process. The new Magazzini Generali will include tertiary functions, museums, research and cultural activities, catering and leisure services. The waterfront project defines two fronts: the first one coincides with the linear system of the 'filtering line' (that aims to separate, but also finds a spatial relationship between city and port), the second front, on the sea-side, is occupied by the building of Magazzini Generali.

[121] The architect and professor of Urbanism at the University of Naples Federico II, Carlo Gasparrini, and the professor of European Union Politics and Policies at the London School of Economics and Political Science, Robert Leonardi.
[122] The design team was formed by: Sarl d'Architecture M. Euvé (group leader), G. Salimei, F. Contuzzi (t-studio) P. Capolei, F. Capolei (3c+t), R. Pavia, M. di Venosa, R. Massacesi, D. Romani (Ippozone Studio), C. Nava, modimar s.r.l., VIA Ingegneria.

The two fronts are designed as a single system since the two sides are connected from a spatial and functional point of view through underground and vertical connections that serve the second level of Magazzini Generali. The dock level on the sea-side will not lose its port function and will guarantee the presence of port activities.

(Pavia, 2010a; Pavia & di Venosa, 2012)

Fig. 103 | Waterfront project, the filitering line_spatial configuration. *Source: tstudio.net*

The subsequent events that affected the process of the waterfront regeneration were essentially based on legal claims, spatial and cultural constraints, and a radical switch in the political leadership of the PAN.

With the end of the design competition, a series of motions shifted the project's challenges from the design phases to legal issues. The local design teams of competitor projects reclaimed clarifications on selection criteria used by the Board of the competition to choose the winner project. Based on this, they stopped the operational process towards the building phase, and thus the development of the final plan.

In 2006, after the Court confirmed the legitimacy of the selection process, the PAN finally entrusted the design team of Michel Euvé with the development of a detailed project. In 2008, when the project was concluded, a second stop, before the official validation, was imposed by the Superintendence[123] for Architectural Heritage. The new Superintendent Stefano Gizzi contrasted some of the contents of the competition program in which it was previously allowed to demolish the building of Magazzini Generali, a large warehouse formerly used for food storage, and designed at the end of the 1940s by the Neapolitan architect Marcello Canino. The fame of the architect, rather than the not uniformly shared opinion about the architectural value of the warehouse, affected the final decision to preserve the building, and the commitment to integrate it in the design project. Thus, the

[123] In the Italian administrative system, the Superintendences are subsidiary bodies of the National Ministry of Cultural Heritage and Activities and Tourism. Their main aim is to preserve the cultural heritage within regional areas.

design project underwent significant changes since fundamental parameters such as the amount of building volumes, the relationships between built forms, and the new functional assets of the area, settled a renovated starting point.

In 2009, the economic procedures, necessary to allow the operational phases of the project, endured the informal opposition of private interests existing in the port area (Gasparrini, 2010). This ambiguous stage witnessed several contradictory public statements through which, on the one hand, the PAN bore the forthcoming realization of the project, while, on the other hand, groups of ship owners claimed an alternative development project – made by fragmented renovations of buildings such as the ticket offices of Molo Beverello –, in order to be directly (and economically) involved in the redevelopment of the waterfront.

This internal conflict in the port area coincided with the lack of a political stability in the leadership of the port governance. At the end of 2008, the president of the PAN, Francesco Nerli, left his role, and a new president, Luciano Dassatti intervened in the waterfront development process. The change of the Port Authority's leader marked a political shift that did not aid the awaited transformation, rather it contributed to freezing the waterfront regeneration process by passively absorbing the requests of maritime entrepreneurs, and thus empowering private economic pressures.

In 2010, the project's reliability began to vacillate. In the static decision-making circumstances, the public holding Nausicaa appeared as a worthless company with no room to achieve its goal. Hence, the Nausicaa s.c.a.r.l. was liquidated, and the PAN acquired the project of the waterfront from the other partners (Region, Province and Municipality) by investing its own financial resources. Although the closure of Nausicaa was broadly considered as a public failure, the PAN reclaimed its key role in realizing the project under its sole command as a wiser and more efficient way to plan operational activities. Indeed, this decision was made publicly known as the regain of the Port Authority's power in the decision-making arena. Admittedly, the PAN supported private port economic interests instead of public policy by meeting the expectations of inflexible concessionaires. It is worth explaining that the strong decisional power of port operators is not a local issue but the result of an inclusive institutional approach established by the first port reform, the law 84/1994. Indeed, the spokespeople of port operators were part of the Port Committee and thus have legally had a role in defining the direction of port development.

As for the outcomes of this filibuster, the project of the filtering line was not included in the POR-FESR [124], and this testifies to the lost interest in the real activation of the

[124] *Programma Operativo Regionale-Fondo Europeo Sviluppo Regionale* (POR-FESR) – Regional Operational Programme-European Regional Development Fund. It is a list of projects through which regions aim to achieve development goals through the resources allocated by the EU fund for economic and social cohesion.

development process. Therefore, the waterfront project, although started with an ambitious agenda and proactive tools, has no longer been part of well-structured and results-oriented policies since these development trajectories were not the expression of common goals between multiple actors, rather they were imposed by a coalition of public bodies that temporarily shared a common political alignment.

Within the port organization, the complex institutional asset of the PAN witnessed a long period of unstable governance. The central government established a 'temporary receivership' that lasted 4 years[125], and the weak leadership of the commissioners – due to the low expectations of a temporary position – did not lead to substantial improvements in the waterfront project ambitions.

Give it a (second) chance. National institutional re-arrangement and local demand trying to light the spark of spatial development

Recently, the new institutional structure in port governance regulation is giving a second chance to the redevelopment of the Neapolitan waterfront. Thus, the analysis of former issues and constraints has become essential to avoid wastefulness of resources. The current Administrative Board of the PSA of Central Tyrrhenian Sea (PSACTS) is the first operational force after more than four years of stasis, and it is trying to recalibrate tasks and goals.

In the port agenda, the waterfront redevelopment is not easily definable as an already missed opportunity since it is embedded in legal procedures, and thus still involved in theoretical forthcoming tasks. The former significant investments[126] are supposed to produce the spatial changes that the main actors of the political area jointly promoted 13 years ago. Moreover, the promised project realization cannot be waived since it has been institutionalized and thus it has to develop in a set of actions. Actually, the lack of a public control and incentive in overcoming the waterfront *impasse,* underlines a general disengaged approach in enduring the comforting balanced system of existing port economies rather than promoting the common interest by challenging the *status quo*.

A significant signal of the port commitment to the local community has been stressed during the public conference about the approval of the last POT on April 2017. The POT 2017-2019 contains the purposes of the PSACTS for the forthcoming three years. Among

125 The temporary receivership (commissariamento) of the PAN started in 2013 with Luciano Dassatti and it ended in November 2016 with the designation of the current President of the Port System Authority of Central Tyrrhenian Sea (Pietro Spirito). During this period, four commissioners have led the Port Authority of Naples, although they did not produce efficient results and/or significant changes.

126 We refer here to the costs incurred to acquire the waterfront project from the other shareholders of Nausicaa (Region, Province, Municipality).

other objectives, the waterfront redevelopment project of 2004 has been regained through three key regeneration projects: the passenger services at the Molo Beverello, the functional and structural upgrading of the building Magazzini Generali, and the construction of the filtering line at Calata Piliero (PSA Central Tyrrhenian Sea, 2017). Furthermore, the shareholding of the central government has been introduced through the request of funds.

In the port governance, the recent port reform allowed the reinforced power of the PSACTS by introducing a Management Committee composed of public actors. Moreover, in the last few years, new agents have been engaged in the transformation process of the port-city interface. Firstly, a collective interest for the leisure activities in the port area is emerging thanks to groups of scholars and professionals[127] (Clemente & Giovene di Girasole, 2015), and to the promotion of open events such as the 'Port Day' promoted by the PSACTS for the first time on the 2nd July 2017. Secondly, a group of private investors is financially interested in the redevelopment of Magazzini Generali, and they promoted a project to convert the old warehouse into a maritime museum. Furthermore, the Bid Committee of this group presented the project in a public conference and it formally asks the PSACTS to run the reclamation process by themselves. As a result, the PSACTS decided to take the lead of the project, and, simultaneously, to improve fruitful collaborations with other important stakeholders such as universities and associations.

The institutional framework is recently changed from a twofold aspect. On the one hand the national port reform turned the port governance structure by empowering the public role of the Management Committee. Indeed, the exclusion of port operators in decision-making arenas avoids conflicts of interest in public-oriented policy and projects. On the other hand, the rediscovery of port soft values (Van Hooydonk, 2007) highlights the urban port as cultural and economic resource that can be enhanced through public events and spatial programs. This inclusive cultural approach affects citizens opinion, and thus is creating an emerging public pressure on the redevelopment of the waterfront.

