Adaptive Strategies for Dunkirk

A Delft's Perspective

De Martino, P.; Hein, C.M.; Hanna, J.M.K.

Publication date
2024

Document Version
Final published version

Published in
PORTUSplus

PORTUSplus | the Journal of RETE
N. 17 – 2024 | Year XIV
Issue *"Research Themes"*
RETE Publisher, Venice | ISSN: 2039-6422

ABSTRACT

Port cities are at the forefront of the contemporary climate crisis, facing multi-risk conditions from shifting water systems, migration, technological and energy transition. Addressing these challenges require collaborative stakeholder efforts to develop multi-scalar, long-term visions, focusing on interconnected port, city, and territory spaces for sustainable development. Historical continuities and maritime heritage mapping are foundational for adaptive strategies.
This article explores design education's potential to reimagine industrial and modern locations that fostered segregation and rigid infrastructure. Waterfront redevelopment, energy transitions, and new shipping technologies are ending these areas' lifecycle in many western port cities. Neglected spaces like obsolete infrastructure offer opportunities for innovative ideas. New maritime mindsets and collaborative public spaces are needed for meaningful stakeholder and citizen engagement.
Insights from the Adaptive Strategies master's elective at Delft University of Technology demonstrate education's role in sparking discussions and developing adaptive strategies. The course, initiated after the 2021 Port of Beirut explosion, used Dunkirk's industrial heritage as a case study. This article argues that education can activate research, generate innovative planning approaches, and create integrated port-city-territory scenarios while questioning architecture's role and limitations.

Adaptive Strategies for Dunkirk: A Delft's Perspective

Paolo DE MARTINO [1], Carola HEIN [2], John HANNA [3]

[1] Delft University of Technology, Delft, The Netherlands. University IUAV of Venice, Venice, Italy.
[2] Delft University of Technology, Leiden University, Erasmus University. UNESCO Chair Water, Ports and Historic Cities. Delft, The Netherlands.
[3] Delft University of Technology. Delft, The Netherlands.

KEYWORDS
Port cities; Public space, Infrastructure, Maritime mindsets, Scenarios

Adaptive Strategies for Dunkirk: A Delft's Perspective

Introduction: Why do Port Cities Matter?

Port cities are not only the interface between land and sea but also the nexus where many of the world's pressing challenges and multi-risk conditions converge (Hein, 2011; 2019; 2023; Hoyle, 1983). The need for immediate interventions is critical as extreme weather events become more frequent and severe. All over Europe and beyond extreme weather impacts coastal landscapes leading to significant catastrophic events affecting the life of people living there. These occurrences necessitate a complete rethinking of planning paradigms. The damage caused by these events is exacerbated by human activities, particularly the construction of increasingly impermeable areas, as noted by various scholars (Fabian, 2012). Moreover, port cities are integral to the global economy, with oceans supporting 90% of global trade volume. This economic significance underscores the importance of understanding the global impacts on local spaces, architecture, heritage, culture, coastal landscapes, and public spaces. The interdependence of local and global dynamics in port cities requires a nuanced approach to planning and development.

Energy transition is another critical aspect for port cities. They host vast infrastructures and architectures that must be rethought in the short, medium, and long term. The legacy of oil, for instance, poses significant questions about future transitions and the inevitable industrial remnants that will need redesigning. This transition will impact cities and landscapes, presenting both challenges and opportunities for innovative urban planning.
Migration is also a significant factor in port cities, particularly around the Mediterranean, which has become a backdrop for stories of conflict and displacement. UN-Habitat identifies migration as one of the main trends of this century, with more than 258 million people living outside their countries of origin. Sixty percent of these migrants are drawn to cities, seeking safety, shelter, housing, and better livelihood opportunities.

The challenges arising from their unique position can also become opportunities for new territorial projects, the identification of new themes, and the revision of traditional urban planning concepts and practices. By addressing these multifaceted challenges, port cities can lead the way in creating sustainable, resilient, and adaptable urban environments.

Mapping the traces as well as the porosities between land and water over time is a fundamental step towards establishing adaptive strategies that assure future sustainable development for port cities spaces (Hein, 2023). During the spring semester of the academic year 2023/24, we proposed a 10-week design elective on re-designing the French northern port-city of Dunkirk. The course was set to train students to undertake multi-disciplinary research to identify and address the challenges and opportunities that port cities face for developing just and livable communities. Students were guided to learn how to synthesize relevant information about the past and present knowledge that can inform the elaboration of design interventions to steer future and resilient developments. The course focused on innovative methods for exploring, mapping and designing, allowing hidden knowledge to be uncovered. As an industrial and energy hub, Dunkirk provides a compelling case for study – a laboratory for experimenting with new forms of coexistence between port and city and for re-imagining the adaptive and resilient port city of the future.

Educational Approach

The history of Dunkirk has long been intertwined with the complexities of the oil industry, a narrative that continues to shape the present due to the phenomena of path dependencies (Sorensen, 2015; 2018; 2022). From the impacts of steel production since the 1920s to the advent of containerization in the 1970s with the expansion of the port westward has further compounded the situation. As Dunkirk's port expands westward, the city's landscape undergoes significant changes, exacerbated by the decline of the oil industry. Today, Dunkirk hosts oil landscapes in decline (Hein & De Martino, 2018). The oil crisis in 1973 and subsequent economic factors led to the closure of several refineries, including the BP refinery (1980s) and later on the Total refinery which since 2016 has been used as a training facility. Despite the processes of decommissioning, the urban landscape remains strongly marked by this industrial past and still bears its signs.

The departure of major refineries, such as BP in 1980s and Total since 2006, has left the western area underutilized, accentuating the gap between the expanding port and the city center. This transition, coupled with outdated infrastructure like railways, highlights the need for adaptive strategies to repurpose existing assets and foster holistic urban development. What remains is an **archipelago of elements** and **disconnected pieces** (fragments of industry, oil pipelines, railway tracks), at the same time representing an opportunity to reconnect port and city from a more socio-cultural and environmental perspective.

The "Adaptive Strategies for Port Cities" course at Delft University of Technology takes history as the starting point for exploring adaptive scenarios for port cities. It looks at history as a layered palimpsest of actions and narratives, the reinterpretation of which becomes necessary for building new images of the future. The course, therefore, starting from history, asks students to identify challenges and urgencies that might facilitate the identification of adaptive strategies at various scales. The aim of the course is to develop short- and long-term proposals to enable the adaptation of port cities to changing environmental and socio-cultural conditions. Departing from this position, the pedagogical approach incorporates a temporal framework that invites both students and teachers to explore time and temporality across multiple scales. It emphasizes the mutability and ephemerality of design proposals, their sensitivity to socio-political and socio-economic dynamics, and rejects the presumption of permanence and timelessness in architecture and planning (Hein & Hanna, 2023). The course, which began in 2021 with the reconstruction of the Port of Beirut as its first case study, has continuously evolved to incorporate new pedagogical approaches based on the insights gained from every round. It applies a mixed-methods approach relevant to understand, (re)conceptualize and (re)design port cities and a larger sustainable coastal landscape. Such methods include, but are not limited to:

1. **Mental mapping, stakeholder mapping, historical exploration of long-term developments and flows** and **close readings of material and immaterial representations of port-city culture** to capture and understand the very nature and specific characteristics of port cities;
2. **Field work and ethnographic observation** together with socio-cultural and geopolitical analyses to grasp the contextual particularities and the existing challenges, and reinterpret them as opportunities;
3. **Using scenario thinking** to design adaptive strategies.

The course is organized in three blocks: the first block "**EXPLORING**" is about the past. In this block students are asked to reflect upon questions like: what are port cities? How have they historically evolved? How are they perceived, conceived and represented in the minds of those who plan them, govern them and those who live in and visit them? What are the power and limitations of maps and cartographic representations and what is its capacity in capturing different narratives?

Figure 1. Galia Thomson, Jilles Rodenburg, Kiki Pool, Martina Marinova, Winnie van de Sande.

The second block "**[RE]INTERPRETING**" dives more into the current conditions of port cities and the role ports claim to play today in the creation of more sustainable ecosystems, while paying tribute to global and local connections and cultural heritage. Here students are encouraged to challenge the current nature and role of ports in our life answering to questions such as: what new tools and explorative processes can be used to re-conceptualize port cities? And how can we reconceptualize sea/land interactions and at which scale?

Figure 2. Proposal by Peter Pápai, Androniki Charalambous, Vihaan Shah, Marcel Janssens, Diana Marin.

The last block "**[RE]DESIGNING**" is about employing urban and architectural design to build new narratives for the future which are able to re-define space, society, culture, economy and energy for sea/land relationship. In this block students work on scenarios to build adaptive interventions of the port city of the future. They are invited to pose multiple "what if" questions in order to investigate how port cities can adapt to different futures.

