# COASTAL PROTECTION AS A MEDIATOR FOR VALUE CREATION

Linking flood protection and liveability in an urban planning context

AALBORG UNIVERSITY
STUDENT REPORT

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# Coastal Protection as a Mediator for Value Creation

## Linking Flood Protection and Liveability in an Urban Planning Context

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# Abstract

In a world facing the consequences of a changing climate, rising sea levels and increasing urbanisation, this master thesis explores the cross field and embedded transition of practices when linking coastal flood protection with liveability in an urban planning context. Assisting an ongoing value-oriented research project called 'Guldet', this study more specifically investigates how the planning of coastal protection projects can increase the liveability and added value in an area through a more collaborative involvement of local stakeholders. Further, it will explore the value creation concept.

The link between coastal protection and liveability is being investigated in a Dutch as well as Danish context, exploring and opening up existing lock-ins as well as the ongoing transition to more holistic and integrated planning. These issues are addressed on the basis of a theoretical framework consisting of transition theories and an ANT-inspired approach to urban studies focusing on collaborative design and democratic design experiments. Through expert interviews, ethnographic field studies and observations the case of New Boulevard Scheveningen in the Netherlands is investigated. Furthermore, by undertaking an action-research and navigational approach, this study explores the visions, challenges and opportunities for creating liveability in the Climate Harbour project in Middelfart, Denmark. It is suggested that a collaborative workshop approach focusing on values and relations can contribute to qualify local actors to engage in organising themselves around arranging activities in the harbour thereby contributing to liveability.

**Key words:** *added value, liveability, multifunctionality, coastal protection projects, climate adaptation, urban planning practices, stakeholder involvement, democratic design experiments, transition.*

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Finally, the authors express gratitude to Aalborg University for economic support for the conducted research trip to the Netherlands.

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# Preface

This report is the culmination of the master's engineering programme Sustainable Cities at Aalborg University Copenhagen, an interdisciplinary education focusing on how to create frameworks for future sustainable cities by integrating different sectors, actors and technologies in new ways, and by combining economic, social and environmental purposes. The thesis has been conducted over a four-month period between February and June 2017.

In an attempt to contribute to ongoing state-of-the-art research and for this project to be of value beyond educational purposes, we have been given the privilege of being connected to the ongoing research project 'Guldet'. This has given us the opportunity to work with an authentic case, and the chance of experiencing how researchers work in practice. That being said, it has also to a certain extent biased the direction of the work conducted in this thesis. The objectives of 'Guldet' is further presented below.

## Inspiration from and contribution to ongoing research 'Guldet'

"Guldet i projekterne" [*the Gold in the Projects]* (referred to as 'Guldet') is an ongoing research project at Aalborg University Copenhagen, running from November 2016 to July 2018.
'Guldet' focuses on the embedded opportunities that water, as a value creating element, can provide in the development of robust, vibrant and green cities and how to realise the visions in practise. The issues investigated concerns the growing need of facilitating new forms of synergy in urban development across sectors and other divisions and develop methods to calculate and document how climate adaptation projects create different values, which is especially relevant for planners, decision makers and investors (Hoffmann, 2016). Further, there is a great need for knowledge of how values are created and how they evolve and change through use (ibid.).

One of the cases investigated in 'Guldet' is the Climate Harbour in Middelfart, which serves the purpose of testing how working systematically with value creation can contribute to co-creation, investments and urban development. As the Climate Harbour is also a chosen case for this thesis, one of the objectives of this thesis is to contribute to 'Guldet' with data collection and generation of knowledge in relation to the Climate Harbour project as well as international perspectives on multifunctional coastal protection and added value, thereby contributing to the development of new planning practices.

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# 1 Introduction

Coastal cities around the world are increasingly subject to flood risk challenges exacerbated by climate change (IPCC, 2014). The number of citizens living near the coast threatened by flooding has increased dramatically within the recent years. Billions of human and material assets and infrastructure are dependent on flood protection systems that are aging and in need to be replaced or improved (Flood Defences, n.d.). In combination with a growing urbanization and need for urban (re)development, there is a call for new ways of planning and constructing well-integrated, multifunctional coastal defences. At the same time, increasing attention is focused on the concept of liveability in urban development. Thus, liveability has become an attractive symbol for cities to strive for, attracting businesses and economy (IMCL, n.d.). Multifunctional approaches in flood protection therefore becomes an option to view the threat of flooding as an opportunity to create liveable, attractive waterfronts. However, these new notions challenges traditional planning models and poses questions about how to break out of the existing lock-in systems? Further, they call for new planning practices to emerge, but how can liveability be facilitated in these new practices, and what are the potentials of more collaborative involvement processes?

The Netherlands has for centuries been obliged to deal with the risk of coastal flooding due to their flat low-lying land (Allaby, 2003). As a result of this several centralised, governmental entities and initiatives has through the years been developed and many coastal protection constructions have been build (Dutch Water Authorities, n.d.). The redevelopment of the new boulevard in Scheveningen is one of the largest financed multi-functional projects in the Netherlands (Fluitman, 2017, p.c.), therefore being a unique opportunity to explore the links between liveability and protection.

The Danish coasts have similarly been exposed of erosion and storm floods through millions of years (Miljø- og Fødevareministeriet, 2016). However, the notion of urban development in coastal protection projects is relatively new and has created a new focus on liveability as a part of climate adaptation. As a result of this, Middelfart Municipality and Middelfart Utility has initiated an ambitious climate adaptation strategy for the harbour, called The Climate Harbour. The idea is that The Climate Harbour shall link the challenges of climate change with an urban renewal of the rather unutilized area in the harbour (KlimaHavnen Udviklingsstrategi, n.d.).

This master's thesis explores and unfolds how coastal protection in urban areas and liveability can be linked through co-creation with different local stakeholders in a value-based approach, and why this combination and process is so complex and filled with challenges and ambiguities. Through different case examples from the Netherlands and Denmark, the study sheds light on the transition towards new planning practices, investigating which processes and networks are needed to facilitate increased value creation and liveability through cross-sectoral cooperation in coastal flood defence projects.

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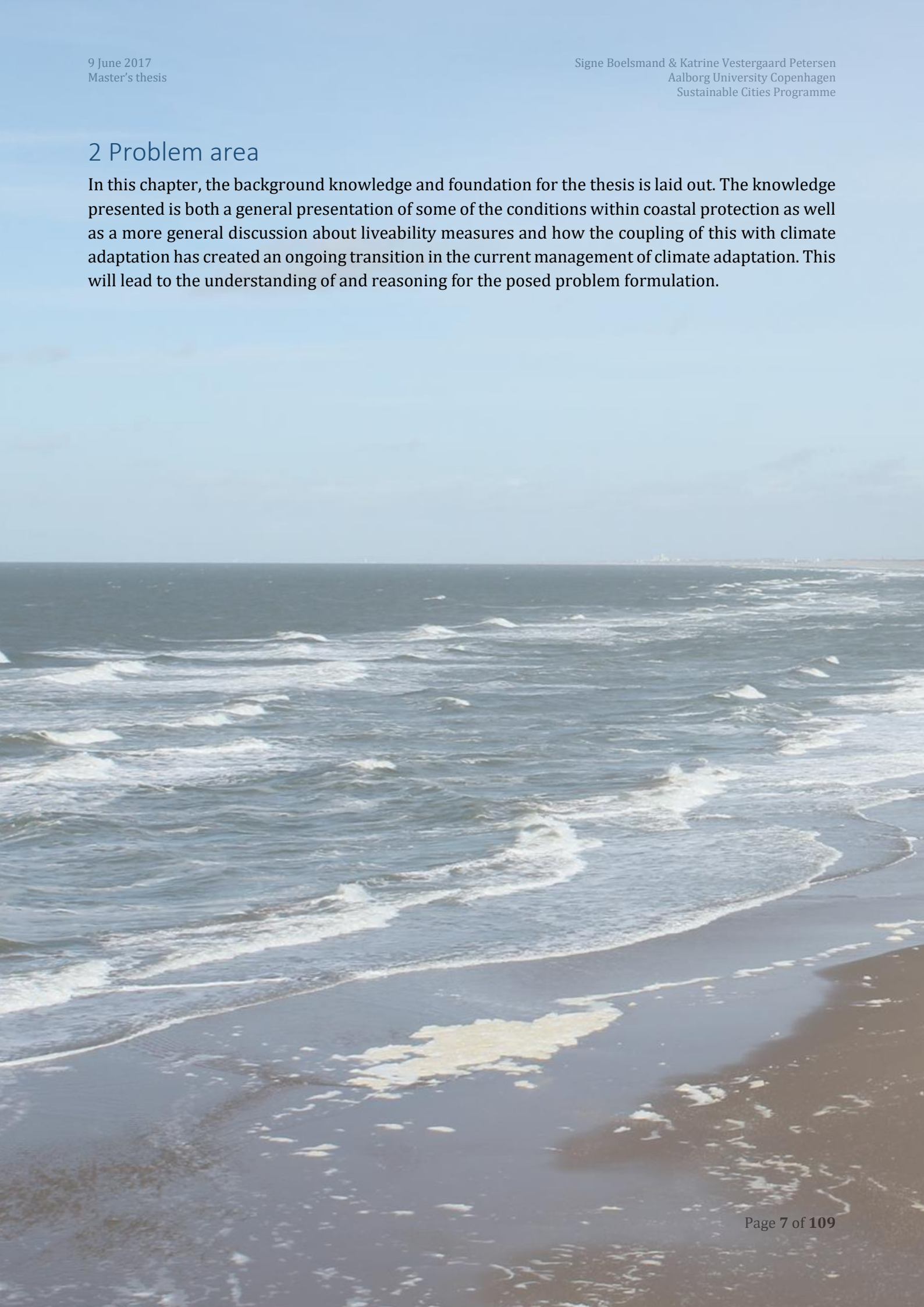
# 2 Problem area

In this chapter, the background knowledge and foundation for the thesis is laid out. The knowledge presented is both a general presentation of some of the conditions within coastal protection as well as a more general discussion about liveability measures and how the coupling of this with climate adaptation has created an ongoing transition in the current management of climate adaptation. This will lead to the understanding of and reasoning for the posed problem formulation.



## 2.1 Climate change and coastal protection

Cities worldwide are facing increasing challenges and threats as climate change and urban population growth puts extensive pressure on our systems and services (UN-Habitat, 2016; IPCC, 2014). For coastal cities in particular, the sensitivity towards flooding due to climate change in combination with urban population density pose a great threat for the more than one billion people living in low-lying coastal regions (World Ocean Review, n.d.). The threat is specifically manifested by rising sea-levels, which on a global scale has risen 0.19 meters from 1901-2010 (Ramboll, 2015), and changes in the frequency and intensity of storms and precipitation (EPA, n.d.). Further to this, the interests in the coastal zone are numerous and often full of contradictions and incompatible goals. On one side is the wish to expose the coastal values and on the other the wish to preserve coastal nature. However, by settling down in areas that are very much dynamic, the risk of material and human losses due to erosion and flooding are huge without a direct intervention on the natural processes.