The port-city interface of Naples witnesses the overlap of conflicting interests in functional and development goals. In this local framework, the emerging contrasts lie in the shaping of relationships between public administrations, and public administrations and private companies. This clue shifts the roots of the unchanging condition from a spatial issue to an

[127] The Neapolitan team of researchers of the CNR – IRISS promotes cultural activities to foster a collaborative relationship between citizens and port authority. In particular, they seek the public access of the Molo San Vincenzo: an historical pier partially abandoned and partially occupied by the Italian Navy. Through design workshops (involving the Departments of Architecture and Psychology of the University of Naples) and the foundation of a cultural-led group of citizens (the 'Friends of Molo San Vincenzo' following the model of the association based in New York), the research team is gathering various stakeholders in order to achieve pragmatic results and give a boost to the waterfront reclamation.

institutional level. In Naples, the very important spatial conflicts between the urban and port functions, that coexist and will coexist in the waterfront, have been solved with a design project, although it is unrealized. The achievement of a generally appreciated project (considered as a good design model in a national overview) surely came from the wide and advanced research background on waterfront urban design studies.

Besides, this case study remarks on a very important question: before to assess the results of a waterfront project, the Italian policy has to focus on innovative decision-making processes that can facilitate the spatial transformation of urban-port areas. Hence, the first step towards this aim is to frame how institutions changed the political and planning arena and how an efficient system of regulation can facilitate operational actions.

In the Neapolitan port-city interface, the spatial development has been hindered by a short-sighted policy influenced by private interests.

5.6 | *Interface II.* Port Related Activities Constellation in a Complex Area: Logistics Platforms in Napoli-Est

The industrial expansion of the eastern area of Naples

The east side of the city of Naples is a complex territory in a waiting condition. The sequence of sectoral enclaves, brownfields, and main networks of overlapping infrastructures, is the result of an uneven growth started during the second half of the XIX century. Before that time, the separation between the urban core and the rural areas was clearly defined by ordered spatial patterns which revealed the different land functions: the urban activities on the west and the agricultural fields on the east. The last eastern dock, the Molo del Carmine, settled the end of the city along the coast and the eastward expanse of rural areas. With subsequent policies, aimed to increase, firstly, the industrial development, and, secondly, the residential sprawl, the spatial configuration of Napoli-Est assumed the shape of an 'assembled urban landscape' (Lucci, 2012) formed by industrial sites, residential neighbourhoods, social housing, urban parks, farmhouses, landfills, greenhouses, and urban amenities.

In the era of urban expansion plans, spread all over Europe, Naples also experienced an urban renovation by involving the reclamation of eastern marshy lands. The special law for the rehabilitation of the city after the cholera outbreak in 1885 and the subsequent 'Rehabilitation and Expansion Plan' (1910-1911) and 'Industrial Plan' (1906) enshrined the eastward industrial development of the city by planning new infrastructural and residential patterns.

Although, the PRG of 1939, designed by Piccinato, attempted to create a coherent expansion of the city by pursuing the urban grid, and preserving green agricultural areas and historical landmarks (such as the grain warehouse designed by Ferdinando Fuga in the XVIII century), the consequences of the First World War led to a hurried, chaotic realization of private interests (Formato, 2012). National special measures to improve the economic growth, such as the financial support of 'Cassa del Mezzogiorno' – a public institution that aimed to fund the industrial development of the southern regions of Italy from 1950 to 1992 –, enhanced the extraordinary proliferation of sectoral activities in defiance of local policies. Furthermore, the aim to guarantee the 'right to housing' guided the construction of suburbs by implementing national policy (the law 167/1962) in the PRG amendment of 1972, and, subsequently, by reacting to the earthquake of 1980 with the 'Extraordinary Plan for Housing' (1981).

Fig. 114 | Logistics enclave in Napoli-Est. *Source: Author's picture.*

The proximity to the port area significantly affected the functional changes of Napoli-Est. In the first half of the XX century, the port growth required room towards the only available area not yet heavily urbanized: the east side. Thus, the port commercial area extended over the new docks also taking advantage of retro-port areas. Therefore, this area became the expansion of port industries according to an overall model of regional port growth (Hoyle, 1996; Vallega, 1997). Refineries, oil storage sites, iron factories, etc. found valid positional features to prosper and fulfil the port demand. The current spatial outcome is a wide

fragmented area, an urban fringe resulting from the urban sprawl. For the characteristics of spatial and functional patterns formed by a succession of rural and urban areas, Napoli-Est is the peri-urban landscape of Naples.

Napoli-Est as the new city: a lost trajectory of urban development

In this framework of extensive urbanization, the industrial crisis transformed Napoli-Est into an urban regeneration opportunity. A significant amount of industrial sites was abandoned and thus the mushrooming of brownfields, and the lack of urban *mixité* (Russo, 2011), shaped the marginal condition of the eastern suburb area of Naples.

Consequently, the chance for the development of the modern city led the municipality to frame future scenarios by identifying circumscribed areas as areas of urban renovation. The PRG amendment of 2004[128] (the current Municipal Plan) established drawing operational plans (PUA[129]) in order to launch the regeneration of abandoned, empty areas, and to improve the quality of life of eastern suburbs. Nowadays, although the approval of some PUAs – that draw urban projects in which residential areas are mixed with urban amenities, green spaces, and retail –, the process of land reclamation, from both environmental and administrative perspectives, is still underway, and thus, the urban transformation is not yet started.

Among these projects, an important urban change planned on the coast would have transformed the shape and the functions of the eastern side of Naples. Also, this regeneration project led to unfruitful policies and unrealized scenarios. In the district of San Giovanni a Teduccio, a post-industrial neighbourhood next to the sea, the municipality of Naples attempted to reclaim the abandoned shore line by promoting the construction of a touristic port: the so called Porto Fiorito (see Formato, 2014). The urban program PIAU[130] was financed by the Ministry of Infrastructure in 2004 and the project was approved by the City Council in 2008. The masterplan (the preliminary draft of the plan) was designed by an innovative public office, the 'interdepartmental project unit', that was in charge of specifically draw the planning actions of the PIAU. Furthermore, the decision-making

[128] In 1994, Vezio De Lucia (Alderman of Urban Planning) and Roberto Giannì (Head of the Urban Planning Technical Department at the Municipality of Naples) designed 'Guidelines' for the development of Naples. This vision was implemented in the PRG amendment of 2001, finally approved by the Region in 2004.

[129] *Piano Urbanistico Attuativo* (PUA) – 'Implementation Urban Plan' is the operational planning instrument through which it is possible to define urban design projects for wide areas of the Municipality. The PRG determines the perimeter (zoning) of these areas and the related system of regulation.

[130] *Programma Innovativo in Ambito Urbano* (PIAU) – 'Innovative Programme in the Urban Field' is a local implementation plan that aims to define regeneration actions and policy guidelines in a strategic planning framework.

process developed through protocol of agreements between key actors: public organizations such as the municipality, the Port Authority and the Italian State Railways (RFI); and other parties interested in the development of that area (private entrepreneurs, the company Porto Fiorito S.p.A., the University of Naples Federico II). Nevertheless, the proximity to the commercial port (the two areas are side by side), and the presence of a SIN (polluted site of national interest), established with the law 426/1998, made this operational process very complex and it has finally been annulled. This decision was published in May 2017 and it highlights the future directions that the PSACTS and the municipality of Naples have determined for the development of this area.

Napoli-Est as new logistics hub: an ongoing strategy of port development

The planning trajectory of the future scenario of Napoli-Est, has long been controversial. The urban aim to revitalize the post-industrial area conflicts with the port's goal to expand the commercial zone. The container storage area of the port is going through a development process that will increase the capacity to handle the growing amount of TEUs. In the areas of Molo Flavio Gioia and Molo Bausan (with Calata Granili and Calata Pollena), the port of Naples settled the functional area of container handling and storage by taking advantage of the vicinity of the port access from the highway (Varco Bausan). The decision to improve the container traffic, and thus the income of the port, led to the aim to spatially expand the port area since the second half of the XX century. Due to the lack of space on the coast, the Administrative Board decided to fill the wet dock Darsena di Levante in order to obtain a wide artificial platform on the sea.

Admittedly, this goal was already identified in the Port Plan of 1958 but it was clearly established only in the amendment of 2012[131] with a process started in 2006. The construction work started in 2011, and it is still ongoing. The project is financially supported by the company Co.Na.Te.Co., a joint between the two main companies working in the port of Naples: COSCO and MSC[132]. Their need to enhance the amount of cargo handling, and thus to gain more room, defined a heavily boost to the structural decision of the PAN.

Despite the slowness of the construction process, once again an economic need is shaping the port and, more properly, the coast. Indeed, the lack of landward space led to framing the reclamation of new land by altering the coast shape as well as the internal spatial structures. In fact, the new container terminal will change internal as well as external to the

[131] We recall that the PRP amendment of 2012 (with a planning study already started in 2000) has been rejected by the Superior Council of Public Works in 2013. Thus, the official current PRP is the plan approved in 1958.
[132] Actually, in June 2016, the Chinese COSCO sold its part (50%) of Co.Na.Te.Co. to MSC, that is now the only one owner of the terminal operator company.

port balances. First, the shift of containers will release the dock of Molo Flavio Gioia, this means that the PSACTS is going to reframe the functional organization and, according to the waterfront project challenges[133], it plans to move the moorings east of the 'Motorways of the Sea' (the coastal shipping service) in the proximity of the highway access. Second, the construction of an efficient train terminal will increase the rail traffic towards the hinterland and the inland terminals in a development strategy properly embedded in the regional framework.