Depending on the block, students are required to deliver either individual or group assignments, which range from reading reflections and mental maps to stakeholder mapping, historical and system analyses, or design proposals. A group presentation is scheduled at the end of each block, where feedback is provided by teachers, guests crits, and peer student groups.

Working within these three blocks entails engaging with a framework of diverse pedagogies. The elective's learning objectives include developing specific sets of skills related to re-conceptualization and re-imagination of present and future settings and the representation of these settings as a tool for critical visual communication. Most importantly, however, the course focuses on producing knowledge through problem-solving by tackling complex design tasks that mediate between the different needs of stakeholder groups and address pressing environmental and economic challenges.

Figure 3. Proposal by Peter Pápai, Androniki Charalambous, Vihaan Shah, Marcel Janssens, Diana Marin.

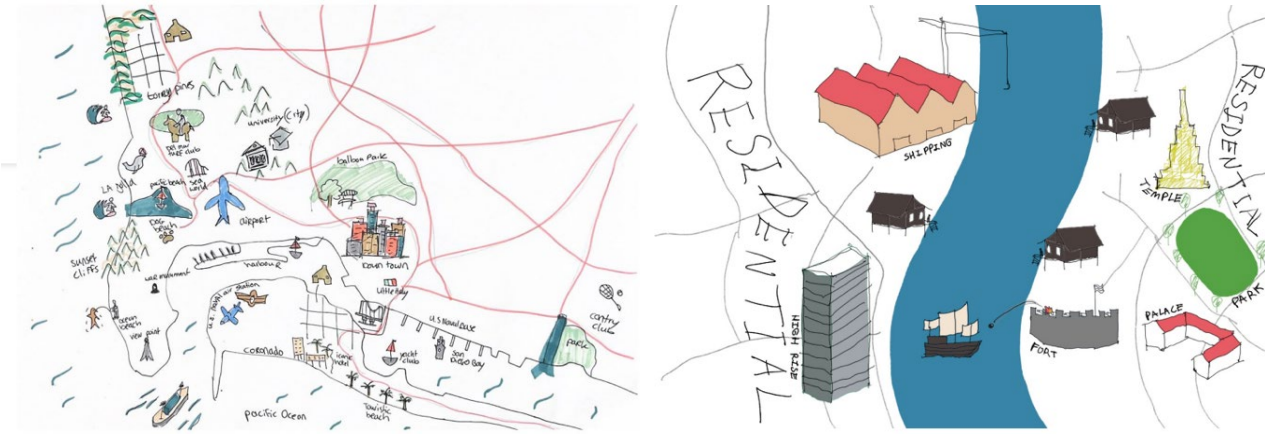
Through a number of individual and group design exercises that speak to multiple scales and design questions, the course provides students with the necessary training to rethink and redesign port cities, emphasizing the importance of sustainability and resilience.

In this round, Dunkirk was seen to serve as a valuable case study, illustrating how historical influences of industrialization and current socio-economic pressures demand innovative planning and development solutions to respond to emerging urgencies. By connecting these analytical methods to the urgent need for a more adaptive planning, the course trains students to design interventions that possess both local significance and global relevance. Design education plays a key role as it provides the students with the tools and the protected environment to test with solutions for confronting real-world challenges. It facilitates visual articulation of solutions and

creates a safe space for questioning and interrogating these solutions through crits and reviews. Applying a port-city analytical lens throughout the course is regarded to foster a new generation of planners capable of navigating the intricate relationships between land and water, energy infrastructure, migration, and cultural heritage.

EXPLORING

The block on **exploring** is composed of two parts. The first is more exploratory, where we asked the students about their conceptions of what makes a port city means and how would they design it. The second part involves a more detailed historical analysis of our case-study – the port city of Dunkirk, and the elements that make it. In the exploratory part, the focus is more on memory, representations, and personal sensations and relationships that the students might have with a port city. It also helps them to question and understand how some elements may appear to be more known, how other elements may appear less common in the mindsets of the students, and most importantly, which new elements can emerge from the description. This exercise, which resulted in a **mind map**, draws on the research conducted by Kevin Lynch on perceptual maps (Lynch, 1960). A mental map is a cognitive representation of space that individuals create in their minds based on their perception, knowledge, and experiences of a particular area or environment. It encompasses spatial relationships, landmarks, routes, and other relevant features, allowing individuals to navigate and make sense of their surroundings. In the context of port cities, mental maps play a crucial role in how people perceive and interact with the urban environment (Harteveld, 2021; De Martino et al., 2023). Residents, workers, tourists, and other stakeholders develop mental maps that reflect their understanding of the city's layout, including the location of port facilities, waterfront areas, transportation networks, and key landmarks. For example, residents may have mental maps that highlight the proximity of their neighborhoods to port terminals, while tourists may focus on waterfront attractions and recreational areas. Workers in the maritime industry may have detailed mental maps of port infrastructure, shipping routes, and logistical hubs Mental maps can also influence decision-making processes, urban planning initiatives, and community engagement efforts in port cities. Understanding the mental maps of different stakeholders can help city planners and policymakers develop more effective strategies for enhancing connectivity, promoting economic development, and improving livability in port areas.



Figures 4 - 5. Mental map by Kiki Pool (left) and Thanaphat Sangkharom (right).

The mental maps produced by students show how different scales come together. They do not only show an alteration of the scales of the objects, but also the relation between the different parts and sites. Some elements of the landscape are recognized, such as houses, monuments, green elements, infrastructural elements, water and its inhabitants (boats, but also marine ecosystems). They show different approaches to rendering the urban structure. In some cases, the details of the structure of the port docks can be recognized. The inconsistent and variable scale of

the different elements and the distortion and inaccuracy of the relationships, demonstrate how every participant of the exercise prioritizes certain elements over others based on subjective importance or personal experience with the elements of the representation. Overall, examining a mental map allows us to gain insight into how individuals perceive, interpret, and interact with their environment. It provides valuable information about spatial cognition, human behavior, and the subjective experience of space.

Figure 6. Mental map by Dana Spătaru.

REINTERPRETING HISTORY

The second part of the **exploring** block deals with understanding and reinterpreting history through mapping. Understanding the history of Dunkirk and its development over the previous years is crucial for comprehending the complex interplay of factors that have shaped the different landscapes over time. Mapping this history involves more than just documenting chronological events; it entails understanding historical patterns, and temporal rhythms, underlying structures, as well as key moments and critical junctures that have influenced the development of specific urban patterns, transboundary flows within larger networks, and the evolution of the port. By examining significant moments in history, such as the introduction of key infrastructure projects, economic shifts, technological advancements, environmental consciousness, or the rise of social movements, students gain insights into why Dunkirk has changed in the way we see it today. These critical junctures serve as turning points that have influenced the trajectory of urban development and shaped the built environment. Mapping history allows students to trace the evolution of urban patterns, from the layout of streets and neighborhoods to the location of port facilities and industrial zones. In this exercise, it helped the students understand how the city has

adapted to changing economic, social, and environmental dynamics, and how it responded to challenges such as population growth, globalization, and technological innovation. Moreover, mapping history helps to analyze the flows of people, goods, and information within cities and between the port city and its larger region.