Depending on variable factors such as degree of urbanization, climate conditions and economic development, the intensity of the risks associated with climate change vary strongly within countries and regions worldwide. These factors constantly challenge the way cities are being planned for and calls for new and innovative ways of making cities and regions sustainable and resilient (IPCC, 2014).

## 2.2 Liveability in urban development

Although cities, the people who inhabit them and the services we as humans require are often seen as the root of climate change issues, certain scholars are also arguing that cities should not be perceived as only a challenge to sustainability, but instead as a vital opportunity for facilitating sustainability (Jensen et al., 2016). Cities are thus standing in a cross-field between being one of the main contributors to climate change, and rebranding themselves as innovative, 'green' cities (Blok, 2013). In relation to this, the notion of liveability has emerged as a popular phenomenon in urban management (Munthe-Kaas, 2015).

The term 'liveability' is very broad and has no precise or universally agreed-upon definition (National Research Council, 2002). Liveability or livable cities was in the 1980's used to describe "quality of life" as well as characteristics of what made cities livable (IMCL, n.d.), which makes it a very individual and subjective evaluation of when something can be marked as liveable (see appendix 1 for a list of liveability definitions). After the turn of the millennium, this understanding was largely influenced by the notion of 'the creative class', described by Richard Florida (2002), which has influenced cities to increasingly reorient themselves to create 'people climates' rather than 'business climates' (Florida, 2002 in Munthe-Kaas, 2015). These peoples climates can thus be seen as a way of changing the attention towards urban life as something citizens are involved in creating.

Today, it is attractive for any city to be named as "most livable" in order to attract businesses and investment, boosting the local economy and real estate markets, as well as enhancing community involvement. Therefore, several international medias are each year ranking the world's most livable

cities. Yet, their criteria and methods - as well as their results - vary. According to the movement International Making Cities Livable (IMCL), the term livability has already become so widely used that its meaning is becoming lost (IMCL, n.d.). Nevertheless, 'the liveable city' is a phenomenon impacting many urban developments in large (European) cities (Munthe-Kaas, 2015).

### Liveability through Multifunctionality

When investigating the whole liveability concept and the related added values, an interesting perspective is how practitioners today understand and work with the term.

A useful approach to create liveability in an urban context is through multifunctional installations and facilities, when you do not have a lot of space available (Hoogvliet, 2017, p.c.). Multifunctionality is though not merely a new concept, and in other arenas it has for a long time been a well-known approach. Concrete examples are halls where you can play different sports because of multiple field markings, goals and other flexible facilities. Libraries are another example of places that are sometimes a combination of cafés, theatres and study places. These types of synergies are increasing in different fields, because it is increasingly recognised that a multifunctional approach can provide us with more (economic) value for money, more dynamic and other added values (Christensen, 2017, p.c.).

Although multifunctionality is a well-known instrument in general, it is still quite new within climate adaptation and coastal protection, because multifunctionality is much more complicated within this field. Multifunctional solutions in coastal protection can simply be defined as structures that deliberately provide opportunities for a variety of other functions than the flood protection itself (Van Veelen et al., 2015) and thus combine technical flood protection measures with improved spatial qualities, thereby also reducing the footprint and pressure on the environment by using available space optimally (Hoogvliet, 2017, p.c.). Hence, with a multifunctional approach, flood protection becomes a matter of urban (re)development and provides an option to view the threat of flooding as an opportunity to create attractive waterfront areas. However, it can be argued that multifunctionality should not be the goal itself, as liveability is also about giving citizens and users the opportunity to express themselves and be influential in the creation of urban space. In other words, urban life can not solely be designed or programmed, there has to be 'spaces' available for activities and life to unfold.

Yet, even though integrated or multifunctional flood defences have already been tested, planned and implemented in several places, in amongst others Denmark and the Netherlands (the latter having a long tradition of flood protection, see section 3.1); it still remains a challenge in practice to create these multifunctional projects, especially in municipal planning. According to Van Veelen et al. (2015), "*an assessment method that integrates both the design approaches of civil engineering and spatial planning is still missing*" (van Veelen et al., 2015, p. 277).

Having introduced these perspectives of multifunctionality and liveability it is relevant to clarify that the purpose of this research is not to define the concept of liveability or value as such. Both these concepts are entirely context-dependent and subjectively defined based on individually as well as culturally determined preferences. Yet, what is particularly interesting is how

multifunctionality, liveability and values can be linked to the planning of coastal protection thereby facilitating a change of practises.

## 2.3 Linking coastal protection and urban development

A greater attention towards the development of liveable, competitive and attractive places has thus emerged, also with a focus on water as being part of this development (Jensen et al., 2016). An example of how management of water has changed, is presented by Jensen et al. (2016), who have explored the more specific transition dynamics of the wastewater system in Denmark from a governance perspective. Jensen et al. (2016) enlightens how the handling of wastewater has gone through a transformation, thereby turning water into a 'place-making' urban phenomenon and even value-creating urban asset. This ongoing transition has partly happened through a range of experimental activities, which have suggested to govern rainwater as a cross-sectoral and visible element in an above-ground urban setting (Jensen et al., 2016). The transition has also become increasingly well-recognised among the actors operating within the environmental, planning and utility sector in Denmark, acknowledging that climate change is not solely a technical issue, but just as much a question of providing the necessary legislative, organisational and financial framework for adaptation (DHI, 2013). Thus, this paradigm shift has in particular emerged within the water management as a result of the recognition that a traditional grey pipe approach to urban infrastructure and rainwater management is not an adequate solution to the climate change challenges (The City of Copenhagen, 2012; Rambol, 2016).

These new notions of urban life in climate adaptation projects challenges the traditional, rather centralized planning model and requires a new integrated planning approach with the involvement of very different groups of professions like spatial (urban and landscape) designers and planners, hydraulic and civil engineers, architects, municipalities, utilities etc. An ongoing challenge in this regard is for the urban planners, designers and engineers to develop a mutual language (Bals, 2017, p.c.). Furthermore, this thesis will argue that there are at least similar challenges when it comes to involving people from professions or backgrounds that are not usually involved in these kinds of flood defense projects, and there is a challenge with the understanding of the values this can contribute with.

Common for all the literature and scholars emerging within this field is the call for a transition away from conventional and traditional silo thinking and centralized infrastructure to a more integrated urban water management focusing on interdisciplinarity and inclusive (holistic) thinking (Brown et al., 2009; Bahri, 2012; Brown and Farrely, 2009; Howe et al., 2011).

### *New relation with water*

As a contribution to the ongoing debate about water management, various recent literature, practices and theories have appeared under differing terminology across the world. Brown et al. (2009) emphasizes how many commentators find the ongoing transition towards sustainable water management as too slow and accounts for how there is a lack of clear visions and benchmarking policy tools as well as a critical need for strategic investments in sustainable solutions. She therefore

suggests one of the more well-recognized conceptual tools - a water transition framework that presents a typology of six city states, aiming for a transition towards the final state of 'Water Sensitive Cities'. She further argues that for successful institutional change to occur, a more holistic approach not only focussing on institutional reforms is needed (Brown et al., 2009). The purpose of the framework is thus to recognize the context and scope of the transition phases and hydro-social contracts that cities are going through when moving towards more sustainable urban water management (Brown et al., 2009).

### Value creation in project planning - organizations and networks

If the purpose of creating a coastal protection project is also to improve and refine an area's qualities, it can be argued that it will inevitably be of utmost importance and relevance to focus on the value creation this given project can facilitate throughout the process as well as bring to the local community after completion. However, the concept of *values* or *valuing something* is of very abstract and individual character, as the meaning can range from e.g. the material or monetary worth of something to the importance, worth, or usefulness of something (Oxford Dictionary, n.d.), which can then be manifested in e.g. feelings, opinions or activities.

Heuts and Mol (2013) points out how the valuation of something also has a performative perspective, arguing how valuation is not just about evaluating or classifying whether or not something *is* valuable, but also about enhancing the value of something or simply make it valuable. Thereby they introduce the positive activity of *caring* to the value discussion, arguing how value is implied when caring about or for something, "*Thus valuing does not just have to do with the question how to appreciate reality as it is, but also with the question what is appropriate to do to improve things*" (Heuts and Mol, 2013, p. 137). In this view, one of the main lessons from Heuts and Mol (2013) is that "*valuing does not depend on fixed variables*" (Heuts and Mol, 2013, p. 141).

Value creation is thus a dynamic process that continuously evolves and changes over time, hence added values are not something that is solely emerging when a project is completed. Value creation can be seen as both happening (more or less deliberately) in the planning process of a project (in the short term) as well as developing as a repercussion of the project's completion or implementation. Artto et al. (2016) uses an approach from a project management and system lifecycle perspective, emphasizing how value creation occurs through the whole project phase and creates outcomes with the capacity of continuing value-creation activities long after the official project completion (Artto et al., 2016). Projects are multi-organizational systems made up of networks and by developing, creating and organizing these networks, value creation can transit throughout the lifecycle of the project (ibid.). Haddadi et al. (2016) agrees with the importance of a system lifecycle thinking of projects in relation to value creation but explicitly emphasizes the importance of the users of the project. Understanding the owners' and users' strategic objectives and translating them into the project is essential in understanding the true value of a project. By moving the focus from a project perspective to a lifetime perspective, decision makers can move the focus from what is best for the project to what is best for the users (Haddadi et al., 2016).

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With all of this in mind, linking coastal adaptation projects and urban development in a value-based approach requires a renegotiation of the current tools and practices used by engineers, architects and city planners (Blok, 2013). This further requires a more integrated planning approach which link actors across sectors and with a focus on how to create and work with values in a more local context and through the involvement of new types of actors.

This leads to a need for investigating how new perspectives on value creation with roots in the local community can create changes in the existing silo-thinking practices in coastal protection projects.

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## 2.4 Problem Formulation and Research questions

With the hypothesis that increased and improved, qualified cooperation across professions and groups of actors will enhance value creation in urban coastal protection projects, the following guiding problem formulation has been composed.

### Problem Formulation

> How can coastal protection projects enhance liveability and added value in an area through a more collaborative involvement of local stakeholders in the planning process and use of the area - and what are the potentials of this value creation?

### Research questions

To investigate and answer this problem formulation, three sub-questions have been formulated. These questions structure the research and analysis and allow for a theory based analysis of different challenges and perspectives related to the subject.