By comparing the port actions with the urban visions, economically-led constructions are overcoming the conflicting post-industrial renaissance of the modern – attractive as well as theoretical – urban expansion. Nowadays, the waiting or blocked local design projects, together with the lack of a unitary vision for the urban regeneration of Napoli-Est, are giving room to the development of a logistics oriented district. The uneven future of the Neapolitan 'retro-port' (Forte, 2016) led to imagining it as a perfect site to plan a distripark (Forte et al., 2009), an area for distribution operations located on the outskirts of the port area. This insight was already in the POT 2005-2007 and in 2006 a feasibility study was commissioned by the Campania Region to develop a former fuel depot into a 40 he distripark. The overall strategy was planned to benefit from the Euro-Mediterranean free-trade area, nevertheless, no operational plans followed this political decision.

The logistics development trend of Napoli-Est is still rooted in port strategies due to the ongoing construction of the 'Terminal di Levante[134]'. Indeed, the aim to define a distripark is also included – but not pragmatically defined – in the recent POT 2017-2019 since it represents a strategy to avoid the 'last mile' issues. Furthermore, this development trajectory is embedded in the economic strategy of the SEZ[135]. The PSACTS aims to promote the SEZ as a tool to develop a regional industrial policy based on port functions. The goal of the SEZ is indeed to encourage foreign investments in geographical areas with a special economic regime, different from the rest of the country. Through special financial policies regarding taxation, trading quotas, customs, and labour regulations, private companies profit from setting up in these areas, and, at the same time, they generate economic benefits in the whole region. The purpose of the PSACTS is a promising ongoing process since the Campania regional government and National Parliament have already approved the establishment of the SEZ (August 2017). The national government will negotiate financial support with the EU Commission and, then it will define a proper, national system of regulation. Moreover, this goal is also supported by the establishment

[133] See paragraph 5.3.
[134] With this term is defined the land reclamation of the wet basin Darsena di Levante in-between the Molo del Progresso and Molo di Levante.
[135] Special Economic Zone (*Zona Economica Speciale* - ZES) –is a geographic area in which a different economic system of regulation is active. In particular, these zones are established to facilitate trade activities through an advantageous financial policy framework.

of the ALI, the tool introduced in the recent port reform, that support the infrastructural integration between hubs of the port network.

The future of this area seems outlined by the new port empowerment rooted in the national port reform, while, on the other hand, in the future urban vision, the municipality seems to have a secondary, if not irrelevant, role.

Fig. 125 | Port logistics area and infrastructural landscape in Naples. *Source: Author's picture.*

Napoli-Est at stake: an area in-between conflicting strategies

Whereas years of strategic attempts and plans – promoted both by the municipality and the PAN – tried to define a spatial configuration of this 'economic space', the existing logistics forces are heavily shaping the peri-urban land use pattern. A 'bogus retro-port' (Capasso, 2014) spread as diffused spots by benefiting from the inactive visions of the Municipal Plan and the uncontrolled peri-urban transformations and functional alterations.

In the spaces in-between infrastructures and fragments of urban activities (such as housing, retail, wholesale and warehouses), logistics activities have found economic benefit in the location value of this area that means they take advantage of the peripheral status of the surrounding environment. The factors leading this spatial and economic process are the proximity of the port, the accessibility of the highway, the low price of plots, the weakness of the system of urban regulation, and the lack of an institutional future development vision. Given the above, logistics areas defined an *unplanned infrastructural landscape* that creates disconnection and fragmentation also affecting cultural and social pattern. In marginal areas, the commercial patterns of multi coloured containers assume a human-scale through the wholesale of Chinese products. In the Gianturco area – the ex-industrial area closed to the main station and the city centre – and in the districts of Barra and San Giovanni a Teduccio, former warehouses are occupied by Chinese trade activities. The growing Chinese community, attracted by the proximity of port commercial activities, is shaping the built environment by investing in retail and secondary services, and by revitalizing, although in an enclave condition, a fringe urban area.

Marginality, available plots, and economic benefits have also led the capital allocation of companies such as the shopping centre Auchan, inaugurated in 2010, and the Whirlpool.

On the other hand, local enterprises reclaim the economic renaissance of this area by asking for an urban renewal. Private entrepreneurs co-operate through forms of association such as the High Tech Pole[136] and the group NaplEst[137] (Celentano et al., 2010; Municipality of Naples & Polo High Tech Napoli Est, 2007). Once again, the vital local forces that characterize the territory have not been well channelled and assimilated by institutional organizations.

The analysis of fragmented activities, unrealized sectoral plans, and organizations of local groups, witness the vulnerability of this territory in which the economic forces prevail on the shape of the peri-urban fabric.

Aside from the logistics conversion of ex-industrial and agricultural sites – where the lack of available space has limited every kind of development – logistics areas found their business in the green buffer-zones of the main infrastructures (the highways A1 and A3,

[136] A cluster of 19 companies in the field of aerospace and technology. They decided to collaborate in order to enhance their business (also through collaborations with public organizations such as the universities) and to improve the local environment in which they operate.

[137] NaplEst is an association of 33 entrepreneurs founded in 2010 and improved in 2015 by involving also the metropolitan area of Naples ('NaplEst and Pompei'). They aim to promote the regeneration of this area according to the Municipal Plan and to include their point of view and needs in the tracing of the future development direction. They identify the following directions: logistics, tertiary sector, services, research, and accommodation services (this last one was mainly related to the touristic area of Pompei). Website: www.naplest.it (Italian).

the trunk road SS162, the railway). Thus, capital agglomeration led the transformation of the landscape by challenging the local system of land use regulation. Several logistics platforms, are arranged in homogeneous zones[138] that the PRG identifies as zones of 'territorial park' and 'agricultural areas'.

The uneven spatial pattern of logistics platforms is the outcome of an informal development led by international trade and global economy. The development model of logistics constellation is not institutionalized, therefore it is not embedded in decision making. The municipality and the PSACTS, are not formally aware of these changes, and urban and port policies collect a series of lacking information about the condition of the territory. This condition defines an alarming decoupling between, on the one hand, territorial policy and planning regulation, and, on the other hand, the local weakness that allows for uneven transformations and resistance to top-down changes.

5.7 | *Interface III.* Regional Infrastructure Challenging the Local: The Inland Terminal of Nola.

The development of the inland hub as economic public measure

The hinterland port-territory interface of the Campania region highlights the relationships between the private economic strategies of groups of entrepreneurs, and the local development policy that channelled public funds in the logistics improvement. The infrastructural development of this hinterland area started in the 1970s according to the national policy aiming to improve the economy in the southern Italian regions.

The inland terminal of Nola is generally called 'Interporto Campano', after the company which gained the regional license (*concessione*) in order to lead the inland terminal activities until 2080. The terminal is only one part of the so called 'Logistics District' made of the inland terminal, the CIS[139], and the Services Centre 'Vulcano Buono[140]'.

The plain of Nola is located northeast of Naples, just at the base of the Apennines. It is a territory mainly characterized by logistics and agricultural activities in which numerous

[138] The Municipal Plan divides the urban area in 'territorial homogeneous zones'. The presence of similar characteristics (function, orography, historical and environmental value) is the zoning principle. For each group of territorial homogeneous zone, the Municipal Plan sets regulations, constraints and development laws.
[139] *Centro Ingrosso Sviluppo* is a regional wholesale and distribution hub.
[140] The *Vulcano Buono* (Good Volcano) is a shopping mall with the shape of a volcano. It is called 'service centre' because it includes several services such as an hotel, a beauty spa and a multiplex.

small towns are strictly dependent on the municipality of Nola. Its geographical position is a valuable characteristic and it has a strategic relevance in the distribution activity; the territory is indeed in-between three areas (Campania, Puglia and Lazio) and connected to a lot of infrastructure such as the two seaports of Naples and Salerno but also Bari, Brindisi and Taranto (in the Puglia region). It is also served by the highways A16 and A30. Furthermore, the plain of Nola is close to two main regional economic cores: the industrial agri-food district of Nocera and the textile district of San Giuseppe Vesuviano. Hence, agricultural and commercial development trajectories are at the base of the economy of this area.

The industrial development was embedded in a national policy that, in this area, established the ASI[141] zone: an area intended to be used as industrial site. In 1986, the PGT identifies in this area the promising location to develop an inland terminal in order to enhance the logistics activity and to improve the regional port system.