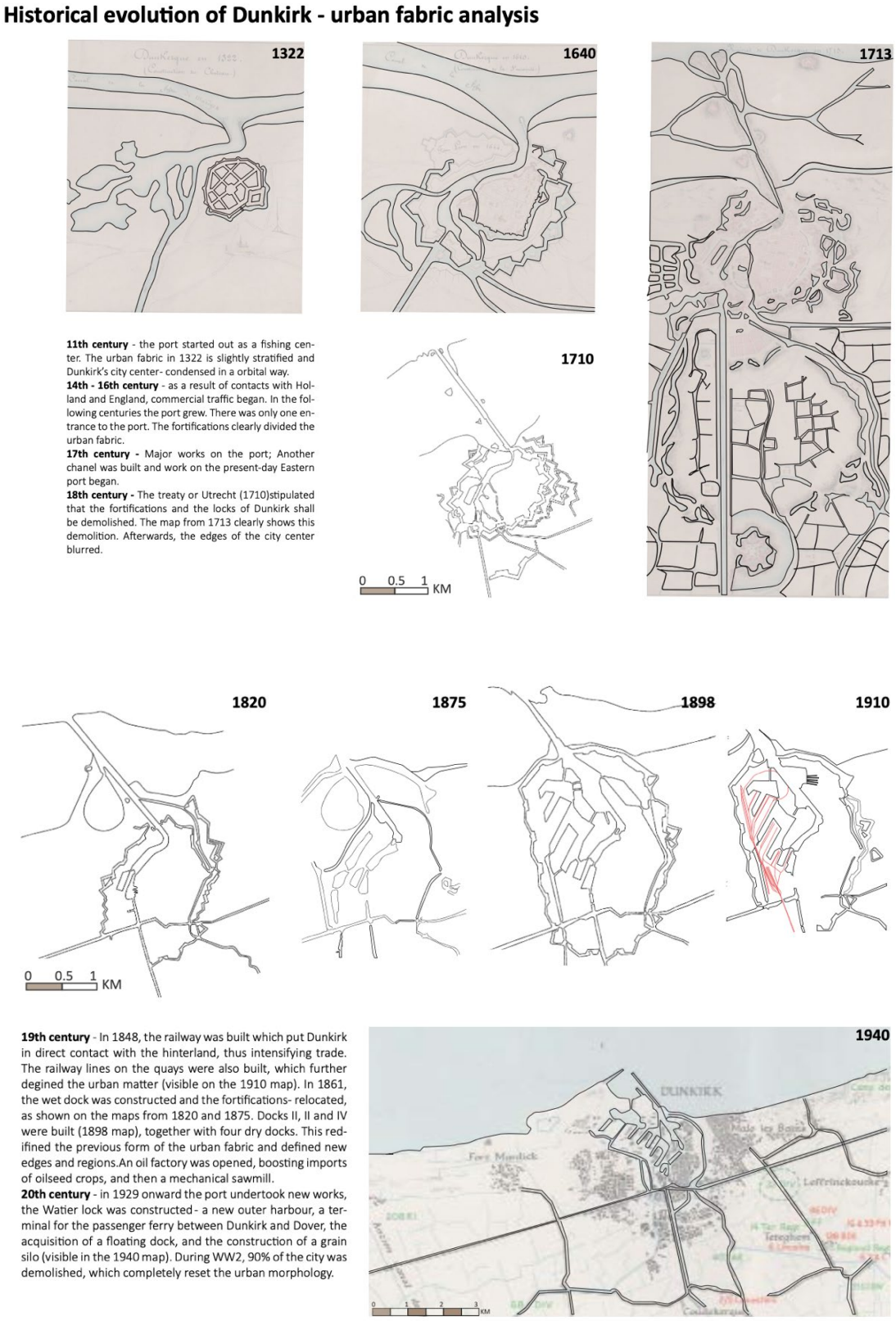


Figure 7. Maps by Martina Marinova, Galia Tomsen, Jille Rodenburg, Winnie van de Sande, Kiki Pool.

In one of the historical studies developed by the students for this block, the intricate systems that define the port city of Dunkirk were meticulously analyzed to illustrate a spatial understanding of its current state and future potential. This analysis encompassed mobility and infrastructure systems, spatial patterns, environmental conditions, and governance structures.

Mobility and Infrastructure System: Dunkirk's mobility and infrastructure systems are complex networks that integrate both land and water transport. The study involved detailed mapping of these systems, highlighting the interplay between public and private transport. Highways, railways, shipping lanes, and ferry routes were all charted, revealing how these various modes of transport intersect and function together. Discussions in class emphasized the importance of recognizing the porous nature of land-sea borders, prompting reflecting on underwater infrastructures such as internet cables, water pipes, and oil pipelines. Additionally, the analysis considered cultural flows and connections, underscoring the dynamic nature of mobility in Dunkirk.

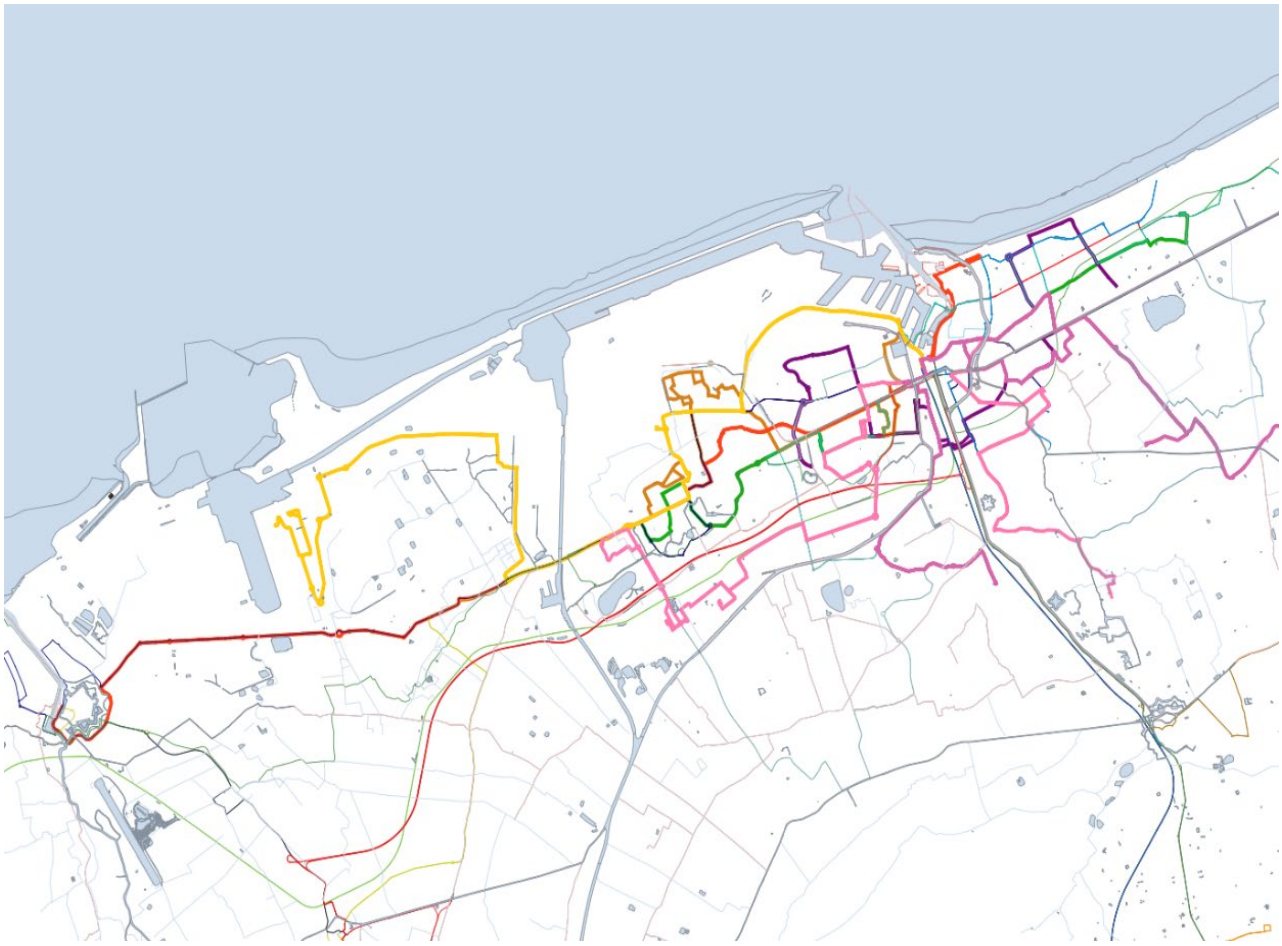
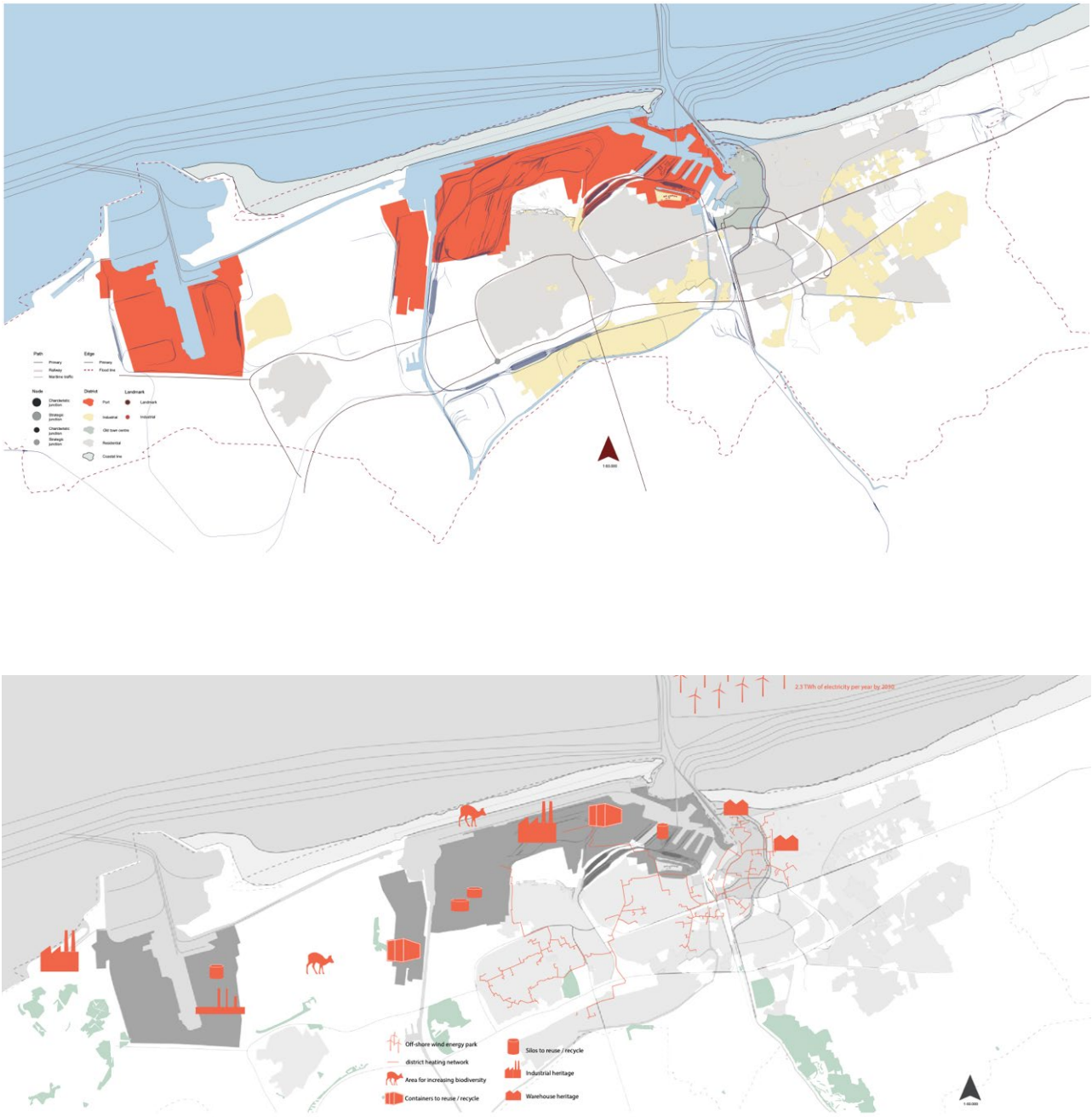