- What are the existing lock-in and barriers for a transition towards planning practices linking liveability and coastal protection, and what can we learn from Dutch experiences in this field?

- How can liveability be facilitated in the case of the Climate Harbour in Middelfart through collaborative involvement processes with new types of local stakeholders?

- How is value creation and liveability perceived in current discussions related to climate adaptation projects and how does this affect the future planning of more sustainable cities?

## 2.5 Structure of the report

Based on the themes and problems presented in the first chapter, the rest of the report will be structured in five chapters which will be outlined below. This section function as a structure of the report as well as a reading manual, and will thus account for the central elements of each chapter.

### Chapter 3 - Case description

This chapter consist of a description of the chosen cases, as well as the historical planning context they are placed in. The case of the New Boulevard Scheveningen in the Netherlands is introduced, outlining the facts and main ideas behind the project as well as the foundation for constructing the biggest multi-functional coastal protection project in the Netherlands. Furthermore, the case of The Climate Harbour in Middelfart is introduced, outlining the main actors involved as well as the strategies related to the project.

### Chapter 4 - Methodological framework

The methodological framework starts with an introduction into the research approach undertaken in this report, focusing on action-based and navigational approaches. This leads to the description of the methodological choices and tools used, such as literature studies, semi-structured interviews, micro-ethnographic fieldwork and data gathering through events. The chapter ends with a description of two mini-workshops conducted in Middelfart as an experimental attempt to develop new ways of involving local stakeholders with a liveability perspective.

### Chapter 5 - Theoretical framework

This chapter focusses on the theoretical concepts applied and used in the analysis of the chosen cases as well as in the general discussion about coastal protection and liveability. The notion of transition theories is presented through the use of Unruh and his perspectives on lock-in. Furthermore, an introduction into concepts from Actor-Network Theory (ANT) is presented, with a focus on how these are useful in an urban development setting. The chapter ends with a presentation on the limitations of the theories applied.

### Chapter 6 - Analysis

The analysis is divided in two larger parts. The first part (6.1-6.4) discuss the current lock-in situations existing in the field of combining urban development and coastal protection, as well as the transitions occurring in the planning sector in both Denmark and the Netherlands. This leads to a discussion of the findings from the New Boulevard Scheveningen. The second part (6.5-6.10) zooms in and looks at the Climate Harbour in Middelfart, discussing the different visions, planning practices and actor relations and introducing the outcomes of the conducted mini-workshops and their position as democratic design experiments in Middelfart.

### Chapter 7 - Discussion and Reflection

As a reflection of the discussions, outcomes and conclusions presented in the previous chapters, chapter 7 will look further into the current discussions going on in this field of value creation and liveability and see it in a broader perspective. The chapter ends with a reflection of the challenges,

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we as sustainable city engineers are facing very soon, and the new navigational approach needed in urban development.

It is our hope that you will find the report interesting to read and helpful of understanding the complexity of planning for liveability in a coastal protection context.

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# 3 Case descriptions

The purpose of this chapter is to give a thorough introduction to the chosen cases studied in this project as well as to explain the water planning settings of which the cases come from. The chapter will be divided into a Dutch and a Danish planning context.

## 3.1 Historical planning of coasts in Netherlands

Even though climate change and population growth stipulate a need for flood protection, the issue of flooding is not merely new. A country that for centuries has been obliged to deal with the risk of coastal flooding - long before climate change and global warming became a subject on the political agenda - is the Netherlands, due to their flat, low-lying and swampy land. More than 2000 years ago it was noted by Pytheas of Massilia, the first author to describe the Low Countries, that "*more people died in the struggle against water than in the struggle against men*" (Livius., 2015), thus the Dutchmen have a vast experience in constructing flood defences.

Throughout history, farmers have built the first dikes and water control structures to secure their crops from flooding. Later, when more complex and extensive structures had been developed, councils were formed as a result of a common interest from people to control the water levels on their land. Thus, water boards were formed and organized for small areas with a single polder or dike and in the 13th century these became merged to an overall organization, the so-called *Hoogheemraadshaps,* which was the first form of democratic government in the Netherlands (Dutch Water Authorities, n.d.). The Hoogheemradshaps still exist today as 22 decentralised, public regional water boards and serve as experts in regional water management. They are responsible for both flood protection, regional water management as well as treatment of urban wastewater and are empowered to collect taxes from the citizens, as a part of the overall democratic structure. The water boards manage flood defences at a total length of 17.100 kilometres (Dutch Water Authorities, n.d.). Yet, although the Netherlands have many flood defence infrastructures such as dikes and floodwalls, many of them are already, or will be, in need of improvement or adjustments to meet safety requirements (van Veelen et al., 2015).

### Dutch initiatives, policies and strategies

As the issue of climate change and the urban population growth in coastal cities have become more apparent, new initiatives and policies have been formed to manage the increased risk of flooding in the Netherlands, which calls for more adaptive and holistic planning than ever before. One of the fundamental initiatives is the Dutch Delta Programme, which is a national government organisation established in 2010. The purpose of the programme is to develop long term strategies to protect the Netherlands from flooding and to ensure sufficient freshwater supplies as well as climate-proof and water-resilient spatial planning by 2050. An initiative within the programme was to inspect all the coastal dikes and dunes and it was found that several of the flood defences failed to meet the safety standards, which resulted in 10 repair projects of which Scheveningen was one of them (Government of the Netherlands, n.d).

Another initiative at the more local level is the organisation *Rotterdam Climate Initiative* (RCI) which in 2008 ratified the *Rotterdam Climate Proof (RCP) Programme*, aiming at working towards a climate proof city with the maximum economic spin-off possible. One of the results is the *Rotterdam Climate Change Adaptation Strategy (RCCAS)* which provides a framework for a future (spatial) development focusing on accessibility, water safety and city robustness as a basis start of a process (Rotterdam Climate Initiative, n.d.)

## 3.2 New Boulevard Scheveningen

The main case investigated on our research trip to the Netherlands is located in the city of Scheveningen and is an extensive flood protection project of the main boulevard undertaken four years ago.

Scheveningen is a former fishing village in a borough of the city The Hague on the western coast of the Netherlands (see figure 1). Today, it serves as a seaside mass-tourism resort operating on a national scale and is also the largest daytrip destination on the Dutch coast (Blom & Segeren, 2013) with 12 million people visiting every year (Fluitman, 2017, p.c.).


*Figure 1: Geographical placement of Scheveningen and the New Boulevard (Source: Google Maps 2017 with amendments by author)*


Scheveningen has for years been facing several challenges with water-safety, socio-economic issues and further, the coastal protection of Scheveningen was pointed out as a weak link in the Dutch coastal flood protection line (Nillesen, 2017, p.c.; Flood Defences, n.d.). Moreover, according to the Municipality of The Hague, the borough has for years been in need of a 'qualitative programmatic and spatial impulse', as the old town centre has deteriorated (Nillesen, 2015).

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The flood risk of the area has been difficult to handle, as the build up area close to sea has limited the coastline's flexibility and thus also the adaptability. Because of this, it has been difficult to reinforce the borough's flood risk infrastructure without a significant restructuring of the area. To address the flood risk as well as the other challenges Scheveningen has been facing, the Municipality of The Hague decided to reinforce the boulevard of Scheveningen. This was done with a so-called 'hybrid' structure: the construction of a 1 kilometre long and 12 metres high sea wall serving as a dike and combining this with upgrading the spatial quality of the coastal zone. By i.a. nourishing the beach with 2 million cubic meter sand a reduction of the wave height was also secured (Flood Defences, n.d.; The Dutch Water Sector, 2013).

A visualisation model of the combined dike and boulevard can be seen on figure 2 below.

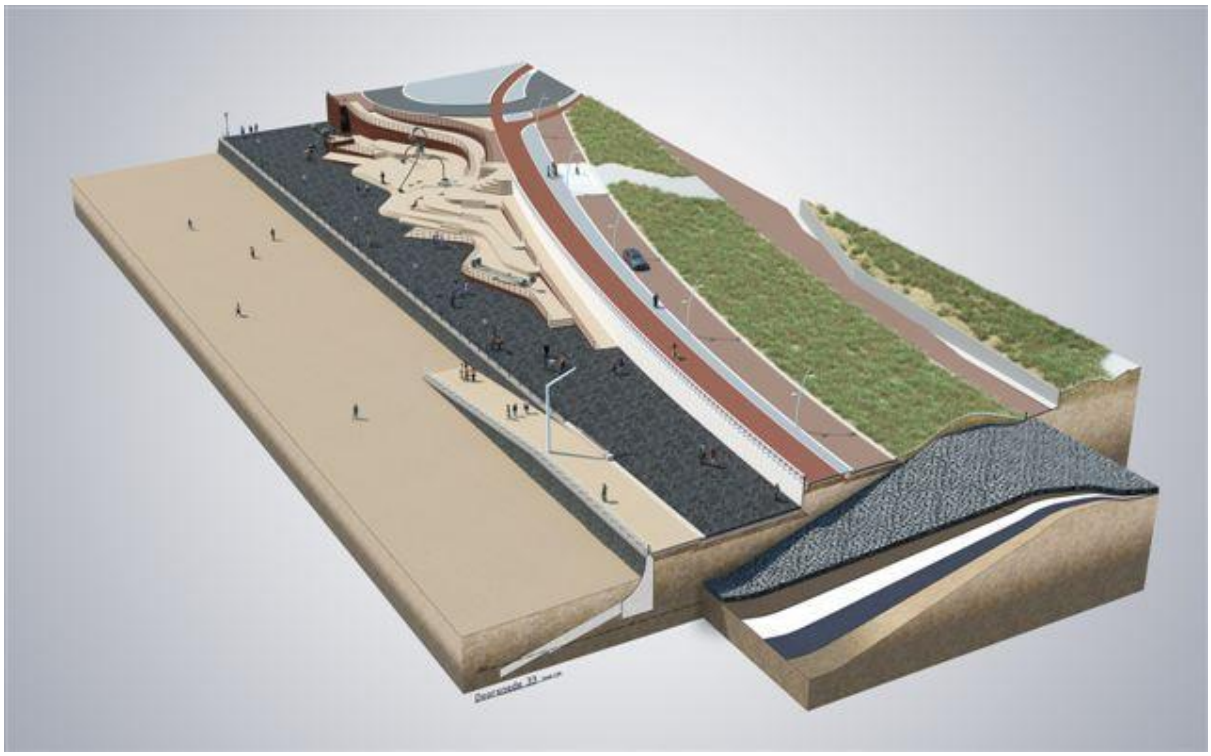

*Figure 2: The new boulevard with the dike below (source: Wikiwand, n.d.)*

The planning process of the very large redevelopment project began in 2003 and the now deceased Spanish architect Manuel de Sola-Morales was chosen to make the design, because the Spanish have a much longer history of working with public space (Fluitman, 2017, p.c.). After three years of preliminary work, four years of design and three years of construction, the project was completed in April 2013. See figure 3 below for a timeline of the main milestones of the project.