In this general aim, one regional inland terminal was planned in the Campania region, however, different private interests, with the support of political forces, led to building two different inland infrastructures, a few kilometres away from each other. The inland terminal of Marcianise-Maddaloni (Interporto Sud Europa S.p.A.) and the inland terminal of Nola (Interporto Campano S.p.A.) are located in two different provinces (Caserta and Naples), and, officially, have long been considered as a single facility with two cores, spatially separated. The governance of the two inland infrastructures, was indeed entrusted to a unique public body, the *Consorzio per l'Intermodalità della Campania* (Consortium for the Intermodality of Campania), in charge to manage European and regional funds allocated to develop the infrastructures.

The two inland terminals have had a different development path since they were driven by different business logics. On the one hand, the leader of the inland terminal of Marcianise-Maddaloni is a developer, and the real estate business was at the core of the development. Therefore, before declaring an interest in the purchase of warehouses, the company that runs the hub of Marcianise-Maddaloni, didn't have the economic motivation to start building any commercial space because logistics was not yet a fruitful business to justify great investment. Thus, the Marcianise-Maddaloni hub was temporarily stuck, while the core of Nola started to improve its spaces. On the other hand, the inland terminal of Nola had a different entrepreneurial logic based on a long term business and, no less importantly, the aim to launch a terminal was a way to improve the already existing activities of the nearby CIS. With the law 413/1998, the logistics hubs of Marcianise-Maddaloni and Nola

[141] Area di Sviluppo Industriale (Area for Industrial Development). It was established by a national policy that aimed to improve the economy of the Italian South regions in the second half of the XX century.

were officially recognized as two different and independent inland terminals, and the Consortium for the Intermodality of Campania was suppressed. Nowadays, the two areas, placed at a distance of 20 kilometres, are competitors.

Besides the national and regional policies, the development of the inland terminal of Nola lies in the spatial lack of the city centre of Naples. In the 1970s, the trade areas in the historical centre had no more room to host an increasing amount of cargo that engorged urban roads and interfered with retail activities. The Neapolitan urban commercial area was placed just behind the port area, in the historical square of Piazza Mercato (Market Square). The square of Piazza Mercato has a deep historical relation with the port area and the development of the *città bassa*. Until the 1980s, the functional relation with the port activities has been predominant with a production chain of consecutive spaces from the sea to the city centre: seaport – port commercial area – market square. This commercial relation also affected the built environment of the square. The success of commercial activities caused a change in the uses of the spaces: commercial use of first and second floors, as well as the ground floor, prevailed on residential uses.

When the regional relevance of this commercial urban hub started to increase, the historical location became a big issue. The low levels of trade services such as parking spaces and accessibility led to a significant decrease in entrepreneurs' incomes so they decided to co-operate to find a solution. In 1977, the merchants of Naples took advantage of the national decision to established the industrial development sites in the Campania region. They founded a company, the CIS S.p.A., to run the commercial area by building a modern and technologically advanced wholesale centre in the plain of Nola. The CIS was opened in 1986.

The accessibility to this area gave an important boost to the CIS. The CIS S.p.A. is the landlord and each owner of warehouses is the shareholder of the company in a percentage related to the number of square metres of the properties. In 1994, the CIS decided to expand the trade area. The building of the inland terminal should have been accomplished by the region, but finally the project, and thus the management, was entrusted to the CIS. In attempting to do this, the shareholders of CIS, together with other actors such as banks, founded the company CISFI S.p.A. and, by involving also other entrepreneurs as construction firms, they launch the 'Interporto Campano S.p.A.'. The inland terminal, different to the CIS commercial area, is owned by the region that leases the area to private companies (*diritto di superficie*).

After the inland terminal, the third plot was planned in 2002 and opened in 2007. The multifunctional Service Center Vulcano Buono was designed as a shopping mall in order to attract also other types of business operating at a local scale such as retail. More recently, the request to further expand the trade area has been rejected by the region. This episode has to be framed in the changed political asset, from the left party to the right party. In

2011, a partial expansion was realized for the repair workshops of NTV, an Italian railway company.

Recurring conflicts between private power and local public administration

Since the foundation of the district, the relationship between the local public organization and the private developers has been tricky. The earthquake of 1980 delayed the building process but it also deeply affected the institutional structure of this area. In order to quickly manage the redevelopment of the region, in a 'state of emergency' the government appointed the president of the region as commissioner with direct decisive power on matters of reconstruction (law 80/84). The building of the logistics district was embedded in this rebuilding process and, since then, the region is in charge of running the territorial aspects of the district. Given this, the local administrative layer, that is the municipality of Nola, is excluded from the governance of the logistics area. This issue has increased the conflict between the infrastructural site and the town.

The range of conflicts between the infrastructure and the surrounding environment has different natures and epilogues. Firstly, the existence of wide rural areas implicated the protest of local farmers that claimed against the land expropriation. Protests occurred also because the inland terminal project was seen as a top-down decision that would have compromised the local rural economy. This event had a change of course when, during the second expansion of the trade area in 1994, the landowners aimed to be included in the expansion zone in order to gain profit from their underutilized rural plots.

Moreover, the bureaucratic fight between the municipality and the inland terminal's companies, has continuously been renewed by several mayors who wanted to challenge the governance disconnection. At the base of the claim, there is the lack of an economic submission of the companies towards the municipality. Therefore, the system of regulation states the payment of taxes in order to finance public facilities such as water, roads, electricity, and so on. Besides, the law 80/84 allows the companies of the district to override the local administrative issues and constraints and thus the conflict between the two systems (town and regional infrastructure) has been solved by protocols of agreement (*protocolli d'intesa*).

These agreements acknowledge a sort of compensation from the logistics district to the town, a compromise between the two parties. In 2001, the region promoted training courses with a view to absorb local employees in the new shopping mall. In this official act of agreement (*atto di convenzione*) between the municipality, the region and the inland terminal, it is written that 'the underway project promoted by the inland terminal must take into account legitimate expectations of the population of the area of Nola and must

contribute to local growth and development in order to draw a framework of synergies for integrated development policy of the territory'[142].

Furthermore, with the protocols agreements of 2003, the companies of the districts financed urban regenerations actions in the historical centre of Nola: the renewal of Slargo Travaglia and the Corso Tommaso Vitale.

For the inland terminal, the relationship with the seaports of Naples and Salerno are not remarkable. According to the Responsible for the External Relations of the CIS, the inland terminal is an independent infrastructure that collaborate with several institutions, and the two seaports are just part of those. Furthermore, the recent port reform does not define an official bond between elements embedded in the 'system' (of the Port System Authorities), it just suggests a cooperation that will be possible with the willpower of the main actors.

A strong physical link between the inland terminal and the seaport of Naples, existed between 2010 and 2012 with the effort to promote a 'regional integrated logistics system'. In 2009, the Region, the Port Authority and the Interporto Campano established a railway service that directly connected the port of Naples with the inland terminal in order to improve the regional trade network. The cooperation was called NA.P.L.E.S. (Naples Port Logistics Extended System) and it received the starting financial support of the Region through the regional agency LOGICA. The initiative was not economically advantageous due to the port railway obsolescence, and it finished with the end of public funds. Nowadays, the two systems could be considered to be completely autonomous entities.

The lack of relationships between the inland terminal and the institutional dimension of the territory of Nola cause recurring episodes of legal wrangling. Indeed, the inland terminal has not been territorialized in local regulations, thus it refers to the regional administrative level by providing a leap in scale not locally accepted. Spatially, the inland terminal is located far from the city centre. Nevertheless, the local dispute of public administration is based on economic issues. Indeed, the amount of employees and the providing of infrastructures such as highway access and beltway, are not considered the right compensatory measure. This claim comes from the lack of former cooperative decision making, and from a divergence that is never been solved in the governance structure.

[142] Translation by the author. Original Italian text ' (…) l'intervento in corso di realizzazione da parte dell'interporto campano deve tener conto delle legittime aspettative delle popolazioni dell'area nolana e contribuire alla crescita e allo sviluppo delle stesse, così delineando un quadro di sinergie per la politica di sviluppo integrato del territorio'.

5.8 | Governing the Interface in Campania. The Question of the Development Bottlenecks

The developing scenario of the Campania region is, actually, a set of interrupted or slow procedures of change. We refer to this phenomenon as a 'development bottleneck' highlighting the cause of this stuck condition: the overlapping and overcrowding of different goals, plans, and interests.

This case study perfectly embodies the gap that has been underlined in the first chapter: the disconnection between transport and urban development planning. By addressing the effects of this disconnection in terms of top-down planning, other elements come into the range of the analysis: spatial phenomena, and social and political pressures that underpin the formal processes and regulations. As the study of the interfaces demonstrates, these 'side effects' deeply affect the geographies and the governance processes in both positive and negative ways: on the one hand they can just enhance or obstruct decision makings, on the other hand they can shape and direct the development goals by providing local responses and ambitions rooted in the cultural and economic context. In this respect, the study of these interactions, provides the stock of 'research materials' produced by the friction between the infrastructural network and the local territory and are part of those 'informal rules' that the institutional approach seeks to involve in the research field[143]. These materials, that become significant for the research outcome, are the actions of external agents such as groups of citizens and entrepreneurs, the disputes between public administrations and companies and the instruments through which these disputes are solved (official covenants or informal agreements), the tricky cooperation between public administration layers, the spatial changes deriving from informal activities. These research materials, that emerged in the explanatory study, are considered in the framework of planning regulations in order to broaden the research perspective and to rescale the research results in the national context.