Figure 8. Map by Martina Marinova, Galia Tomsen, Jille Rodenburg, Winnie van de Sande, Kiki Pool.

Spatial System: The spatial analysis focused on Dunkirk's urban morphology, spatial patterns, and density. Historical maps were used to trace the city's evolution, providing insight into how urban forms and functions have changed over time. This included identifying areas of high density and those classified as porosities—underutilized or abandoned spaces. Field observations were conducted to understand current land use and the interaction between people and their environment. This analysis revealed gaps in public space provision, highlighting opportunities for enhancing community interaction through improved spatial design.



Figures 9-10. Maps by Martina Marinova, Galia Tomsen, Jille Rodenburg, Winnie van de Sande, Kiki Pool.

Environmental System: The environmental system analysis addressed Dunkirk's ecological values, open spaces, and biodiversity. Detailed observations were made of transitional edges between urban and natural environments, identifying ecological assets and deficits. The study highlighted the need for green corridors and wildlife sanctuaries, suggesting potential areas for ecological enhancement. Cross-sectional analyses illustrated the movement of air and water pollutants, as well as the migration patterns of birds and wildlife. This comprehensive environmental assessment aimed to propose solutions for improving the ecological health and resilience of Dunkirk.

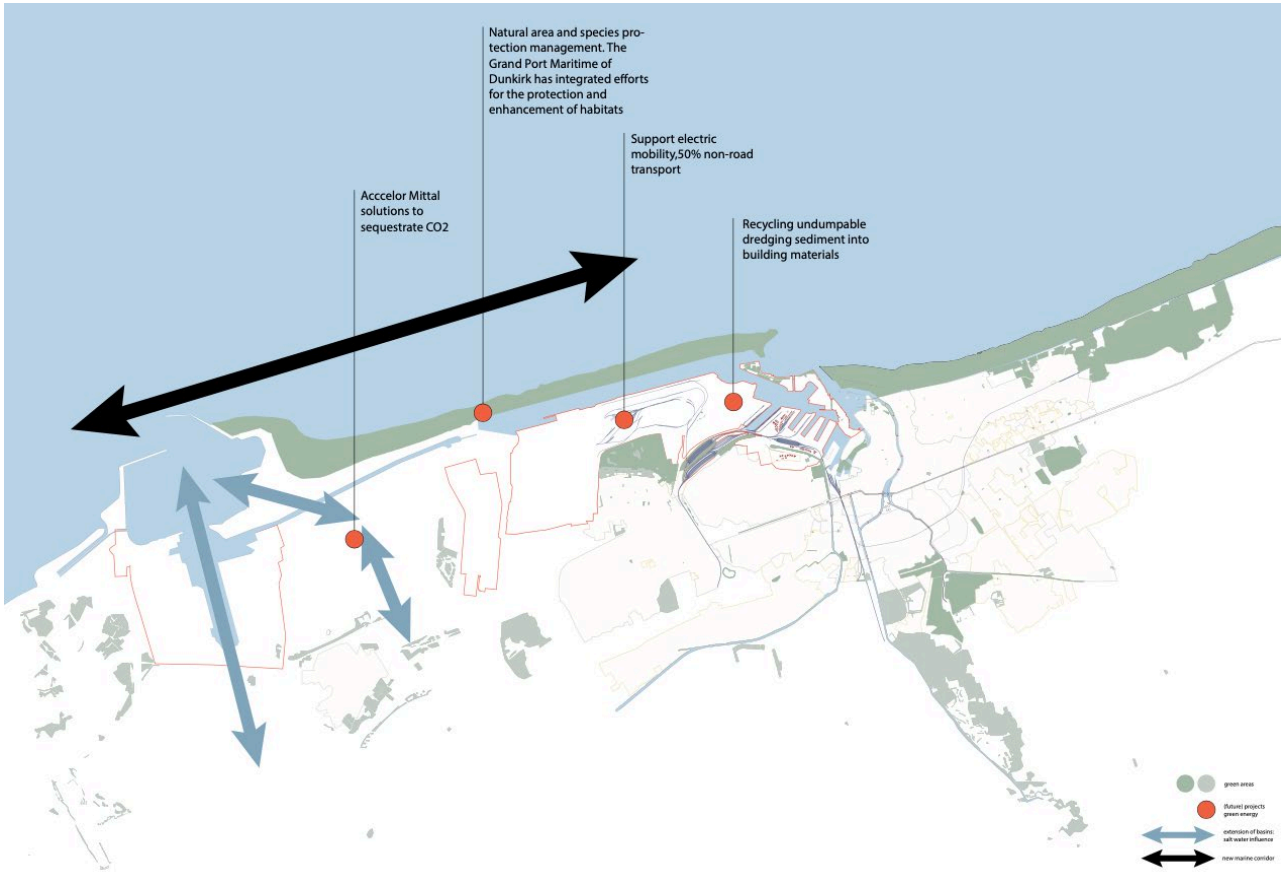


Figure 11. Map by Martina Marinova, Galia Tomsen, Jille Rodenburg, Winnie van de Sande, Kiki Pool.