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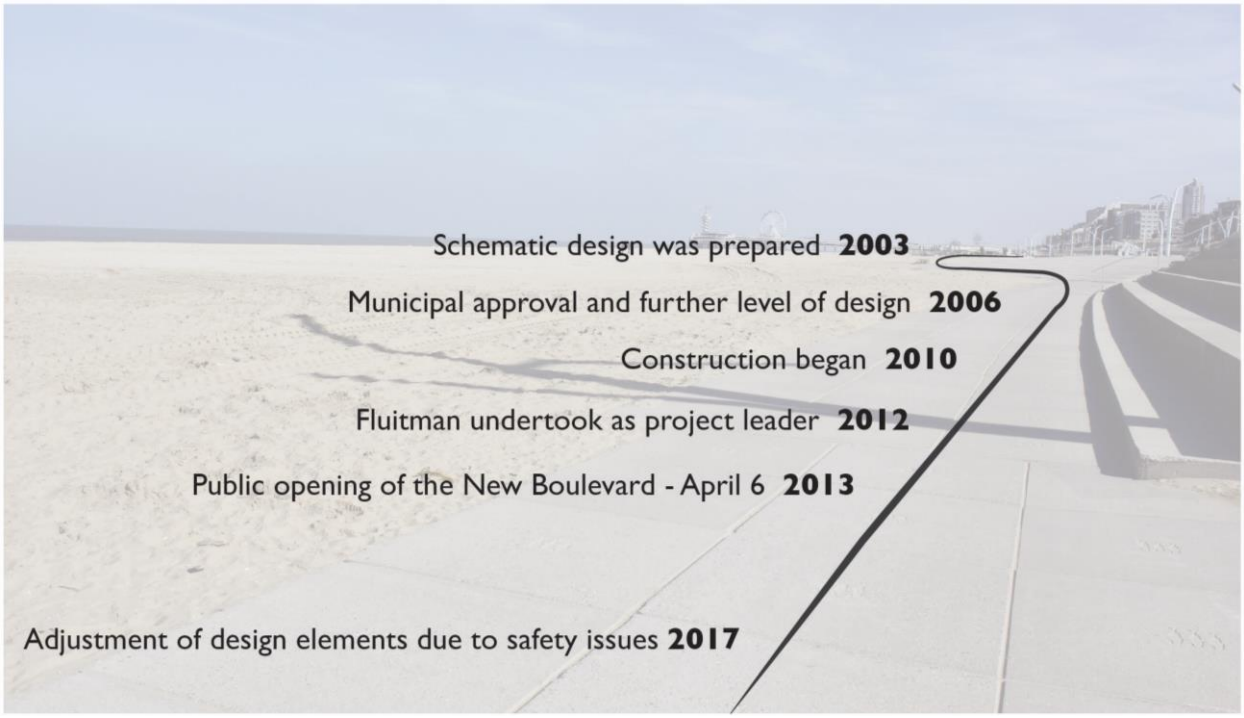


*Figure 3: Timeline of the main milestones of the project (Source: author)*

The redevelopment project was named Nieuwe Boulevard Scheveningen (New Boulevard Scheveningen) and the result can be seen on figure 4 below.

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*Figure 4: The New boulevard, Scheveningen (Source: author)*

The redevelopment of the boulevard in Scheveningen was done at a budget of 75 million Euros for the entire project, of which around 45 million was spent on the dike funded by the state and coordinated by the local water board. The remaining 35 million was spent on the public space and financed by the Municipality of The Hague, making this one of the largest financed multi-functional projects in the Netherlands (Fluitman, 2017, p.c.).

## 3.3 Danish planning of water

The Danish coastline stretches more than 7300 km and more than 50 % of the Danish population live in coastal areas (By, Bolig og Landdistrikter, n.d.). The danish coasts are exposed to erosion

from waves and tides as well as occasional storm floods. These phenomenons are natural and have shaped the Danish landscape for millions of years (Miljø- og Fødevareministeriet, 2016). However, as it is expected that storm floods will happen more frequently in the future due to i.a sea level rise the coasts have for many years been protected in different ways.

In 1868 the Danish state started their engagement with coastal protection after a breakthrough of the Thyborøn canal. The first groin was thus made in 1875 followed by beach nourishment in 1974 (Kystdirektoratet, 2017, June 6). Since then the Danish Coastal Authority has taken care of the engagement of coastal protection of the west coast. The Danish Coastal Authority is the governmental coastal unit in Denmark, recently becoming a part of the Danish Nature Agency, and has the authority to grant and reject permission for activities at the coast (Kystdirektoratet, 2017, June 6).

The Danish Coastal Authority manages and finance coastal protection at the west coast, but not in the inner coastal waters. Here it is the landowners' or the municipalities' responsibility to secure and maintain the coast in front of their land register. The effort to secure the coasts in Denmark is thus characterized by many individual solutions as a result of this. Often landowners do however make dike associations with the purpose of unifying in a common project to secure the coasts (§16) (Transportministeriet, 2009).

Besides the Danish Coastal Authorities, several authorities are engaged with different parts of the coastal zone. The Storm Council should be mentioned, as they decide whether or not a storm flood has occurred after recommendations from the Danish Coastal Authority and the Danish Meteorological Institute (DMI). Thus, they also decide whether or not landowners can get their damages covered by the insurance companies (Stormrådet, 2009).

## 3.4 The Climate Harbour in Middelfart

As a result of the change in the planning of water in Denmark (Jensen et al., 2016), and with a renewed focus on climate adaptation in most municipalities in Denmark, Middelfart has initiated an ambitious climate adaptation plan focusing amongst other on redeveloping the harbour area to address flood risk, and improving the areas' spatial qualities in the Climate Harbour project.

In the following section a brief introduction to the city of Middelfart and its historical, geographical and demographic setting will be presented, as well as the ideas and issues dealt with in the Climate Harbour project.

### Background of the City of Middelfart

Middelfart is located on the narrowest part of the Little Belt in the north-western part of Funen (see figure 5). The city is located between the old and new Little Belt bridge (Lillebæltsbro) and is connected to the rest of the country through a national rail station and highways (E20 and E45). The city structure consists of a historical city center with the beach in the South and the harbour to the north with residential areas spread around it. In the eastern part of the city the industrial areas

are situated, and the forest Kongebroskoven is unfolded to the west (KlimaHavnen Udviklingsstrategi, n.d.).


*Figure 5: Geographical placement of Middelfart and the Climate Harbour (Source: Google Maps 2017 with amendments by author)*


The history of Middelfart goes back to the 13th century and from the beginning the city has been a passage point between Jutland and Funen, with the harbour as the entrance to the city. The name Middelfart stems from the word 'Melfar' which means 'the waters you travel between'. As a historical seaport and market town, the city has experienced both growth and challenges, as well as increased attention from tourists (ibid.).

## The Climate City and the Climate Laboratory

Middelfart is, as many other cities, challenged by climate change and increased flooding. This has led to the city's vision of being a climate laboratory, implying that new solutions will be tried and tested. It focusses on both managing more severe cloudbursts, but also evolving and supporting the development of the city, thus making it more liveable. As a result of this vision, the Municipality of Middelfart and Middelfart utility company has initiated the development of The Climate Laboratory, an "umbrella" strategy which include the redevelopment projects of The Climate City and The Climate Harbour (Cassøe & Borchmann, 2017, p.c.). The Climate Laboratory is a principle for urban development through climate adaptation, meaning that urban development and climate adaptation has to happen through an interplay between the social and organisational activities and physical structures. Hence, the Climate Laboratory, or the social climate lab as it is also referred to, consists of three 'legs' as seen in figure 6 below

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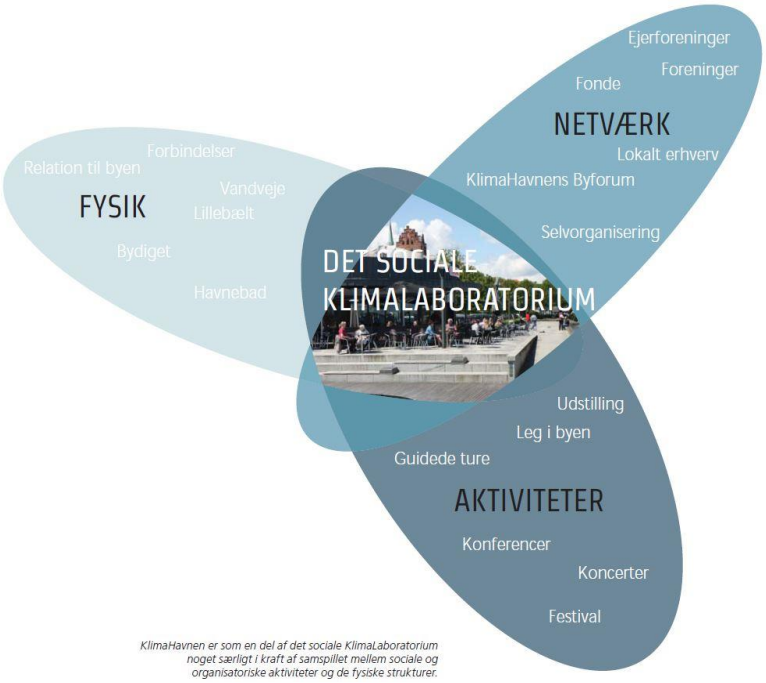


*Figure 6: The Climate Laboratory branches and elements (KlimaHavnen Udviklingsstrategi. n.d.)*

The Climate City project was the first project under the climate laboratory strategy initiated in 2012 and spans over 450.000 m2 of land in a very varied terrain (38 meters in height difference) including residential areas of villas, detached houses, recreative areas, a cemetery and the historic town centre. The idea was to secure the city from flooding from severe rain and cloudbursts with above-surface solutions, while also developing the area and creating new recreative urban spaces for the citizens and users. Due to the very different types of typologies mentioned above, the project is suitable as a demonstration of a solution potentially scalable to suit other cities and urban areas (KlimaByen, n.d.). The Climate City will not be investigated as a case in this research, but is connected to the Climate Harbour case, as the two projects are physically connected since the waterways from the Climate City meet the harbour front where the water runs off. Further, several actors involved in the Climate City; the City Forum, CFBO and the project group are also involved in the Climate Harbour. Thereby several actors involved in the Climate Harbour planning already have a lot of experiences and networks to draw on.

### The Climate Harbour visions and challenges

The Climate Harbour is a project initiated by Middelfart Municipality and Middelfart Utility as part of the development strategy and climate adaptation plan for the city and an extension to The Climate City and the Climate Laboratory. The main events for the planning of the Climate Harbour are presented below (figure 7).