The analysis of the three interfaces brings out the variables embedded in the topic of port system-territory interplay. Therefore, the issues and agents that are involved in the relationship between the inland terminal of Nola and the town of Nola, and the port of Naples with the municipality of Naples, are sensitively different, although this overview underlines common aspects of conflicts and cooperation at the interfaces.

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[143] As stated in the paragraph 1.5, within the institutional approach, the institutions consist both of formal rules (regulation, laws, planning tools, etc.) and informal rules (traditions, customs, social involvement) that shape the actions of individuals, organizations, groups or other actors. «*Theories of institutionalism are based on the sociological argument that such actors cannot be assumed to act freely based on their given or acquired abilities (Giddens, 1984). Rather, their behavior can be understood as being influenced by the 'rules of the game' in a particular time and place*» (Daamen & Vries, 2013: 5).

In conclusion, we discuss the impacts of the port-territory development strategies in Campania by considering the entailing occurrences in governance structure and processes, the compensatory measures activated to overcome the conflicts, and the spatial models drawn to foster the coexistence of infrastructural needs and urban aims.

Governance structure and processes

The case study sheds light on multiple governance issues. Official coalitions between public administrations, former hybrid (private and public) Port Committee (l.84/94), and associations of private companies and citizens, set a wide framework of actors that contribute to define decisions and spatial outcomes (or absence of spatial outcomes).

It is worth underlining that the Neapolitan case of the waterfront redevelopment, contrary to other municipally-led experiences, was promoted by the Port Authority as a driver to improve port economies. Equally, the PAN, later run by a different leader (shift in presidency), renounced the redevelopment aims by passively accepting the opposing forces of private port actors (concessionaires). Since port companies were officially embedded in the decision-making body (the Port Committee), their institutional power was surely a strong opponent of public interest.

The Nausicaa S.p.A., the holding that should have led the waterfront redevelopment, was drawn as a governance tool to facilitate the decision-making with transparency. This tool worked until it was based on a political balance between region, municipality and the PAN's President, and until the planning procedures did not conflict with private port interests. Hence, in conflicting circumstances, the coalition of public administrations collapsed since the weakness of the internal bond between public bodies was not able to launch processes of negotiation.

This governance gap has been bridged by the Port Reform (l. 169/2016) through the new decision-making body in which only representatives of public administrations are included. Private stakeholders are, instead, part of the 'sea partnership board' with advisory functions. Thus, the new governance structure should open to engage an alternative process of cooperation between actors, even though the recent PSACTS' announcements do not embrace this change. Rather, in contrast, it aims to enforce its development aim (the waterfront project) by claiming the support of public administrations and citizens. Actually, citizens are notable absentees in this process. The general account that a new waterfront will provide social and economic benefit sets the citizenry as a mere viewer and final user of the planning chain. Once again, the design of the governance process for fostering port-city relations is not solid, and allows room for further improvements.

The institutional conflicts change in the area of Napoli Est. Stakeholders (associations of entrepreneurs) operating in the urban areas, share with the municipality the development

vision based on the regeneration of former industrial sites and underdeveloped infrastructures. In this arena, the PSACTS conflict with the development trajectory of the municipality, and sets its expansion and commercial activities above the public goals. In this conceptual conflict, the transformations are led by the economic power that obviously lies in the port area. More recently, unofficial debates between the municipality and the PSACTS are setting new cooperative actions (such as the abandonment of the Porto Fiorito project).

The PSACTS is instead completely absent in the hinterland dynamics. The main arena is formed by private companies, the municipality of Nola and the region. In particular, the first two actors are embedded in legal conflicts moved by political parties in charge of governing the town. The relationship between the port of Naples and the Interporto Campano, are limited to infrastructural connections and will probably be enhanced with the settling of the port reform. Until now, self-referential and competitive strategies emerged through the interviews between the two infrastructures.

Compensatory measures

The case study highlights a weakness in the establishment of compensatory measures. In this gap, the research objective finds room for further development. In fact, in the Neapolitan case, the resolution of conflict does not come to an end. The common attitude is to postpone the operational phase of planning programmes, and indeed these projects are drawn up without a proper decision-making process. As the cases all the three interfaces demonstrate, even if the spatial projects are planned within the system of regulation and according to formal procedures, they fail when the promoter does not include, in the decision-making dimension, all the agents that will be part of the transformation. When the excluded actors are the main economic (private) driver of the port machine, the suspension of the official masterplan is very close to sabotage.

In the peri-urban area, the compensatory strategy is currently just a proposal and a trajectory in the development provided by the PSACTS. In fact, the overall aim is to consider Napoli Est as an integrated logistics area that means the logistics vocation is not just a set of operational platforms but that it also provides education services and other amenities related to the port economy. Given this, the development strategy proposed by the PSACTS has similarities with the strategy applied in Stadshavens (Rotterdam) where the coexistence between port (or, more in general, the technology sector) and urban activities is grounded in a new kind of development very far from the leisure activities promoted in the last century as drivers of innovative waterfronts. Nevertheless, this measure, that could become a fruitful ‘visionary’ programme, is intended to be a general aim if not channelled in a proper process of negotiation.

The narrowness of common Italian compensatory measures is evident in the resolution of conflicts between Interporto Campano and the municipality of Nola. In this case, the spatial transformation (the building of the inland terminal) that occurred in a different era and in a particular historical phase (the reconstruction after the earthquake), change the framework of the port-territory hinterland interplay. However, the issue of the deterritorialization of the infrastructure – caused by a special law – has intensified the conflicts with the local territory. Hence, with the more recent realization of the shopping mall, the town tried to gain 'compensation' through formal agreements. The funding of very confined urban renewal projects (paving and providing of furniture for public spaces) is certainly a debatable victory for the local territory.

Spatial model of coexistence

In the interface I and II, where the public administrations are in charge of launching transformations, the spatial outcome of unsolved conflict is a lack of changes. Nevertheless, planning projects and tools have been introduced in the institutional decision-making process, and unrealized urban design projects are the materials on which the public debate is focused. What we claim is that procedures of negotiation are not merely political issue, actually, in urban planning, the way through which they become operational by shaping the built environment is at the heart of successful strategies.

In Campania region, some questions emerge in this matter. The spatial model of the waterfront redevelopment project is the result of a negotiation of spaces. The coexistence of functions – port and urban activities – is designed as a filtering space where the relationships are indeed filtered and not integrated without distinction. Besides the shape of the project, the design concept considers all the complexities that the waterfront redevelopment research has depicted in the last decades. The relevance acquired by the port-city interface – in the meaning of space of co-operation, where conflicts should be solved (Hoyle, 1989)– led to assessment, in urban and port regeneration plans, of the needs of both the infrastructure and the territory as guidelines of a fruitful development, where economic benefits and quality of space are the final purposes. Where these guidelines do not have the same relevance in the political sphere, and therefore in the planning approach, the spatial outcome – the urban design – loses its meaning as a driver of change.

In Napoli Est, urban planning efforts gave rise to fragmented development visions. Through the planning instrument of PUA the circumscribed urban design projects have not been able to give a comprehensive scenario of the future of this area. Moreover, the urban fragmentation has been enhanced by excluding port related activities and port needs from development strategies. Constellations of logistics zones amidst rural, residential and productive areas witness the lack of spatial model of coexistence.

The shopping mall, built as the ‘service center’ of the inland terminal, is an economically-led spatial model of coexistence. In this regard, it is the porous element of the hard hinterland interface. In fact, firstly, it provides the physical area in which people and local economies can flow. Secondly, it is the area of development in which the (partial) compensatory measures took place in form of labor opportunities, and therefore, where the interface has been shaped by a public-private negotiation. Nevertheless, the existing conflicts between the company that run the inland terminal and the municipality of Nola highlights that this kind of ‘public space’ is not a successful negotiate outcome.

Chapter 6.

Conclusions

Planning Towards Logistics and Urban Development Scenarios

6.1 | Concluding Remarks

The research study addressed the environment in which port and logistics issues are embedded. From a planning perspective, it tried to observe the changes of port structures by highlighting the processes that occurred in their development. The role of networked infrastructures as contemporary forms of urbanization in territorial transformations is derived from the theoretical framework and it is tested in case-studies related to port geographies. The dissertation provides knowledge about the ways in which port-related infrastructure and territorial systems interact through institutional processes and spatial impacts. The aim of the dissertation is to understand constraints and benefits that port infrastructures can provide to urbanized territories in terms of spatial development (logistics and urban development scenarios). Framing case studies in a sociological institutionalist approach and through a relational conception of spatiality, the dissertation demonstrates that port infrastructure can not be considered only as a transport matter. Hence, port geographies, from the coast to the hinterland, are spatially and institutionally embedded in spatial plans and urban governance. The final goal of the dissertation is to provide insights to Italian planning policy in order to foster strategic measures oriented to the design of infrastructural landscapes with a high social value for the surrounding territory.