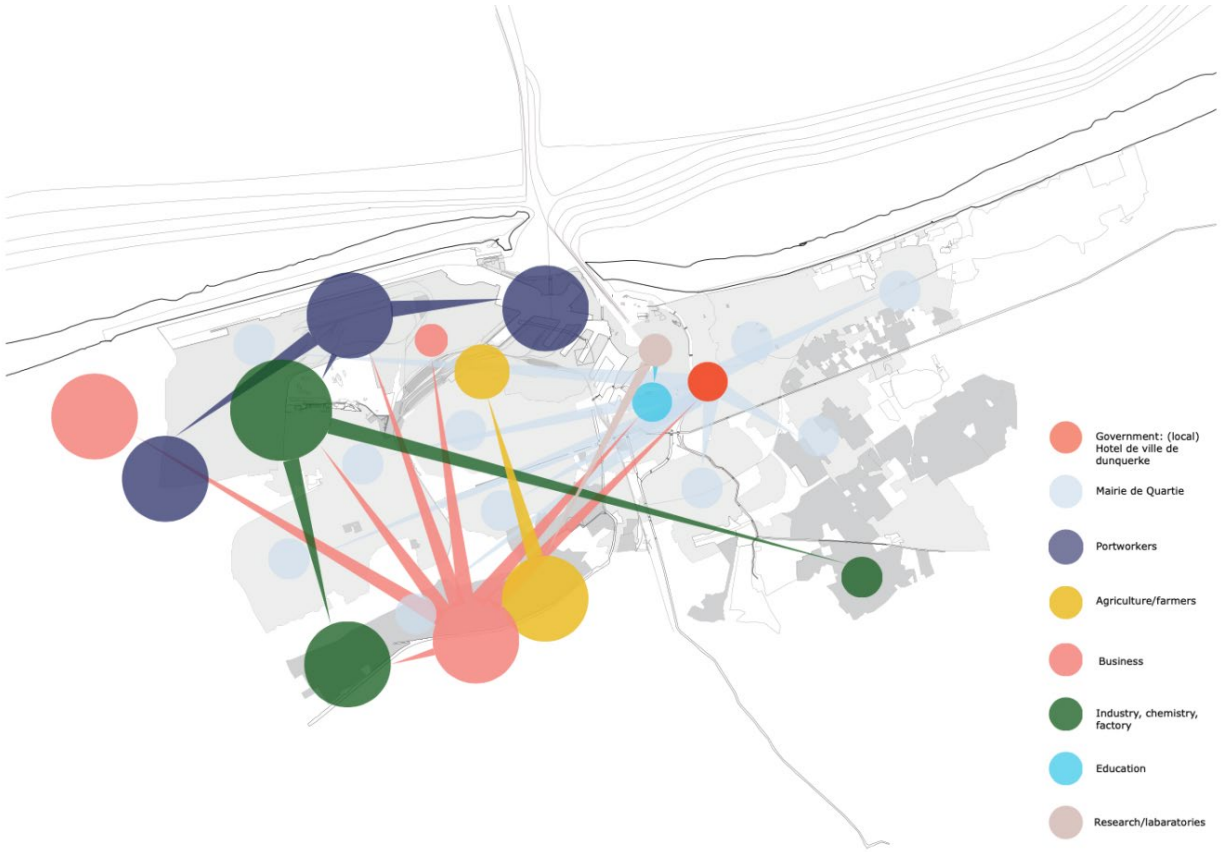


Figure 12. Map by Martina Marinova, Galia Tomsen, Jille Rodenburg, Winnie van de Sande, Kiki Pool.

Governance System: The governance analysis mapped out the existing structures, plans, and initiatives that influence Dunkirk today. Key actors and stakeholders were identified, including local authorities, grassroots organizations, heritage groups, international corporations, and EU planning programs. The study examined the degree of centralization versus decentralization in governance, exploring how various entities interact and make spatial claims. Understanding these governance dynamics was crucial for identifying opportunities for more effective and inclusive urban management.

Figures 13 - 14. Port of Dunkirk (Photos: John Hanna).

During a three-day fieldtrip, the students were introduced to the site at a closer proximity. The trip was designed to include both guided tours and free explorations. Tours and urban walks were conducted through the residential neighborhoods, the port territory and the coastal landscape. The students were asked to observe –at a close distance– the convergence of multiple systems and infrastructure and the spaces that emerge at the intersection of these systems. The observation, documentation, and categorization of such spaces through the embodied exercise of walking, climbing, descending, and interacting with the built environment has proven effective in guiding the student working groups to identify potential areas for action and intervention and to start thinking about how they can use their personal fascinations as a starting point for re-conceptualizing the port-city relationships for an adaptable future.

Figure 15. Port of Dunkirk (Photo: John Hanna).

Following the fieldwork in Dunkerque, students moved into the re-conceptualization block of the course. This involved drafting an initial framework for the adaptive strategy of the port city of Dunkerque, synthesizing the observations, analyses, and insights into a coherent plan. The students' concepts started by re-conceptualizing the interaction spaces within the port city, telling the story of Dunkirk as a comprehensive spatial and socio-cultural entity. In practical terms, this meant shifting the focus from the city or the port as separate entities, to the port city as a unified whole. Their approach included both longitudinal readings of the coastal landscape and transect/section views, illustrating the connections from land to water and from water to land.

A crucial element, which appeared common in many of the students' conceptualizations, was the reflection of a thorough understanding of the past and key historical changes in the analysis and 'story-telling' of the present and its opertionalization for an adaptable future. While the general theme of energy transition was central for many, their analyses were not only limited to that. The proposals in many parts considered a re-imagination of the mediation of other flows such as people, infrastructure, governance, through manipulating the interplay between the port, its surroundings, and the city's palimpsest, as well as the waterfront and ways of living along the coast. Their fields of action included sea spaces, and various maritime functions.

The proposals reflected on whether it is possible to identify new or speculative spaces of intervention that integrates the nature of both the city and the port. What would this space look like? What kind of infrastructure would extend into the sea? Which programs can be proposed for the sea-space, and the different waterscapes within Dunkirk? This exercise also led to formulating ideas about the future configuration of stakeholders and actors who will manage and operate the port. They highlighted the required shifts from the existing set-ups for achieving a people- and environment-conscious transition. These shifts entailed a redefinition of the roles of the different stakeholders, and a recommendation of the possible means for coordinating their efforts to ensure the success of the adaptive strategy.

The students considered the scales involved in their concept proposal, recognizing that the history of Dunkerque was about multiple scales and dynamics. Additionally, they reflected on the different temporalities at play. Their design proposals elaborated on how the understanding of time differs in water compared to land? They showed an awareness of the multiplicity of times we talk about when we engage with the port and the city considering that each of them operates at different speed, and that changes might occur with varying rhythms. The 'adaptive' nature of the proposal requires a phasing logic. In the course brief, students are made aware that their proposals should detail an action plan: what can happen, how, and when? What steps are necessary to achieve the desired outcomes? How can the proposal remain adaptive to accommodate different developments?

The students employed scenario-thinking to explore different possible futures. They posed different "what if" questions to simulate different scenarios based on plausible or even non-plausible spatial, economic, environmental, and social developments. For example, 'if' the port and local authorities proceed with their plans for localizing new industries at the port district, what are the implications of such decisions on the demand on housing spaces under such conditions? In a similar manner, scenarios have been proposed for the in-between and liminal spaces currently claimed by migrants seeking to cross to the other side of the channel? Based on a guiding theme, every group proposed a number of scenarios.

This comprehensive approach helped students in developing a robust and adaptive strategy for the port city of Dunkirk, addressing its unique challenges and leveraging its specific opportunities.

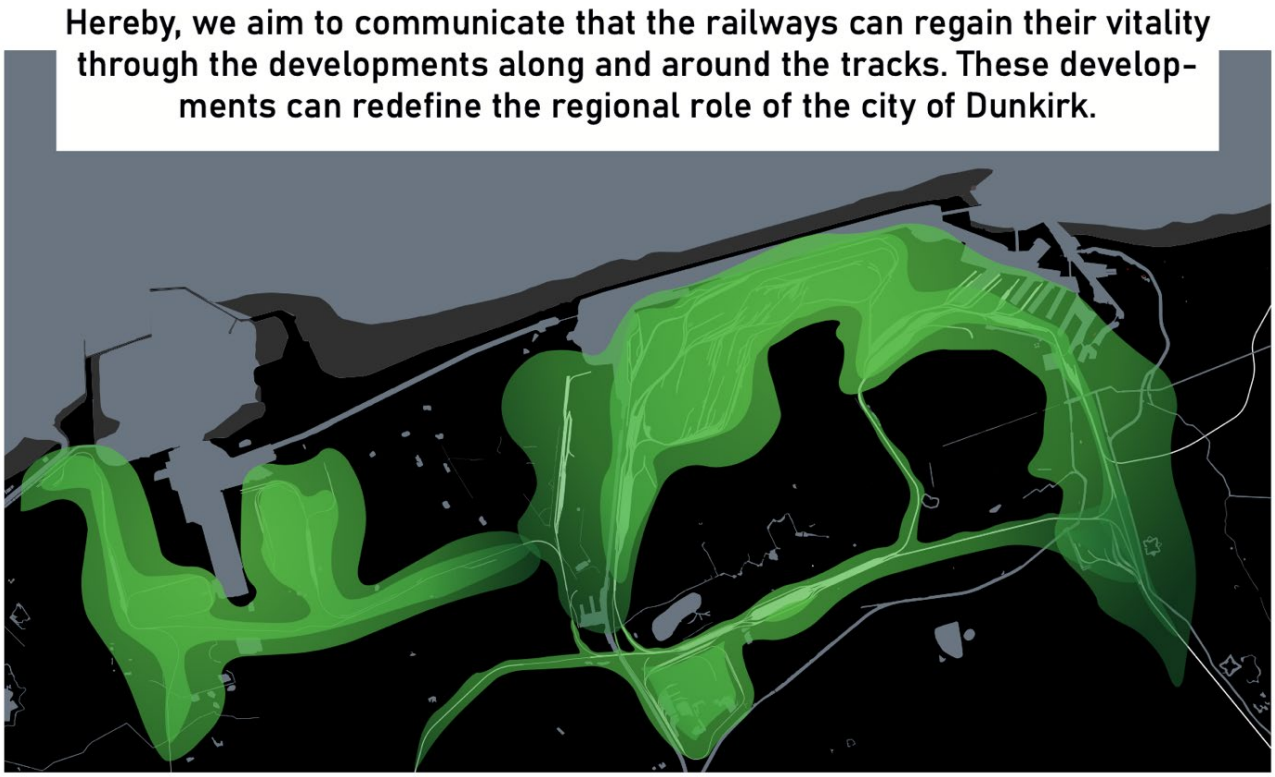


Figure 16. Map by Raneem Musallab, Sacha Oberski, Tom Martens, Yanal Haj Khalaf Allah, Nabil Bouddount.