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*Figure 7: Timeline of the main events happening in relation to the Climate Harbour planning.*

The Climate Harbour project area is located in the city center, covering a stretch of 1.6 km waterfront starting at the ceramics museum CLAY in the west and ending at a turbine hall in the east (see figure 8 below).


*Figure 8: Visualisation of the Climate Harbour project area (source: Klimahavnen udviklingsstrategi, n.d.)*

The issues being dealt with at the harbour is the threat of rising sea levels in the future, combined with an increase in the intensity and density of rainwater (cloudbursts) from the hinterland (KlimaHavnen Udviklingsstrategi, n.d.). More specifically, the expected sea level rise in a once-in-a-100-year incident is +1.2m. This combined with a severe storm can result in sea level rise of 4m in the central part of Middelfart. The proportion of impermeable surfaces in the harbour have increased with renovation projects, and since a greater part of the areas in the harbour are below datum 2, the risk of flooding if a storm surge hits, has also increased. The consequences for the infrastructure and buildings near the harbour could therefore be severe and even dangerous (ibid.).

The Climate Harbour has a central role in the city with several cultural values and public functions, as well as both the trade harbour and shipyard in the area. The harbour consists of both industrial, private and public buildings and spaces, as well as several buildings worthy of preservation. Yet, part of the harbour front is in need of more life, which also makes the harbour area an unutilised potential. The Climate Harbour is therefore not just about securing the coast from threads from the water, but also about redeveloping and creating new multifunctional urban spaces for both citizens and tourists.

The strategy for the entire Climate Harbour follows the principles of 'protect - connect - grow', where the first step of protecting involves the construction of a dike to secure the city from the rising sea. The second step of connecting involves strengthening the connection between the harbour and the city center through climate adaptation. The third step of growing implies a utilisation of the improved protection and connections to facilitate liveability enhancing activities in the Climate Harbour by e.g. making the dike a climate walk accommodated to the city and the local citizens (KlimaHavnen Udviklingsstrategi, n.d.).

The harbour is divided in three sub-areas with different identities: *the historical harbour*, *the 'new' harbour* and *the future harbour*, as seen on figure 9 below. The different areas will have a different approach to climate adaptation: the historical harbour is meant to only be slightly adapted, the 'new' harbour is planned to be partly rebuild and the future harbour in an industrial area will focus on future urban development (Ibid.).

*The historic harbour* *The 'new' harbour* *The future harbour*

*Figure 9: Photos of the three harbour areas (source: Orbicon/KlimaHavnen Udviklingsstrategi, n.d.)*

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As a result of an innovation workshop conducted in the initial planning phase, an idea catalogue was created consisting of a collection of 15 ideas and proposals for the design of the dike (see appendix 2). The proposals included amongst others a climbing wall, a harbour bath, sports facilities and meeting places in different sizes, shapes and levels. A few examples can be seen in figure 10 below.

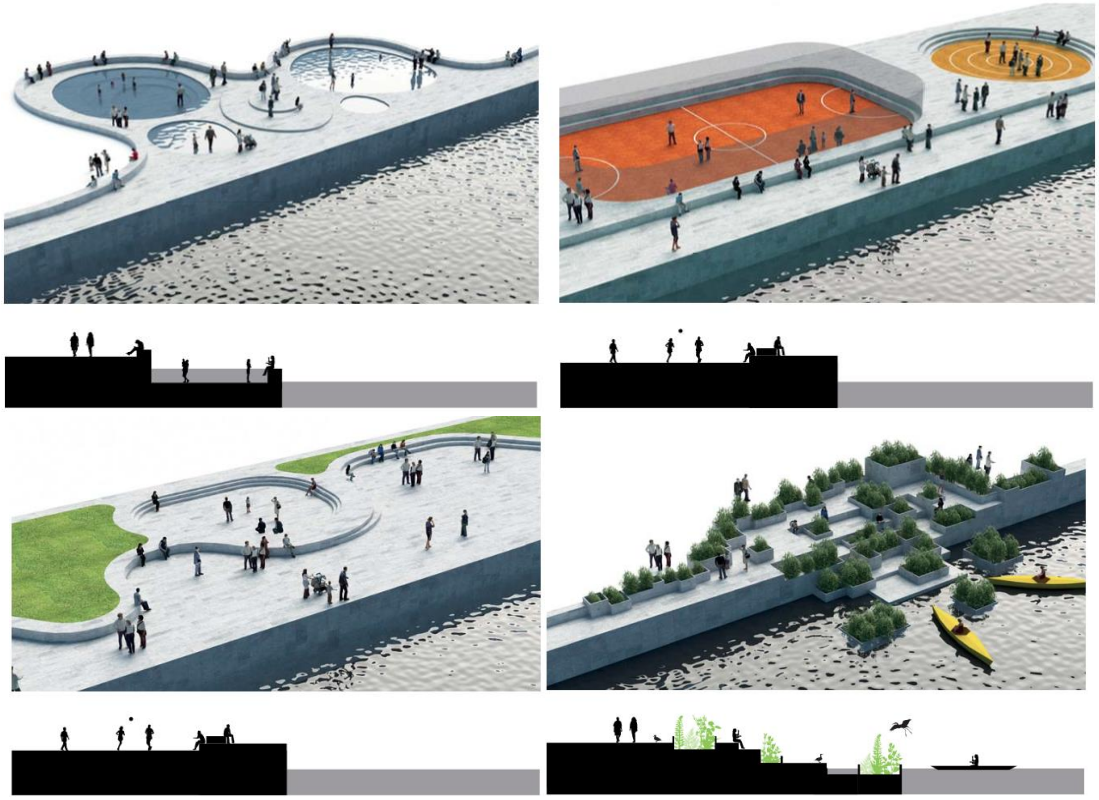

*Figure 10: Visualisations from the idea catalogue for the dike (KlimaHavnen Udviklingsstrategi, n.d.).*

According to the Climate Harbour development strategy, the project seeks to create both environmental, economic, social and recreative added value as the harbour can potentially serve as a display of how flood risk can be solved in an intelligent and innovative way.

In order to understand the setup of relations and engagement happening in The Climate Harbour the primary actors involved in the project and their relation to the project will be presented (see figure 11).

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*Figure 11: Primary stakeholders identified in The Climate Harbour*

Figure 11 shows the primary groups of stakeholders involved in the Climate Harbour as interpreted from our action-based research. The purpose of the figure is to give a relatively simple overview of involved actors, why no arrows have been made between the different actors. These are all linked and connected in different ways, which is symbolised by the grey circle. As the status of whether Realdania will support the Climate Harbour financially is still unknown, they have been placed outside the circle. The mentioned actors do not comprise an exhaustive list.

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# 4 Methodological Framework

This chapter introduces the methodological framework applied in this thesis as well as the considerations behind the research approach. First the chapter accounts for the research approach and literature study conducted. This is followed by a presentation and justification of the chosen case studies and field-based data collection as well as a description of the conducted interviews, data analysis approach and experimental workshops conducted in Middelfart.

## 4.1 Research design

A research design is necessary to ensure an accurate and unequivocal answer of the problem formulation to the extent possible (De Vaus, 2001). Thus, the research design is a guideline that ensures the posed problem formulation, theories and the data which will be prepared and used thoroughly in a meaningful matter throughout the project process (ibid). However, when using an action-research based and navigational approach, the research design will also be subject to changes and develop along the way.

The following research design (figure 12) has guided this project towards an answer of the problem formulation as well as structured the planning process.

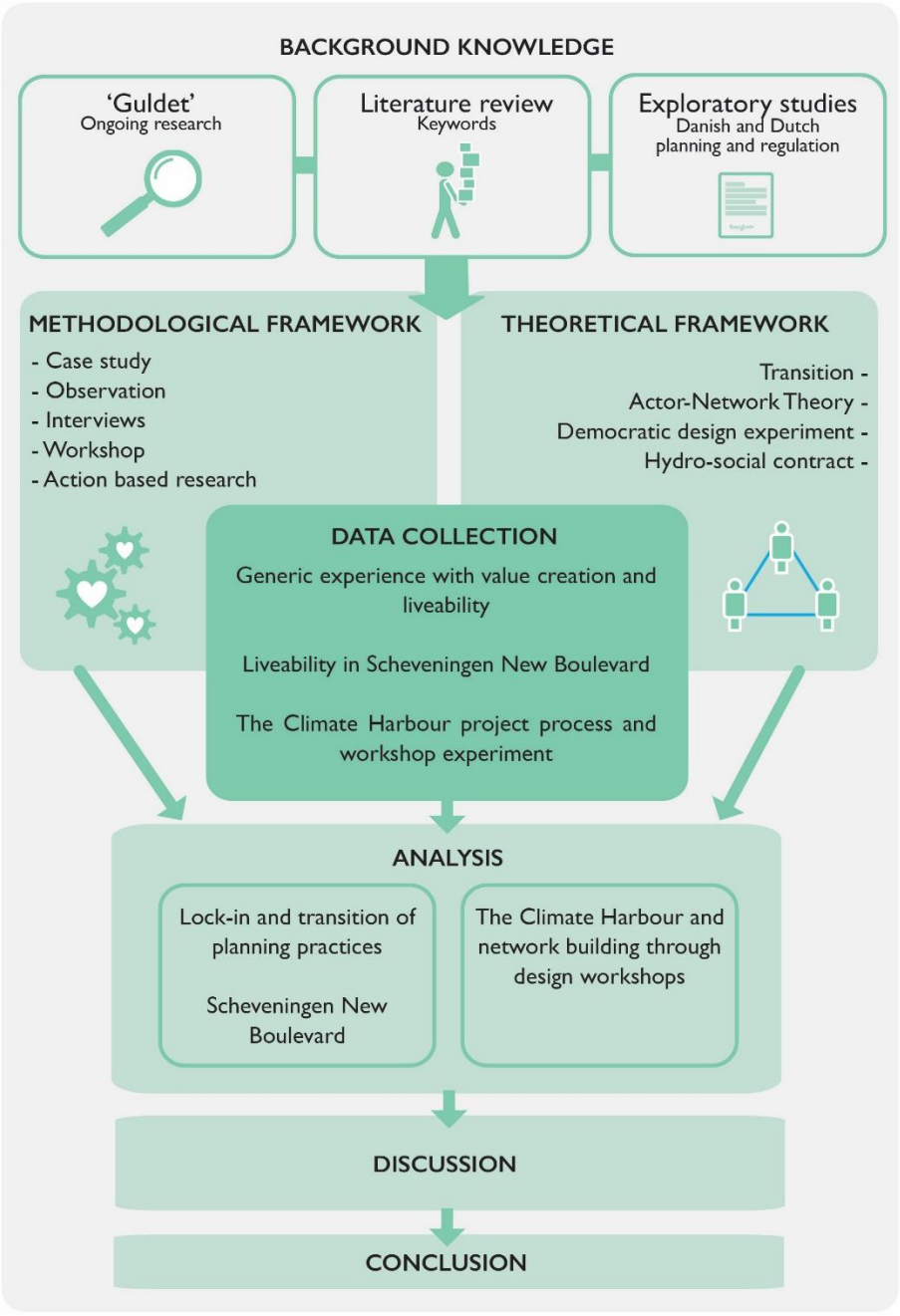


*Figure 12: Structure of the research*

The gathered background knowledge as well as the theoretical framework have formed the basis for the data collection, where different methods have been used to gather different kinds of data. Interviews and observations have served as primary methods for the Dutch case, whereas a more action-research and navigational approach has been undertaken when gathering data for the Climate Harbour case. Therefore, the analysis is also separated in two, as the figure illustrates, as one part includes a broader international lock-in and transition perspective whereas the other part concerns the specific network and relation building facilitated through workshop experiments in Middelfart.