The background of the dissertation is the port dimension shaped by processes of containerization, market liberalization and global integration of supply chains. These phenomena, led by economic principles and goals, deeply affect the port governance and spaces. With the improvement of transport networks, the port activity of cargo handling and distribution went beyond the coastal area and moved closer to consumer-markets. In this way, the port spatial structure changed once again. The first industrial layout, in the late IXX century, witnessed the movement of industries from primary source sites to the coast in order to take advantage of the increased capacity of maritime transport. Later on, new advances in technology inverted the spatial development route. Nowadays, the port related economic pattern is strictly led by cargo traffic, and *ports and logistics* have become an indissoluble match in transport planning policy. The development of this sectorial matter had resonance in the spatial dimension since port and logistics areas started to have different shapes, locations, and specialized functions. The port regionalization has theoretically explained the phenomenon of logistics spreading in hinterland areas. As a result of this scientific interest, new infrastructural geographies, pull factors of location pattern and their institutional structure, have been addressed by geographers and transport engineers. What we observe is the lack of a territorial development vision aiming to include the logistics dimension of port related areas in an integrated urban scenario.

Provision of infrastructure, economic growth, and social benefits such as jobs provision are fundamental development factors that are not always engaged in urban design plans. In the logistics field, this divergence is due to the spatial behaviors of firms that are influenced by global trends and local facilities, without considering negative externalities such as spatial enclaves and territorial fragmentation. Besides, local frictions highlight the downsides of the economic growth linked to trade activity: environmental issues, land use claims, lowering of landscape quality, political quarrels between public and private spheres. The dissertation lies in the point of contact between the physical infrastructures of global artificial flows and the local scale of social behaviors, urban spaces, and delicate governance equilibria. Furthermore, these conflicts are gaining increasingly relevance in an era where haulage is becoming the backbone of our daily needs, also due to global market and e-commerce. In this regard, port and logistics policies are adapting their trajectories to fulfil competitive goals by greasing the collaboration between nodes and implementing the fluidity of the network. On the other hand, urban and regional planning endures this process collaterally. The provision of infrastructure surely underlays the urban and regional development, nevertheless, 'hard' infrastructure (such as port related commercial areas) collide with planning visions of urban regeneration or, more generally, with the overall aim to improve the quality of space and life. Given this perspective, the assumption is that urban planning undergoes logistics issues, and that only by taking into account the multiscalar port system structure, it is possible to seek integration between port related areas and territorial development. This framework of existing knowledge and inspiring future challenges led us to the formulation of the following research questions:

How does the economy-led port system shape the planning processes? How could the interplay between the port network and the territory become a driving force for Italian urban and regional planning strategies?

Answers to the research questions are provided in paragraphs 6.2 and 6.3.

By embracing different research dimensions, the dissertation broadens the range of urban studies in the field of port infrastructure. From an interdisciplinary overview, and through the processing of multiple notions, we defined the main directions of the research study, and narrowed the research path by focusing on specific types of infrastructural geographies. In this way, the *economy-led port system* has been pragmatically defined by categories: the seaport, the retro-port, the inland terminals.

The conceptual framework made by three interfaces (urban, peri-urban, and hinterland interface) set specific areas of investigation in order to address the multiscalar aspects embedded in the first research question. Therefore, assuming the port as a system of nodes with different characteristics, the simplistic generalization of planning processes has been avoided by highlighting the multitude of factors that emerge in different *port geography-territorial type* relationships. Indeed, we claimed that the three categories of the port system are embedded in different territorial morphologies that are, respectively, urban, peri-urban,

and hinterland areas. For historical and geographical reasons, the three categories of infrastructure match the three types of territory giving rise to different interfaces that circumscribe the research topic. Through this operation, the research shows that, besides the differences in the levels of relationships between the three types of port infrastructure-territory, all these interactions occur and shape the governance structures and the spatial patterns. Thus, by taking into account these two dimensions, planning policies can address the theme of port-territory interplay in its multiscalar issues. More specifically: governance processes, compensatory measures, and spatial model of coexistence are the operational planning fields in which the dissertation framed the development of the port system at the three interfaces. By claiming deficiencies and opportunities in these planning dimensions, the dissertation paved the trajectory of a new planning approach for the development of the port system.

The understanding of how the port system (in its geographical and institutional implications) intervenes in planning processes, has been pursued through the case study analysis. The focus on existing interplay between port structures and territories has showed the variables of elements (actors, development trajectories, planning tools, and spatial schemes) that occur in modifying the governance structures, in defining compensatory measures, and in developing spatial models of coexistence of two different port systems. By studying the Dutch case through Rotterdam and Venlo, and the Italian case through Naples and Nola, the dissertation aimed to offer a range of considerations that cover multiple scale of the overall research topic (the port-territory interplay). Indeed, the study of two deeply different cases in terms of political environment, planning innovations and local issues, is overcome by the analytical lens of the three interfaces outlining comparable frameworks. Nevertheless, the main differences between the Netherlands and Italy – that have to be taken into account to better understand the different results of the two case studies – are the national port structure (mainport policy versus the polarization of several medium and small ports along the coast) and the physical structure of logistics network[144].

The choice to analyze the Dutch case allowed the research to address the port-territory question into a context that is nationally, regionally and locally focused on the port development because of its economic relevance. This insight can not be properly considered as the reference to a *best practice* since also the Dutch interfaces reveal limits

[144] The physical structure of port related logistics network is also related to the definition of the 'port region': a topic broadly addressed by geographers and economists (see paragraph 2.2) and placed at the heart of the recent debate about port regionalization (see paragraph 2.4). In this framework, the morphology and geographical characteristics of the two countries affect relevance, location and size of port related activities. Therefore, in the Netherlands, the presence of riverports and waterways, and the lower extension of the coast (compared to Italy) define, among other things, a long distance between the port and the inland terminals (such as Venlo), and an easier infrastructural connection between nodes of the network due to the flat land. Accordingly, these factors have not been part of the analysis on port areas that, therefore, focused only on the interfaces as places of local interactions between infrastructures and territory.

and issues that contribute to the research knowledge. Nevertheless, the cases of Rotterdam and Venlo show proactive ways to tackle port issues in a flexible governance structure that is more likely to be shaped by global forces. The advanced scenarios developed in the Dutch context offer important remarks to the development trajectory of Italian policy.

The Dutch case frames an advanced stage in dealing with logistics and urban regeneration. In the European context, it reveals a model of planning processes based on national policies oriented towards measures of negotiation and high goals settled in key sectors such as port activities and environmental quality. In this regard, even though on the one hand the Rotterdam and Venlo cases reveal successful planning strategies, on the other hand, they witness the growing power of private capitals that changes the institutional structure by also affecting and orienting the urban development. By examining the Dutch case in its threefold aspects (Stadshavens, industrial and logistics port areas from the North Sea to the city of Rotterdam, and the inland terminal of Venlo), we tested the research hypothesis that '*operational geographies of port networks are part of the urbanized territory and play a role in the planning system across multiple scales. Scattered port related logistics areas […] contribute to build local places particularly in their governance and morphological forms'*. In fact, in the analyzed areas, the industrial and logistics dimension has emerged as driver of changes. In the contemporary age and in this strategy-oriented planning context, changes are not circumscribed within transport rules, rather they are bargained in order to produce benefits also in the field of urban space quality. The environmental, social, and cultural spheres are, indeed, strategically shown by institutional organizations as pillars of changes, albeit they are always considered as a sideways output of economic goals. This tension between port infrastructure goals and social benefits in terms of space lies in the planning process based on cooperation among actors. The Dutch case reveals that the gap between infrastructural and urban and regional development planning can be bridged through strategies underpinning the design phase. In this way, the level of interaction between the infrastructure and the territory – the porosity of the interface – are planned as outcome and solver of conflicts.

The process of negotiation – with the definition of common strategies, and sometimes the drawing up of 'plans vision' – is the great deficiency of the Italian planning system. Although protocols of agreement (established between organizations) settle common goals, they are not the results of inclusive decision-making procedures. Actually, they work as a formal permit between organizations that try to stimulate actions. Since these actions are not the results of comprehensive future-oriented strategic visions, the tool of the protocol of agreement rarely leads to pragmatic outcomes. As a consequence, the case of Campania region highlights the divergence between planning aims and pragmatic transformations. Thus, the disruption in the planning chain is in-between the ability to promote visions and the planning of operational action to realize those scenarios. In this case, the effect is a stuck situation where unsolved conflicts create a waiting condition suspended between the planning dimension and territorial constraints, mainly due to the overlapping of economic

interest in land use. On the other hand, where transport projects landed on the local scale in a top-down planning approach, conflicts generate legal disputes and marginal areas. Once again, the gap occurs in the lack of synergy to be built in preliminary phases of the design process.