Figure 17. First fascinations by Martina Marinova, Galia Tomsen, Jille Rodenburg, Winnie van de Sande, Kiki Pool.

Figure 18. First fascinations by Martina Marinova, Galia Tomsen, Jille Rodenburg, Winnie van de Sande, Kiki Pool.

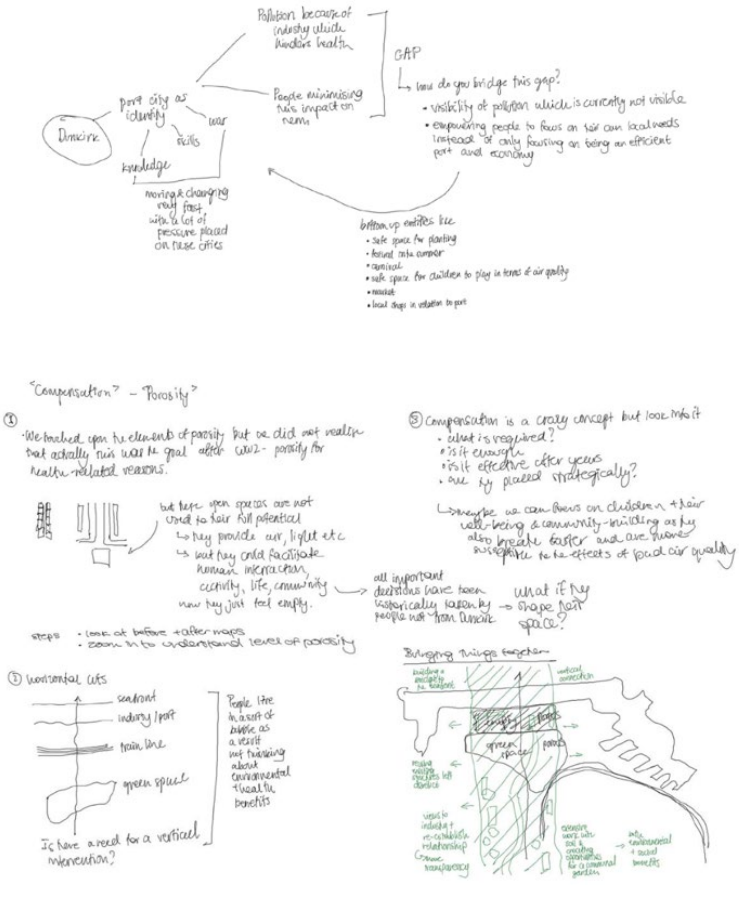
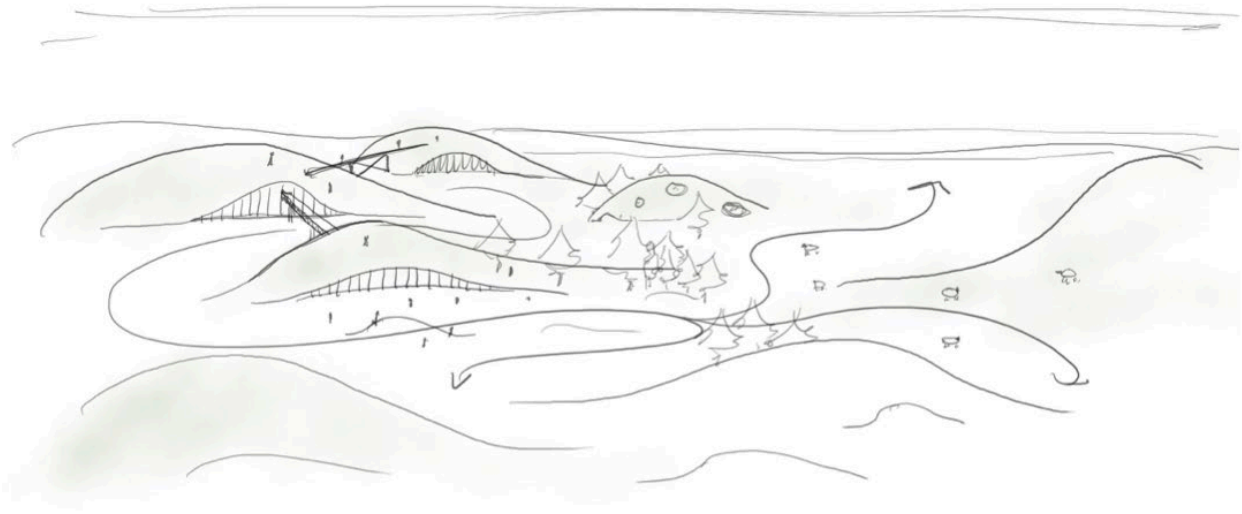


Figure 19. First conceptual framework by Peter Pápai, Androniki Charalambous, Vihaan Shah, Marcel Janssens, Diana Marin.



Figures 20 - 21. Collage by Silje Kouwenhoven, Zhengyu Wu, Dana Spataru, Yannick Aliet.

In this context, the students were introduced to the concept of design as a generator of knowledge through the formulation of speculative projections about the future, namely 'scenarios.' How can scenarios be constructed? Why are they necessary, and who stands to benefit from them?

One response lies in the designers' desire and imperative to speculate on the future of port cities, which are increasingly uncertain. Scenarios are conceived here as a mechanism for projecting ideas forward in time, pinpointing potentialities within the landscape to inspire designs capable of accommodating forthcoming changes. The scenario thus challenges the traditional notion of design, transforming into a tool for assessing possibilities in light of extreme and unpredictable circumstances.

Those scenarios fit perfectly within contemporary design approaches and the idea of spaces that philosopher Zygmunt Bauman has defined as 'liquid' (Bauman 1999, 211). In a liquid and porous society different visions coexist and collide and the role of the scenario is that of defining a vision, a fascination, an image capable of tracing a direction, leading the current, in a context made up of differences, complexities, and conflicts. Scenarios become reflections, points for a discussion. They are not meant to be implemented but to create awareness and to generate new narratives for the future and hopefully lead to adaptive strategies.

Figure 22. Collage by Raneem Musallab, Sacha Oberski, Tom Martens, Yanal Haj Khalaf Allah, Nabil Bouddount.

Figure 23. Collage by Silje Kouwenhoven, Zhengyu Wu, Dana Spataru, Yannick Aliet.