## 4.2 Research approach

The conducted research of this thesis is partly based on an action-research oriented methodology, which sees research as a process of collaborative learning through involving communities and stakeholders actively as mutual producers of knowledge (Mills et al., 2010). Action research changes the role of the researcher from observer to participant and aims to empower communities, untangle the complex dynamics of social contexts and thus change certain practices (van Veelen, 2016; Nørgaard & Holsting, 2015). Action based research is linked to the navigational approach of looking at the role of planners as navigators instead of designers. A navigational researcher tries to work and make sense of the complex network of actors involved in a project process, while also being an active part of this process (Munthe-Kaas & Hoffmann, 2016).

With a focus on value creation and the development of knowledge within this field of coastal protection projects, an action-research based and navigational approach helps in the understanding of the possible knowledge that can be developed when collaborating with stakeholders and communities. Since this research is also trying to contribute to a transition into a planning practice with more focus on value creation in all phases of a project, a navigational and action-research based approach is suitable. Furthermore, since the project will also be exchanging knowledge and experiences with the research project 'Guldet' (see description in the preface section), based on a real-time case project, there is a unique opportunity to work together with stakeholders and place-specific development processes.

The action researcher continuosly shifts between distance and closeness by 'stepping in and out' of the world(s) that are being investigated, and thus critically evaluating other players and the researcher itself (Nørgaard & Holsting, 2015). It is of utmost importance that this distance and objectiveness is being kept, however, it is also a challenge, due to the dual position we hold as researchers, when writing a project as part of a learning process whilst contributing to another ongoing (research) project. It is inevitable that we to a certain extent will be biased by this project's methods and approaches.

## 4.3 Literature study

The purpose of the literature study is to form the background knowledge as well as in-depth knowledge on the topics posed in the project. As Isaac Newton once said: *"If I have seen further, it is*

*by standing on the shoulders of giants.*". With this in mind, the literature study is a way of working with former researchers' knowledge as well as building on and evolving the scientific field of urban, sustainable city planning.

Different kinds of literature have been used to form the background of this report including books, scientific articles, folders and reports, political plans and strategies, as well as newspaper articles and development strategy catalogues. The literature study is based on both national and international literature and has been based mostly on a qualitative approach, trying to uncover reasons and get an insight into the given problems (Kvale & Brinkmann, 2009).

## 4.4 Case study and selection

As part of the research design for this thesis it has been necessary to engage in real-life cases in which coastal protection and climate adaptation planning processes is currently being or has been undertaken.The case study method allows for a qualitative investigation of the causal processes in the specific case and thus provides new knowledge that can also be related to contexts with similar issues (Richards, 2009). However, it is important to clarify that the observed conditions and knowledge are context-dependent, and thus only indicators of possible patterns or trends (ibid). According to Neale et al. (2006) case studies can be conducted on different scales focussing on either individuals, programs or processes, organisations and institutions, or neighbourhoods etc., which can provide the researchers with lessons that are potentially both effective and representative (Neale et al., 2006).

To analyse how coastal protection projects can enhance liveability and added value in an area through a more collaborative involvement of local stakeholders, a multiple case study research design has been chosen, exploring a Dutch and Danish case respectively. The choice of studying two different, yet specific cases was made to gain contextual and detailed knowledge of both the causal processes happening in the projects in these locations as well as understandings of why and how different events have taken place and how certain actors have been involved and affected those specific locations and projects (De Vaus, 2001; Richards, 2009). Thereby this research seek to understand specific challenges and issues in these projects and thus unpack some of the existing complexities, but also the potentials of approaching urban planning processes and coastal protection from new perspectives.

The first case study explored is the project New Boulevard Scheveningen in The Netherlands (see section 3.2), which had the purpose of providing knowledge of a multifunctional coastal protection project after its completion. The goal of this case study was partly to understand the links between liveability and coastal protection through the visions and plans behind the project and the values created for different actors. A further objective was to test our experimental etnoraid-inspired approach in the investigation of usage and value creation at the site. Thereby having the opportunity to analyse and evaluate how the planning process and the result were being perceived by the locals after the project had finished.

The second and primary case is the Climate Harbour project in Middelfart, Denmark (see section 3.4). This case had the main purpose of providing an opportunity to explore the project planning of a multifunctional coastal protection project while still in process. Thus, make it possible for us to engage actively in this process and thereby analyse internal processes, interaction and involvement etc. with the knowledge and experience gained from the first Dutch case study. This case study allowed for a more in-depth investigation of the processes and ultimately test and evaluate the democratic experiment approach in the form of two workshops with local stakeholders (see section 4.7 for further description).

The research approach of both case studies is based on data collection gained from interviews with eight different experts, as well as field-based data (see section 4.6).

The approach to the two case studies are similar in the sense that both are meant to explore and assess how liveability and added value can be or have been facilitated and created in coastal protection projects. However, the point of departure, the specific objectives as well as the scale and local context are very different, as one has already been built and the other is an ongoing project.

### Limitations and reflections

The case study approach has certain limitations, as the study makes the analysis based on a specific context, which delimits the basis of the analysis to those context-specific settings and correlations. The researcher should therefore be aware of her role in the study and avoid being subject to or affected by her subjective views and interpretations, which are some of the critical considerations presented by e.g. Flyvbjerg (2006). The two specific case studies of New Boulevard Scheveningen and the Climate Harbour are relevant in the sense that they address similar issues, however differently in scale and approach, which can tell us something about local similarities and differences but also potentially more global trends.

The case study method further provides us with an opportunity to investigate specific practices and issues by both being a partner in an ongoing research project and having access to internal planning meetings in the Climate Harbour case facilitated by Middelfart Municipality. This enables us to take part in developing new practises when planning for holistic projects that combine liveability with coastal protection.

## 4.5 Semi-structured interviews

As a part of the data and knowledge collection eight interviews have been conducted with different professionals and citizens from both the Netherlands and Denmark. The purposes of the specific interviews differ, but have the overarching main objective of providing a solid base of data to underpin the analysis and understanding of the complexity of the problem formulation. In the following section, the further purpose of the interviews along with the criteria for the selection and presentation of the interviewees, the settings and form of the interviews as well as the data processing methods will be presented.

### Selection criteria

The process of selecting which potential interviewees to contact had an iterative character. The initial criteria was to contact people with a vast, yet general experience within the field of water management, coastal protection, climate adaptation, urban planning, liveability and added value, who could thus provide us with general and preliminary knowledge in the field and potentially refer to other people more specialised in the themes and cases we were investigating. The interviewees were thus chosen due to their knowledge within the aforementioned thematic fields or due to their specific role and involvement in the two chosen cases. Hence, a primary criterion was for the interviews to provide us with case-specific knowledge or experience with niches within planning in either the Rotterdam or Scheveningen area in the Netherlands, the Climate Harbour in Middelfart or the related projects of the Climate City and the Climate Laboratory strategy.

### Interview presentations

Eight semi-structured interviews have been conducted in this research with Dutch and Danish professionals within the field of architecture, urban planning and design, water management and engineering, which will be presented in table 1 and 2 below (see detailed descriptions in appendix 3). The interviews all took the form of being more or less semi-structured. This form was chosen to allow for a level of comparability between the different sources, yet still give the interviewees a chance to present their own perspective without being influenced too much by the questions posed. The semi-structured form further has the benefit of creating a setting where the interview is more flexible and conversation-like, though still being structured by the themes and questions planned in advance. This provides a possibility to move away from the script, if relevant questions or perspectives emerge during the interview (Kvale & Brinkmann, 2009).

*Table 1: Presentation of Dutch interviewees, their respective positions and professions as well as how and why they have been relevant as knowledge providers in this study.*

| Interviewee | Background, position & profession | Expertise, relevance and contribution |
|---|---|---|
| Anne Loes Nillesen | MSc in architecture and urban design, founder of Defacto Architecture & Urbanism and PhD candidate at Delta Urbanism research group. | Nillesen has extensive knowledge of both designing and researching flood risk protection methods. With an education in architecture and urban design she can provide perspectives on whether and how architects' approach the challenge of creating added value in coastal protection projects in general as well as in the specific case of Scheveningen. |
| Age Fluitman | MSc in Architecture, was the main architect at Morales now owner of Fluitman Architects. | Fluitman was main architect designing the solution for Scheveningen New Boulevard. He worked 7 years on this project together with Manuel de Sola-Morales and also in close contact with the engineering department of the city of The Hague. |

| | | |
|---|---|---|
| Peter Christiaan van Veelen | Former PhD candidate at Delta Urbanism research group, currently Delta Coordinator at Delft University of Technology, Faculty of Architecture and the Built Environment, Department of Urbanism. | Van Veelen is specialized in planning and design of water sensitive cities and adaptive coastal areas. He i.a. designed and managed multidisciplinary research projects on multifunctional flood defences for the RCCAS. |
| Jurgen Bals | MSc in Engineering, Policy advisor at Hoogheemraadschap van Schieland en de Krimpenerwaard (Regional Water Authority in the Rotterdam area). | Bals is an experienced consultant and partner in the field of urban water management and spatial adaptation. As experienced in specifically climate change adaptation, groundwater and water storages, Bals has extensive knowledge on the subject from an engineering perspective. |
| Marco Hoogvliet | MSc in Physical Geography, works as Urban (ground)water & soil systems expert and Programme Manager at Deltares, Sustainable Delta Design department. | Hoogvliet has worked for Deltares since 2010 as project manager and expert advisor in urban (ground)water and soil systems within the theme of Adaptive Delta Planning and the issue of resilient cities. He is also the manager of Deltares' strategic research program Sustainable Delta Cities and therefore possess extensive knowledge in the broad field of urban and coastal water management. |