6.2 | Port System Shaping Planning Issues. Main Highlights of the Research Study

How does the economy-led port system shape the planning processes?

In an overall meaning, this question tries to shed light on the influence of globalization on local planning. Actually, it aims to underline that the globalization phenomenon is not completely an external force. Rather, it comes from the expansion of the *local* dimension that operates on broad and multiscalar fields in order to improve its development chances. The dissertation shows that the demand for globalization derives from the local, and more than other sectors, the port system is the driver of this sought-after leap in scale. In this argument, the concept of *local* can vary. The economic relevance of port activities has influence on national GDP, thus national and regional policy may develop strategic visions allocating resources in municipalities that lack the ability to deal with multiscalar infrastructure.

Furthermore, as it is claimed throughout the dissertation, the planning processes of port territories refer to transport planning as well as regional and urban land use and strategic planning. In order to foster a comprehensive vision, they both are elements of our analysis, and thus of our outcomes. Alongside this, economy-led port systems shape planning processes according to path dependent institutional structures and policies. Thus, despite overall considerations, these relationships are very much embedded in local political environments.

First, the economy-led port system steers national strategy and policy directions towards the development of measures encouraging the improvement and the flexibility of port governance. This means that governments have knowledge of the port system as a unique network under single management and intervene in this field through the design of specific policy focused on economic goals. The governance structure is therefore shaped to exert public authority that is keen to foster allocation of capital by decision-making procedures and high performances. Defined by the main governance structure and the government's role in the main port system framework, the decision-making dimension shifts to the level of the single elements of the port system where actor arenas are built. The relevance the port system has in national planning level determines its role in the regional and urban development. *Mainports* policies allow the improvement of the network to take the lead in

development plans and contribute to build a social institutional indulgence in prioritizing transport goals instead of working for a comprehensive development.

Second, the shift from the development of port-related single elements to the networking concept leads to frame port system issues in a spatial scale that goes beyond local boundaries. Thus, the new operational coalitions between different nodes of the infrastructural network outline a sectorial planning level placed in-between different spatial scales. These scales go from the local (municipality) to the supra-regional level according to the geographical location (and spatial distance) of infrastructural hubs embedded in the system. In the negotiation of transport and urban development goals, the overlapping of planning dimensions embracing different territories imply complex challenges addressed in stakeholder arenas by different actors.

Third, the result of flexible governance structures includes maritime and logistics private companies in decision-making procedures and in the drawing of spatial outcomes. This involvement is not an unexpected breakthrough although the entanglement of private actors in development issues emerges as a study parameter to analyze individual local cases since it differs in each interface. As the research study demonstrates, the set of strategies and the political power of infrastructural and urban governance structures determine the level of influence of private capital that can lead the development process (the proactive case of inland terminal in Venlo and the hindering behavior of private companies in the port of Naples) or can become collaborative shareholders in regeneration plans (the case of Stadshavens and the unheard support of private associations in the Neapolitan retro-port).

Fourth, the territorialization of networked port systems is provided by multiple institutional and spatial tools that are the dimensions in which planning improvements can be addressed. Tools such as formal agreements, public meetings, development companies, strategic plans, and masterplans intervene in planning procedures to finalize the spatial development of infrastructure. Formal agreements are political forms of collaboration embedded in the strict system of law and regulations. These tools are fruitless if not resulted from a convergence of interests and based on mutual commitment. Through public meetings, development trajectories are negotiated between groups of actors giving the opportunity to discuss alternatives and increase the chance to realize transformations with win-win solutions. Development companies are usually introduced by public bodies in order to facilitate the interaction between actors and to easily lead the phases of the transformation. The strategic approach of developing planning visions at different scales, rather than imposing rules and programs, reveals the strategic plans as result-oriented tools, opened to flexible and inclusive planning phases. Spatial design issues are thus transferred to masterplans. The drawing up of design projects is supposed to be the final step of negotiation process in which public and private interests take shape in the spatial dimension by complying predetermined, negotiated, parameters.

6.3 | Port-Territory System (PTS) as Planning Device for a Comprehensive Development Approach

How could the interplay between the port network and the territory become a driving force for Italian urban and regional planning strategies?

Identifying the Italian gap between development goals and realized projects, it is evident that the main obstacle in the Italian port planning lies in unsolved conflicts in the sphere of governance structures and institutional patterns (made of formal and informal rules). Hence, the framework of port-territory policy should enhance a cooperation between infrastructural and territorial development actors through efficient, result-oriented decision-making processes. Furthermore, following the Dutch lesson, we claim the role of spatial strategies and urban design in the development of port-related infrastructures as drivers of inclusive changes of operational landscapes. Indeed, as the Dutch case demonstrated in the three interfaces, the long reclaiming of coastal industrial sites and the blueprint in a productive hinterland area can draw spaces of coexistence where local citizens' needs and regional economic aims are balanced, although development trajectories are primarily led by economic and infrastructural goals. Through the design of quality infrastructural spaces, logistics enclaves can define a spatial trade-off with the surrounding territory, and can develop comprehensive scenarios embedded in urban regeneration plans by avoiding unfruitful conflicts.

The role of urban design project and the outline of shared decision-making processes can not represent useful insights if not considered as interconnected and twofold aspect of port-territory development. Therefore, the development of an urban design project in logistics areas, albeit providing local amenities and human-scale places, does not assure the resolution of conflicts with local institutions (administrations and/or active groups of citizens). As shown by the case of Nola, the well-known Vulcano Buono – the shopping-mall designed by the famous architect Renzo Piano –, did not stem the disputes with the municipality since that project, together with the whole area of Interporto Campano, was also not agreed with local public authorities and other social actors[145].

[145] Subsequent compensatory measures – defined through acts of agreement – revealed just a temporary resolution set with the local governing party of that time. According to the interviews to representatives of both the inland terminal and the municipality, the disconnection in the governance procedures between the municipality and the inland terminal (run by a private company thanks to a concession issued by the region) will led, also in the future, to legal disputes regarding the payment of urban construction taxes. Thus, acts of agreement were just temporary truces in legal wrangling, and a partial 'win' of the local governing party.

These considerations led the research study to propose, in Italian planning policy, the embedding of a planning device that can drive urban and regional development strategies according to infrastructural transformations. First of all, the dissertation demonstrated the strong correlation between port-territory conflicts and unchanging scenarios or spatial enclaves in multiple interfaces. This assumption led to draw a more integrated planning approach between transport, and regional and urban development strategies. Since the national policy framework leads the port development and its governance structure, we claim that a planning tool embracing a systemic approach should be introduced in the level of the national port reform. The PSNPL faces the concept of port structure as networked logistical system developed on a regional scale, thus it considers, in the port planning field, the regional spatial dimension in which logistics flows operate. The inclusion of multifaceted relationships between port infrastructures and territory, as one of the items of the planning instrument, would be a step forward in bridging the gap between transport and urban regeneration planning. As for the tool of ALIs – the integrated logistics areas based on formal agreement and embedded in implementing measures of the PSNPL– the port planning should foster the building of Port-Territory Systems (PTSs) supported by national regulations. This tool enhances a comprehensive approach to port geographies and surrounding territories, and frames a cooperative system supported by national measures. As planning device, the PTS promotes the cooperation between multiscalar actors of port-territory interfaces to integrate logistics and urban development trajectories. From a planning perspective oriented to produce development scenarios and spatial projects, the PTS could be supported by European and national programs, and be clearly defined in the national system of regulations. The PTS, formally a cooperative arena between port and territory (public and private) actors, works on a multiscalar level and its main object is the drawing up of strategic visions based on compensatory measures between the building – or the transformation – of logistics areas and the design of spatial projects that can improve the quality of life. Decision-making procedures are the starting process of the development of PTS strategic plan. It is worth underlining that these inclusive decision-making process should not be institutionally trivialized into the recipe of a standard ‘package deal’. Thus, the system of regulation has to define stepwise meetings leading to flexible and place-based strategies.

As a new institution, the lead of the PTS in port-territory interfaces could also be run by a development corporation – in which all the administrative levels and the authorities of the infrastructures are involved – that run the cooperation from the public meetings until the building of spatial transformation (model of spatial coexistence). The establishment of PTS would boost a fruitful dialogue in contentious relationships between public and private bodies that would lead to a spatial improvement instead of legal wrangling. Furthermore, the tool of PTS is based on the criterion of sustainability for which the negative impact of ‘hard’ infrastructure in the territory would be socially and environmentally counterbalanced with new amenities and public spaces.

The theoretical improvement that would lead to the activation of PTSs lies in the assumption that infrastructural landscapes are part of our daily life and should gain a social value in the enhancement of the quality of life. This means giving equal status to environmental and social compensation based on the EU principle that a loss of natural areas must be counterbalanced by new reserves when a new infrastructure is built. Similarly, the masterplan of logistics infrastructures should comply with the territory in which they are embedded, rather than represent the tangible product of the globalization, and a local issue.