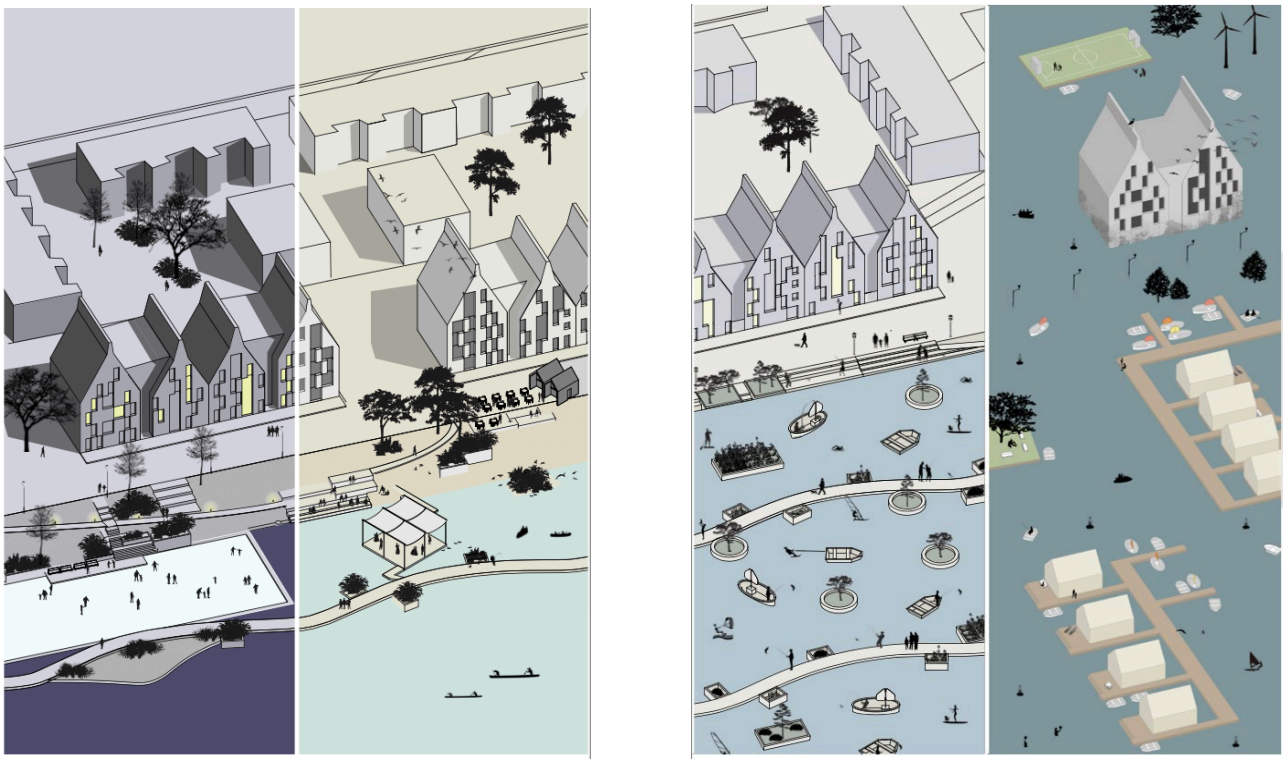
Working on scenarios, as a tool to activate adaptive strategies, enables participants to critically reflect on the evolutionary history of places and the communities that inhabit them; this is the first step in establishing a relationship with the city (Godet & Roubelat, 1996). Scenarios are a part of the design process of searching for long-term futures while also responding to short-term intervention through timelines towards the future.

The course promotes scenarios as an interpretative and unconventional tool for the formulation of new narratives, pushing students to consider long-term developments and extreme solutions. Design adaptive strategies in the course have looked at the theme of recycling, urban regeneration, reclamation, conservation and enhancement of the industrial heritage. Scenarios do not pro-pose final outcomes, rather they can help with imagining new forms and with recognizing urban potential. Scenarios suggest a process of speculation in which everything is possible and at the same time everything is questioned. New (provocative) scenarios can initiate conversations among local stakeholders and help a new generation to engage with the critical relationship between land and water. Therefore, scenarios do not claim to plan everything.

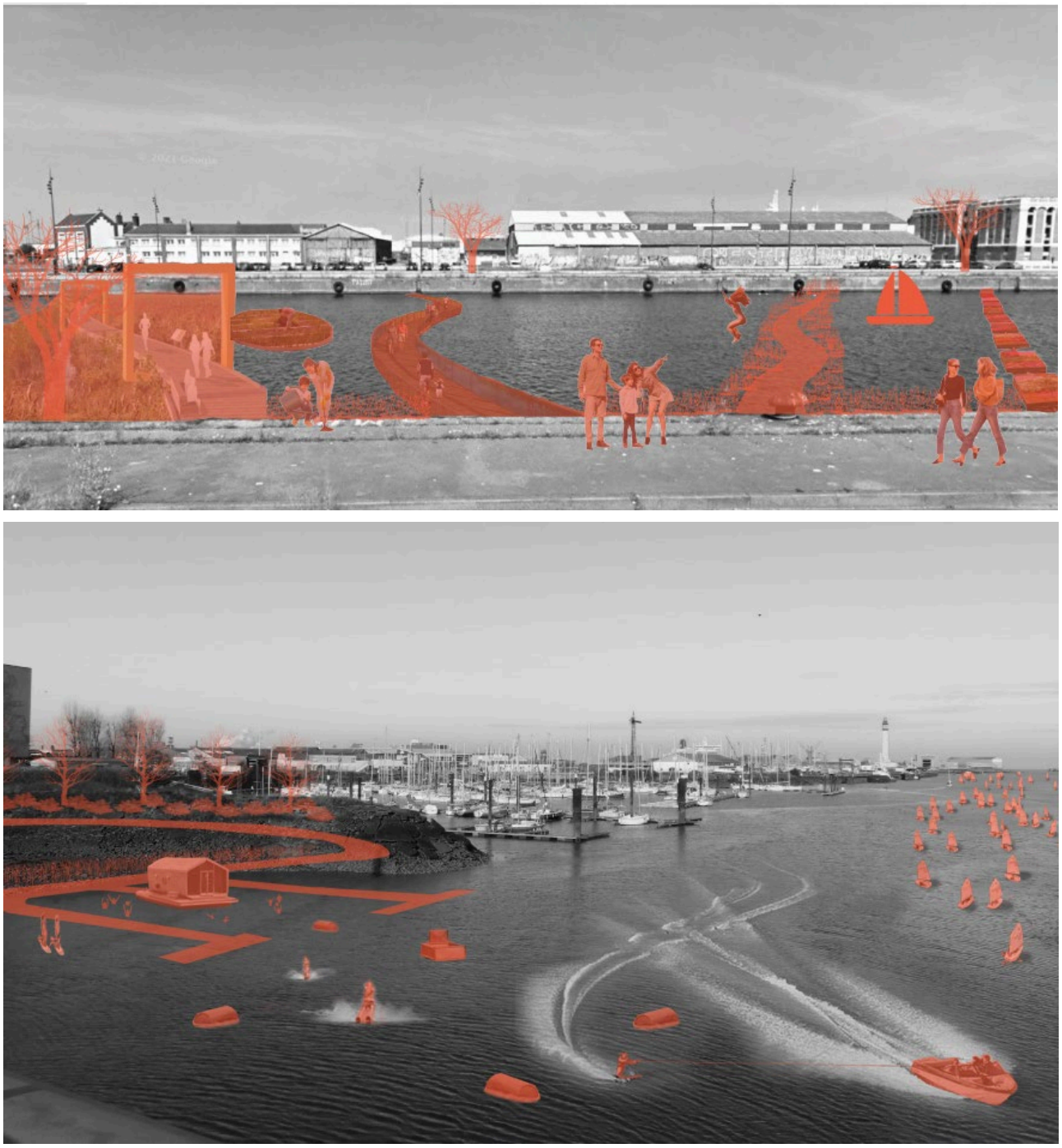
The scenario becomes an image capable of tracing a direction in a context made up of differences, complexities, conflicts and uncertainties (Viganó & Secchi, 2019; Abou Jaoude et al., 2022). More than assertive projects, the scenario indicates possible new narratives, interpretative models and cultural approaches for living with water. In this respect, we argue that the implementation of scenario-thinking as a design approach to re-think the present and the future, within the context of this focused elective, could contribute what architects and educators Billy Fleming and Rania Ghosn call (Un)Making Worlds–a pedagogical approach in response to the planet's environmental crisis that focuses on dismantling existing extractive (and destructive) systems altogether, and imagining a different way of world-making, rather than simply (conservatively and shyly) replacing one system with another (Fleming and Ghosn, 2024). Only then, can an essential repair process be taken seriously.

Figure 24. Scenario by Silje Kouwenhoven, Zhengyu Wu, Dana Spataru, Yannick Aliet.

Figure 25. Scenario by Silje Kouwenhoven, Zhengyu Wu, Dana Spataru, Yannick Aliet.



Figures 26 - 27. Collage by Galia Thomson, Jilles Rodenburg, Kiki Pool, Martina Marinova, Winnie van de Sande.



Figures 28 - 29. Collage by Galia Thomson, Jilles Rodenburg, Kiki Pool, Martina Marinova, Winnie van de Sande.

Conclusion

Adaptive Strategies for port cities require a critical understanding of history. Design education does not only provide a rich ground for testing with and advancing tools for the re-conceptualization of urban spaces, but it also provides an essential space –a forum– for scrutinizing the role of architects and architecture in re-shaping futures. In this article, we take the master's elective course Adaptive Strategies [AR0110 2023/24] at Delft University of Technology, as a case study to explore the role of design studios in addressing global urgencies. Looking at the outcomes of the course, we argue that history is crucial when designing the future of port cities. Examining the past, the evolutionary history of spaces and institutions, and mapping the

permanencies as well as the porosities within territories is a fundamental step in understanding space to better transform it. In our approach with the course, we supported the reflective practice underlying the design process, and we trained the students –within the limits of the elective– to undertake multidisciplinary research exercises to identify and address the challenges and prospects that cities face in developing adaptive strategies for creating and sustaining just and livable communities. Students were encouraged to test new formats for identifying challenges and urgencies that can best lead to the identification of adaptive strategies where short- and long-term interventions at various scales intertwine to achieve the desired impact.