*Table 2: Presentation of Danish interviewees, their respective positions and professions as well as how and why they have been relevant as knowledge providers in this study.*

| Interviewee | Background, position & profession | Expertise, relevance and contribution |
|---|---|---|
| Rasmus Cassøe and Inger Haarup Borchmann | Cassøe and Borchmann are both partners of CFBO, which is a consultancy company working with city planning, strategies, urban renewal and competition preparation.<br>Cassøe is an educated urban planner, while Borchmann is strategic urban consultant. | Cassøe has through CFBO been a part of the Climate Harbour project since the beginning and assisted with the creation of the Climate Harbour development strategy.<br><br>Borchmann has been a part of the Climate City project in Middelfart, and was part of the involvement of different stakeholders. |
| Søren Møller Christensen | Christensen is a partner in his own company Carlberg/Christensen which is a consultant company working with strategies, analysis and preliminary investigations in development projects. Furthermore, he is secretary director for Regn og Byer (Rain and Urban Areas). Christensen is educated in ethnology. | Christensen has worked with urban development and city planning from a cultural and societal perspective for more than 13 years. He is also a part of Regn og Byer (Rain and Urban Areas) which right now is working with the theme of value creation in climate adaptation projects and the tool PLASK, of which Christensen has been part of the development. |
| Mikkel Suell Henriques | Henriques is working as project manager in Realdania with a special focus on liveability through city development. | Henriques has 14 years of experiences with strategic and sustainable urban development as a planner and project manager in municipalities and ministries. He is now project manager in Realdania, and has been involved in The Climate City in Middelfart. |

### Interview guide, settings for the interview and documentation

The interviews took place either at the workplace of the interviewee, in a public café or via Skype, arranged according to the interviewee's preferences. All interviews were undertaken with both researchers present and followed interview guides adjusted specifically for each individual interviewee, yet based on a more general guide of the same particular themes and issues (see appendix 4-4.8 for interview guides). The interviewees had in most cases been provided with a short interview guide in advance as well as a short teaser to the research project. This had the advantage of making the interviews more structured and enabled the interviewees to prepare detailed and concrete answers to our questions. This was of particular usage for the Dutch interviews, conducted in English, which is a foreign language for both researchers and interviewee. On the other hand, it had the potential drawback of preventing more spontaneous, immediate and perhaps unexpected responses to the questions.

Before each interview, it was appointed who undertook the role as primary interviewer and who served as minute taker and secondary interviewer, to avoid any confusion during the interview.

The interviews were all conducted in the time of approximately 60-80 minutes and were recorded on an iPhone, following the consent from each interviewee.

### Data analysis: Processing data collected from interviews

For each interview conducted, transcriptions or detailed summaries have been, made serving the purpose of recapitulating essential points (see appendix 4-4.8). Further, written and oral evaluations of each interviews were made to continuously improve the interview guide, the interviewing techniques as well as the role of the primary and secondary interviewer.

In order to process the vast amount of qualitative data gathered from the interviews as well as being able to analyse this data properly, an extensive data processing table has been created. This table is separated in columns with categories relevant for the overall problem formulation and sub-questions. The table served the purpose of summarising the key findings and was filled in with extracted quotes from the interview transcriptions and summaries, thereby providing us with a more readily accessible amount of findings to be further analysed and processed. The relevant quotes have been extracted determined either by the subject they address or because of the way certain keywords like liveability, value, multifunctionality etc. is being articulated or expressed in the interviews.

### Limitations and reflections

During the phase of contacting relevant interviewees we experienced certain difficulties getting in touch with particularly people in the Netherlands. This was partly due to our, at the time, limited knowledge of the Dutch water sector and their planning authorities, but also due to practical reasons like language barriers and our very short stay abroad. It would have been very interesting to speak to representatives from The Hague Municipality, but they were unavailable for comments. It is though necessary to be aware of the fact that the voices we have not heard also shape the perspectives and findings in this thesis.

Further to this, a relevant reflection is the limitation of conducting interviews virtually over Skype. This was the case for two interviews, which had the drawback of letting the interviews have unintentional focus on technicalities like sound, video etc., slightly odd greetings and a lack of visual body language, all of which have potentially influenced the comfort of the interviewer and interviewee and thus also the flow and outcome of the conversation.

## 4.6 Field-based data collection in the Netherlands and Denmark

As part of the research for this thesis, several types of field studies have been undertaken. The first field trip destination was the Netherlands and the cities of Rotterdam, Scheveningen in The Hague and Katwijk aan Zee. This field trip abroad had the main purpose of investigating different coastal protection projects first-hand and to meet relevant actors in person and thus bring home international knowledge and experience to a Danish context. Being on this field trip was essential for the project in terms of being able to experience different multifunctional coastal protection projects in practice as well as meeting and talking to local stakeholders who would otherwise be difficult to reach. This further provided us with experiential understanding of the locations and the opportunity to collect photographic examples of the urban changes, design and use of the coastal protection.

### Micro-ethnographic approach to field work in Scheveningen

As part of our research trip to the Netherlands, we visited the coastal area of Scheveningen to experience the redevelopment of the waterfront and the New Boulevard Scheveningen (see section 3.2 for description). The methodological approach chosen to study the behaviour of people at the site of Scheveningen was inspired by what Bryman (2008) calls micro-ethnographic method and what Knoblauch (2005) calls focussed ethnography. We use the term *etnoraid*, which can be explained as a combination of short, spontaneous interviews and observations used to study a physical environment and the cultural behaviour of people within a short duration of time (University of Copenhagen, n.d.).

The purpose of the visits was primarily to experience the area first-hand and get a feeling of the place, the facilities, the size etc. and make observations of how people were using the public space and beach. Further, the aim was to get in contact with different users and local actors to investigate the potential added value the project has created from subjective, local sources as well as their involvement in the project (see appendix 5 for a draft interview guide for locals).

A total of 20 people were approached (of which 7 did not actively contribute) consisting of both men and women of different age groups. Besides random passers-by and users of the space, we deliberately addressed the following local stakeholders:

- Beach Restaurant Boonoonoonoos
- Museum Beelden aan Zee (also contacted via email with no response)
- Boulevard Hotel
- Kurhaus (also contacted via email with no response)
- Clingedael running club (also contacted via email with no response)

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### Approach - value map and casual conversations

The strategy was to approach people with a prepared set of questions (see appendix 5) and a map of visual icons of different types of usage as well as different types of values as seen on figure 13 below. The selection of icons was made based on research of a range of different liveability studies and rankings and their respective measures, criteria and categories. It should be noted that this map was a preliminary draft and an experimental approach, hence the purpose was also to test whether this type of tool could facilitate a more qualified conversation of the very abstract concept of values.

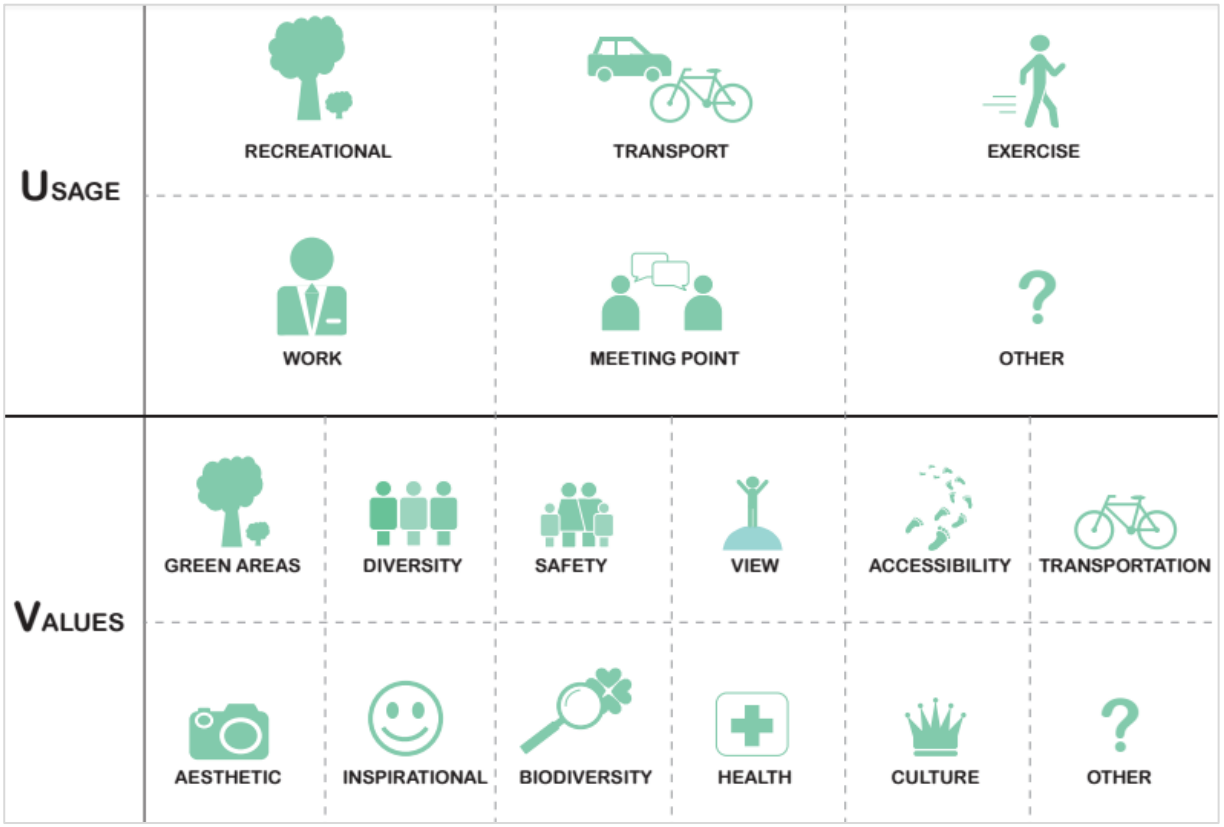


*Figure 13: Usage & Value map, created for approaching the users of the New Boulevard Scheveningen (Source: author).*

This map was intended to be used if people were struggling to express what values the project had created or what values it was lacking. However, certain difficulties were found with this approach, such as weather and close interaction with the actors. To amend this, people were approached in a more casual way, starting a conversation about usage and whether and how they liked the area.

### Documentation and validity of the field work

After each conversation, full written field notes (Bryman, 2008) were made of the input from the respondents as well as of observations. This ethnographic method can be argued to have lower academic credibility and validity as the conversations were not recorded and the notes were

written subsequently, possibly resulting in misunderstandings or misinterpretations of certain information. Yet, this approach still proves useful when conducting this type of mini-ethnographic studies (Bryman, 2008). The purpose of this investigation was to gain some insights from local citizens and users and even though this group of respondents is not necessarily representative of most of the population in The Hague, they provided us with very interesting and valuable perspectives and opinions of the area and its functions and added values as well as a lack thereof.