With the PTS, the dissertation aims to introduce a topic focused on the planning of spatial and institutional relationships between port geographies and territories. Environmental, economic, social and political conflicts are not only based on the port-city interface, but, in different ways, in all the supra-regional areas influenced by the port network. The research study claims the need to include this assumption in planning policies through appropriate planning tools that can also promote the economy-led infrastructural improvement as a high-value spatial development.

6.4 | Limits of the Dissertation and Future Research Directions

The research study has attempted to provide knowledge about the relationships between port-related areas and surrounding territories in terms of governance and relational space. The choice to address this study through the institutional and spatial approach has clearly excluded some issues that are certainly part of the subject.

In example, environmental issues provide very important arguments to port research. Actually, the environmental approach is having a growing relevance in political arenas. It leads new port regulations and transformation, and can broadly affect decision-making process as it has roughly emerged throughout the dissertation.

Similarly, political and social issues have coyly come to light in the analysis of the interfaces. Despite the fact they can be addressed as specific perspectives, in this dissertation only their impact on governance structures and spatial patterns has been taken into account. Indeed, political and social aspects deeply shape the institutional and relational development of port-territory interfaces. Nevertheless, a detailed theoretical framework and specific case study focuses on these topics have been avoided to do not overdo research aims and remarks.

In this regard, it is worth underlining a theme that marginally emerged in the dissertation but can amply validate some of the assumptions identified in this research path. The above

mentioned concept of path dependence, can explain the current case study peculiarities by addressing decisions and events of the past. In particular, this historical perspective justifies some limits in current governance apparatus. The dissertation has referred to this concept to highlight the differences between the Netherlands and Italy, but more specific studies to support this statement have not been included in this study.

Furthermore, the dissertation stresses the concepts of urban design projects and decision-making processes. Here, these topics are limited to case study examples and theoretical claims. In order to properly use these concepts, we assume the knowledge of former research studies combined with the limited experience provided by case studies. Given this, we aim to underline that urban design projects of port and logistics areas, and inclusive decision-making processes are broad research fields focused on multiple methodologies and techniques that could trace the future directions of this research.

Since the main goal of the dissertation has been to demonstrate that scattered port geographies affect the whole territory by influencing urban questions (such as governance and space) also beyond the coast, the research methodologies are based on the analysis of three different port-territory areas within two port systems in two different countries. This methodology allows for understanding of the similarities and differences in different port-territory interfaces within an individual (regional or supra-regional) port system. Furthermore, the two cases allow framing of the topic in an advanced and flexible planning scenario (the Dutch case) and in a more complex environment (the Italian case) in order to understand, in both circumstances, limits and values.

The study of one Italian case and one European experience could represent a limit of this research. First of all, the Neapolitan case is only one of the fifteen Italian port system (or also one of the former twenty-four port authorities). Thus, a comparable study with other Italian cases could be an improvement of this research. Similarly, other European port-territories, generally considered as virtuous examples, could highlight insights and limits about port governance and spatial development.
These cases should be considered as 'testers' of the applied research methodology through the conceptual paradigm of port-territory interfaces. A comparative research project based on more case studies would surely add outcomes and development trajectories to this research.

Also the infrastructural areas addressed in the research provide a partial overview of port geographies. Among others, offshore terminals and transshipment ports are similarly the product of port economies and they affect governance and spatial issues more related to the maritime dimension. Since they have weaker relations with the urbanized territory, they are not focused in this research study, although they are part of the port system and of infrastructural landscapes.

Alongside this, we underline that the addressed territories also reveal local peculiarities that should be taken into account in the expanding of research outcomes. Indeed, other countries with deep differences in geography and system of regulations, such as the USA, have a different spatial pattern of port-related geographies, and thus a different working system and different port-territory relationships. Hence, this dissertation could be considered limited to the European context given the existing, but comparable, differences among European countries.

The limits and the outcomes of this dissertation pave the research path towards future research directions. In particular, future research studies can start from the insight of the proposed PTS planning tool, and the main limits of this dissertation related to the amount of case studies, and to the lack of specific focus on inclusive decision-making processes and spatial strategies.

Assuming the multiscalar perspective of port-territory interplay, the research method to investigate a case study through three interfaces demonstrates that the logistics question has urban entailments at different scales, and it allows the researchers to frame the set of elements that have to be included in the definition of planning strategies in port territories. Compensatory measures are framed as necessary forms of negotiation to be included in formal planning rules, since they can lead the urban and regional regeneration programs besides the infrastructural development. The decision-making arena is the framework where decision makers should transfer the notions offered by the research study. What the dissertation claims is that these arenas have to be led by more inclusive and pragmatic decision-making processes.

In example, some preliminary insights to this topic could be found in the experience of Livorno (Italy) and in the Mutual Gain Approach (MGA) recently applied in the building of Maasvlakte II and in the new Adaptive Masterplan for Europoort (Rotterdam). In particular, the '*dibattito in porto*'[146] (debate in port) of the Tuscan port city, based on a regional law, settled, in 2016, a public debate to promote a discussion between citizens and port about two main projects planned in the PRP: the construction of an artificial platform (container terminal) and the renewal project for the maritime station embedded in the historical city center. Even though this case could be classified as an 'experiment' (the results of the debate do not have mandatory value), it is the first Italian experience in which citizens are formally involved in port-territory planning decisions[147]through the building of a public arena.

[146] As the regulation about the regional participatory process requires (R.L. 49/2013), all the steps of the public debate (meetings, workshops, fieldworks and documents) are reported on the IT platform: www.dibattitoinporto.it.

[147]Admittedly, this explorative test reveals many constraints. For example, citizens have not been involved in the design process of the two projects. Hence, the debate has worked as a tool to involve citizens in spatial changes but not in the shaping of these transformations.

On the other hand, the MGA is based on a theory of negotiation, and focuses the creation of value for all parties by inventing options that meet different interests and by using objective criteria to fairly divide gains (see Susskind & Landry, 1991). The negotiation is, indeed, the prerequisite for successful compensatory measures, and it aims to provide 'win-win' strategies by claiming the central role of compromises. Therefore, findings from several fields converge to suggest that negotiation can be seen as a process challenge, in which more information about interests and more creative options can increase the benefits to all parties, creating better results and relationships. The multitude of options underlying the MGA process are based on numerous case studies (the variables that should be assessed in the process). In this regard, the methodological insights provided by this dissertation could become one of the preliminary steps of this process in the field of urban planning.

The dissertation concludes that the methodology to address a comprehensive framework of port-territory interplay lies in the analysis of local interactions between global infrastructures and territorial patterns. Spatial and institutional approaches led to identifying gaps and development trajectories in governance processes and decision-making arenas underpinning spatial plans. The research outcomes propose a future research agenda, in the planning policies dimension, relating to the role of urban design and negotiation procedures as a result of the challenges identified in this dissertation.

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List of Acronym

ASI	Area di Sviluppo Industriale
ALI	Aree Logistiche Integrate
CIS	Centro Ingrosso Sviluppo
DCGV	Development Company Greenport Venlo (DCGV
DIPE	Dipartimento per la Programmazione e il Coordinamento della Politica
DCMR	Environmental Protection Agency Rijnmond
EU	European Union
GDP	Gross Domestic Product
K4	Klavertje 4
KvZ	Kop van Zuid
LNG	Liquefied Natural Gas
M4H	Merwe-Vierhavens
MRDH	Metropolitan Region of Rotterdam-The Hague
MIT	Ministry of Infrastructure and Transports
MGA	Mutual Gain Approach
CPB	Netherlands Bureau for Economic Policy Analysis
NGO	Non Governmental Organization
PGT	Piano Generale dei Trasporti
POT	Piano Operativo Triennale
PRG	Piano Regolatore Generale
PRP	Piano Regolatore Portuale
PSNPL	Piano Strategico Nazionale della Portualità e della Logistica
PTCP	Piano Territoriale di Coordinamento Provinciale
PTR	Piano Territoriale Regionale
PUA	Piano Urbanistico Attuativo
PUC	Piano Urbanistico Comunale
PAN	Port Authority of Naples
PoR	Port Authority of Rotterdam
PD	Port Directorate
PSA	Port System Authority
PSACTS	Port System Authority of Central Tyrrhenian Sea
PTS	Port Territory System
PIAU	Programma Innovativo in Ambito Urbano
POR-FESR	Programma Operativo Regionale-Fondo Europeo Sviluppo Regionale
PMR	Project Mainport Development Rotterdam
RDM	Research, Design, and Manufacturing (ex Rotterdamsche Droogdok
RFI	Rete Ferroviaria Italiana
RCDC	Rotterdam City Ports Development Corporation
OBR	Rotterdam Development Corporation
PMR	Rotterdam Mainport Development Project
RMS	Sistema Metropolitano Regionale
SIN	Sito di Interesse Nazionale
SEZ	Special Economic Zone
TEN-T	Trans-European Networks Transport

List of figures

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