To explore the potentials of port cities to adapt to future challenges, the course proposed a scenario-thinking approach—which is inherently adaptive—as a tool to (re)design port-city relationships. Dunkirk, with its urban palimpsest, is a city that has struggled to adapt to the dynamics and rhythms of the port. Simultaneously, the port does not always align with the relative slowness that characterizes the city and its lived experiences. The post-industrial transformation plans for Dunkirk have paid limited attention to the city in terms of environmental implications. The **reinterpretation** block of the course enabled the students to look at the existing opportunities to build a new relationship between port and city, land and water.

In Dunkirk, this meant looking at the system of abandoned industrial areas as new porosities to be regenerated and transformed into new environmental infrastructures between land and water. The students explored the potential of these spaces to serve as a bridge between the port and the urban fabric, fostering a more symbiotic relationship. This exploration led to various adaptive interventions, where some students imagined repopulating the areas at the edge of the port, thereby reducing the pressure of the port on the city. Others envisioned the port, detached from the city, becoming a flexible and adaptive entity responsive to the times and needs of the city behind it.

The students' projects for redesigning Dunkirk's port focused on developing a new narrative where the port plays a more significant role in the city's image. Whether by enhancing access to the port and reclaiming some of its spaces for public functions or by expanding its activities and introducing a green approach, students envisioned the port as the driving force of a new chapter in the city's urban history. Students synthesized relevant historical and contemporary information into knowledge that could inform the exercise of elaborating adaptive strategies to steer future development. The focus was on experimenting with innovative methods for spatializing and visualizing historically informed analyses, thereby uncovering hidden knowledge.

The insights from this article and the approaches discussed how educational experiences can be productive for producing visions and initiating discussions about the future of port-city that extend beyond the borders of the classroom. The outcomes of the design exercise offer a framework for stakeholders, including policymakers, and the larger community of actors, to engage in a dialogue starting from the students' ideas but not ending there. By embracing scenario-thinking methodologies, and through spatializing and visualizing such scenarios, the students' work can help decision-makers better navigate the intricate relationships between land and water. This approach does not only encourage innovative thinking, but it also emphasizes the importance of collaboration across disciplines, and actors to cultivate a holistic understanding of the unique challenges port cities face today and are going to face in the future. The design exercise centers on a historically aware, port-city positioned, fresh encounter with the site. It is about disclosing a multiplicity of possibilities for imagining a future otherwise. It is also very much about initiating a critical dialogue around them. Building on such outcomes, decision-makers can develop policies that prioritize sustainability, accessibility, and community well-being, thus enhancing the resilience of port cities in the face of future challenges. By leveraging educational initiatives like Adaptive Strategies, we can equip the next generation of architects and planners with the tools to envision innovative futures rooted in a comprehensive understanding of the past.

In doing so, we open pathways for new possibilities and collaborative efforts that will redefine the role of port cities in a rapidly changing global landscape and economy.

Acknowledgments

Note about visual materials

As for the images used in the articles, we have made diligent efforts to reach out to the original owners. While most have confirmed permission for use, there are a few from whom we are still awaiting responses despite multiple attempts to contact them. We believe that our usage is permissible under fair use guidelines, but if anyone has concerns or objections, we encourage them to contact us directly so that we may address their preferences accordingly.

References

Abou Jaoude, G., Mumm, O., & Carlow, V. M. (2022). An Overview of Scenario Approaches: A Guide for Urban Design and Planning. *Journal of Planning Literature*, 37(3), 467-487. https://doi.org/10.1177/08854122221083546/.

Brenner, N., & Christian Schmid. "Planetary Urbanization." In Implosions/Explosions, ed. Neil Brenner, 160-163. Berlin, Boston: JOVIS Verlag GmbH, 2013.

Couling, N., & and Hein, C. The Urbanisation of the Sea: From Concepts and Analysis to Design. Rotterdam: nai010 publisher, 2020.

De Martino, P. (2016). Land in Limbo: Understanding Planning Agencies and Spatial Development at the Interface of the Port and City of Naples. International Planning History Society Proceedings, 17th IPHS Conference, History-Urbanism-Resilience, TU Delft.

De Martino, P. (2023). Naples: a city away from water: The role of path dependence in the history of Naples. *Planning Perspectives*, 39, 1-16. https://doi.org/10.1080/02665433.2023.2283867/.

De Martino, P., Hanna, J., & Hein, C. (2023). Mediterranean Imaginaries. *European Journal of Creative Practices in Cities and Landscapes* (CPCL), 6(1). https://doi.org/https://doi.org/10.6092/issn.2612-0496/v6-n1-2023/.

De Martino, P. (2022). Towards Circular Port–City Territories. In (pp. 161-171). https://doi.org/10.1007/978-3-030-78536-9_10/.

De Martino, P., Hein, C., Harteveld, M., & Forgaci, C. (2023). Designing Public Spaces for Maritime Mindsets. Rotterdam as Case Study. *PORTUSplus,* 16. https://portusplus.org/index.php/pp/article/view/295/.

Fabian, L. (2012). Extreme cities and isotropic territories: Scenarios and projects arising from the environmental emergency of the central Veneto città diffusa. *International Journal of Disaster Risk Science*, 3(1), 11-22. https://doi.org/10.1007/s13753-012-0003-5/.

Fleming, B., & Ghosn, R. (2024). (Un) Making Worlds. *Journal of Architectural Education*, 78(2), 266-270.

Godet, M., & Roubelat, F. (1996). Creating the future: The use and misuse of scenarios. *Long Range Planning* 29(2), 164-171. https://doi.org/https://doi.org/10.1016/0024-6301(96)00004-0/.

Hanna, J. (2023). Prospects: Towards an Enhanced Practice of International Design Studio Collaborations. In C. Hein, & J. Hanna (Eds.), Design Pedagogies in Times of Crisis: Six Universities - Six Studios on PostBlast Beirut Reconstruction (pp. 124-136). (CPCL Series). SOAP | Stichting OpenAccess Platforms.

Harteveld, M. G. A. D. (2021). In the Minds of People: Port-City Perspectives, The Case of Rotterdam. European Journal of Creative Practices in Cities and Landscapes (CPCL), 4(2), 60-81. https://doi.org/10.6092/issn.2612-0496/12380/.

Hein, C. (2011). *Port Cities: Dynamic Landscapes and Global Networks* (C. Hein, Ed.). Routledge.

Hein, C. (2019). The Port Cityscape: Spatial and institutional approaches to port city relationships. PORTUSplus. 8, (Dec. 2019). https://portusplus.org/index.php/pp/article/view/190/.

Hein, C., & Hanna, J. (2023). Temporal Framework: Towards a Broader Conceptualization of Time in Design Education. In *Design Pedagogies in Times of Crisis: Six Universities-Six Studios on Post-Blast Beirut Reconstruction* (pp. 12-20). SOAP | Stichting OpenAccess Platforms.

Hein, C. (2023). *Port City Atlas: Mapping European Port City Territories: From Understanding to Design*. nai010 publishers. https://books.google.it/books?id=C71Q0AEACAAJ/.

Hein, C.& De Martino, P. (2018). Designing post-carbon Dunkirk with the students from TU Delft. *The Beam*, 5. https://medium.com/thebeammagazine/designing-post-carbon-dunkirk-with-the-students-from-tu-delft-28f44c40d761/.

Hoyle, B. S. (1983). *Seaports and Development: the Experience of Kenya and Tanzania*. Gordon & Breach.

Sorensen, A. Taking Path Dependence Seriously: An Historic Institutionalist Research Agenda in Planning History. *Planning Perspectives* 30, no. 1 (2015): 17-38.

Sorensen, A. (2017). Sorensen, A. (2018). Planning History and Theory: Institutions, comparison, and temporal processes. In C. Hein (Ed.), Routledge Handbook of Planning History. London, New York: Routlege.

Sorensen, A. (2022). Taking critical junctures seriously: theory and method for causal analysis of rapid institutional change. *Planning Perspectives*, 38(5), 929–947. https://doi.org/10.1080/02665433.2022.2137840/.

Viganò, P., Secchi, B., (2009). *Antwerp, Territory of a new modernity*. Sun Publishers.

REFERENCES FOR CITATION

DE MARTINO, Paolo, HEIN, Carola and John HANNA. 2024. Adaptive Strategies for Dunkirk: A Delft's Perspective. *PORTUSplus* 17 (November). https://portusplus.org/index.php/pp/article/view/301