### Field work and events in Denmark

In addition to the preliminary field work conducted in the Netherlands, we have attended several other meetings and events related to the field of water management and climate adaptation planning as well as specifically related to the case of the Climate Harbour in Middelfart. This was done to obtain broad and practical knowledge, which provided us with a foundation for being able to challenge existing practices and assist in providing a basis for new practices.

A table of the different meetings and events is presented below together with a justification of their relevance for the research for this thesis.

*Table 3: Meetings and events attended as a part of the research for the thesis*

| Event | Participants | Contribution to study |
|---|---|---|
| City and Harbour workshop arranged by Danish Building Research Institute 23rd of February 2017. | Local citizens, researchers, municipalities, business. | Provided a better understanding of issues related to redevelopment of liveable harbour areas in Denmark and the challenge of improving the connection between city and harbour |
| Project group meeting for the Climate Harbour at Middelfart Utility 16th of March 2017. | The project manager, planners from Middelfart Municipality, Middelfart Utility, consultants from CFBO, architects from EFFEKT and researchers from 'Guldet' research project from AAU CPH. | Provided detailed insights of the preparation of the development strategy, the visions and design as well as discussions internally in the project group. Particular focus on the position of the dike. |
| Workshop "Value creation in climate adaptation" about the Climate City at Middelfart Utility 27th of March 2017, hosted by AAU. | Urban, environmental and traffic planners from Middelfart Municipality, the headmaster of the local state school Vestre Skole, a PhD student and researchers from 'Guldet' from AAU CPH. | Provided insights of how actors involved with the Climate City articulated the creation of added value and how these experiences could benefit similar projects like the Climate Harbour. |
| Water in Urban Areas (Vand i Byer) mass meeting on value creation in planning at the Danish Technological Institute 31st of March 2017. | Representatives from Danish municipalities, utility companies, research institutes, consultancy companies and the like. | Provided general knowledge and perspectives on issues and potentials of the documentation of value creation in planning of climate adaptation projects. It further allowed for networking with professionals and opportunity to search for potential interviewees. |

| | | |
|---|---|---|
| Participation in CFBO/EFFEKT's citizens involvement workshop with school children from Vestre Skole in Middelfart on the 16th of May 2017. | Four school classes of grade 6 and 7, three teachers and urban planner Lise Ny Sejer from CFBO and landscape architect Virginie from EFFEKT. | The workshop provided insight into the involvement processes of CFBO as well as the children's perception of the harbour area and their suggestions for future design and activities within the harbour, thus an option for interpreting their values and opportunities for increased liveability in the harbour. |
| Debate meeting on added value and pricing in construction and climate adaptation at Smith Innovation 18th of May 2017. | Participants from municipalities, utility companies, researchers, architects, urban planners and others in the fields of urban planning and climate adaptation. | This debate meeting unfolded the concepts of the perceptible and the measurable added values in climate adaptation. |

## 4.7 Qualification Workshops with local stakeholders

As a response to the preliminary findings about the need for more focus on engagement and value creation, two mini-workshops have been organised in Middelfart with local stakeholders, as a democratic and experimental attempt to develop new planning practices.

### Purpose

The overall aim with the mini-workshops is that they function as small working labs, where participants are stepping out of the frames of traditional planning and into discussing values and climate adaptation and the development of the city in a collaborative way with the planners. In line with both Middelfart's laboratory thinking (see section 3.4) and the democratic design experiment approach suggested by Munthe-Kaas & Hoffmann (2016), this workshop is a way of creating the frames in which networks, relations and competences can be created. In this perspective we are setting up an arena in which a new 'language' can be build in the communicative gap currently existing between professionals and other actors. In here participants can be discussing themes like: What are the (learning/teaching) potentials of the harbour for them in particular; what stories and life do they think could be interesting to see and experience in the harbour; what activities could contribute to this; and how could these be facilitated? Thereby the workshop discussions are meant to contribute to the creation of a better relation to the harbour by co-designing the use of the urban landscape, adding more life to the area, while further making the participants better suited and qualified to participate.

### Participants and locations

The first mini-workshop included three teachers; Malene Jersild Sandgaard teaching biology, Ulf Vincent Olsen teaching social science, Helle Bohn teaching physical geography and headmaster Christian Alnor from Middelfart Gymnasium & HF (the local high school). The second workshop was with three representatives, from the local Youth Council (Ungdomsrådet). Both workshops were conducted on the 17th of May at the High School and at Kulturøen in Middelfart respectively. These actors have been chosen as an example of a potential user group that could explore the harbour in a learning perspective. These were chosen due to Middelfart's focus on children and

young people as the future inhabitants of Middelfart. Furthermore, they will potentially share their knowledge with their parents and relatives and be active parts of the current and future life in the harbour. Other actor groups could have been chosen - a list of suggestions of local actors in Middelfart has been composed and can be found in appendix 10.

The workshop with the Youth Council has been carried out in collaboration with CFBO, who are responsible for the public involvement in the Climate Harbour project. This provided us with an opportunity to influence the process and compare and evaluate our own concept with the official stakeholder involvement initiatives from the Climate Harbour project group.

### Workshop agenda

The mini-workshops were composed by three sessions, which will be presented below.

#### *Session one:*

The purpose of the first session was for the participants to create a language about values by having a discussion and thinking about value creation, and unfolding these values across different liveability themes or identities for the harbour. This creation of a new language was facilitated by seven identity cards, which can be found in appendix 6 and are described further below. The participants were not expected to talk about all 'identities', but choose those relating to them the most.

<u>The identity cards:</u>

Seven predefined identity cards and two 'open' ones have been created. These identity cards serve the purpose of helping the workshop participants to start thinking about different values and potentials for improving liveability in the harbour and thereby facilitate the creation of a language by discussing desires and opportunities. The cards consists of a headline (the identity), a section for noting examples of values, a section for filling in related physical design and a box for drawings and sketches (see appendix 6).

The identities for the identity cards were chosen in an iterative evaluation process, based on literature and international measures of liveability, as well as outcomes from our excursion to the Netherlands, studies of Danish coastal projects and the preliminary literature review. Seven identities were picked from an initial collection of 20 based on some of the themes (challenges and potentials) experienced in harbour areas (see figure 14):

- Smag Din Havn (Taste Your Harbour)
- Udforsk Din Havn (Explore Your Harbour)
- Den Rolige Havn (The Calm Harbour)
- Den Aktive Havn (The Active Harbour)
- Den Smukke Havn (The Beautiful Harbour)
- Den Sunde Havn (The Healthy Harbour)
- Klimahavnen (The Climate Harbour)
- *X: Min Havn ('My Harbour' ?)*

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*Figure 14: The eight identity cards composed for the experimental workshop*

### *Session two:*

The purpose of the second session was to explore how a strengthened relation to the harbour could be created for the specific actors through different activities and what different (learning) potentials the participants see in the harbour.

With a background in the created identity cards, and especially the open ones, the following questions should be answered:

- What activities could be performed in the harbour within the specific identities and within your specific course/for you as young people?
- What are the learning perspectives for the students and objectives for you as a teacher within this activity? (Only for the teachers)
- What could be a suitable name for this activity?

When the participants have brainstormed potential activities and events, they were asked to pick out a few, which they had to name and describe in further detail in a 'table of potentials' (see figure 15 and appendix 7). For the teachers, the focus was on how the different subjects can be unfolded in the harbour, to teach the students through activities.

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*Figure 15: The table of potential constructed for the experimental workshop in Middelfart.*

Often when planning in urban spaces, focus seems to be put on activities happening in the summer, or when the weather is good - as we experienced in Scheveningen (see analysis section 6.3). An example of a recent initiative attempting to amend this has been launched by Frederiksberg and Copenhagen Municipalities with the projekt 'Vinterby' [*Winter Town*], where five 'urban winter-spaces' have been created (Frederiksberg Kommune, n.d.). Inspired by this unused potential, which is often experienced, an annual cycle of the seasons were presented at the workshop (see figure 16 and appendix 8), challenging the participants to think in a broader perspective when discussing activities and potentials. Hopefully, this will contribute to a living harbour environment all year round.

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*Figure 16: The annual cycle of season, as presented in the experimental workshop in Middelfart.*

### *Session three:*

As a final session, the participants were asked to consider how they would argue for and pitch their proposals of activities to e.g. the school administration, the city council or other relevant actors, explaining what learning/teaching goals could be met, or how an event could be arranged.

The purpose of this is to make the participants articulate what they value about the harbour and move from idea to potential realisation. By working actively with values and argumentation, the aim is for the participants to be better qualified, prepared and engaged in showing the relevance of the activities. This will potentially help improve the liveability of the harbour and the High School's climate and sustainability profile, as well as their relation to the harbour.

## Documentation, evaluation and follow-up plan

The two workshops were recorded using the voice memo function on an iPhone, allowing us to reexperience the dialogues. Notes were taken simultaneously with the workshop and subsequently the concepts and sessions were evaluated following both workshops. Photo documentation has been produced during the workshops and of the filled-out identity cards and activity tables.

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At the end of the workshops, participants were asked for their immediate feedback, giving them a chance to reflect upon the sessions and provide us with spontaneous comments on the form, setup, content and execution of the workshop as well as the participants' views on whether the workshop met its objectives and what they thought they have learned.

After evaluation and submission of this thesis report, the outcomes of the workshops - as well of the rest of the research - will be presented for the Climate Harbour project group. The form and setting of this delivery is yet to be arranged.

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# 5 Theoretical Framework

This chapter introduce the theoretical framework applied in this thesis. The chapter will firstly account for why a transition perspective is relevant and needed for the issues investigated, including the concepts of lock-in and path-dependency, particularly in relation to planning practices within the water sector. Secondly, the actor-network theory (ANT) will be introduced in a transition perspective as well as its relevance as a framework when studying change processes in an urban setting. Within the ANT, the concepts of networks, relations, negotiations and obligatory passage point (OPP) will be in focus. The latter will together with the concept of boundary objects constitute a key element in the understanding of the gap between people from different social worlds and how to address this by creating a common language. This will be followed by an introduction to the concept of 'democratic design experiments' and participatory practices and how elements within this approach can be understood through the lens of ANT. Each section will be followed by an argumentation for how the different concepts has inspired our study and how we find them useful as a framework for our own investigations and organisation of exploratory workshops. Finally, the chapter will conclude with a section of reflections on some of the limitations within the chosen theoretical framework.

## 5.1 Typology of urban water and hydro-social contracts

A way of understanding the socio-political dynamics existing in water management is through what Brown et al. (2009) calls "hydro-social contracts". Hydro-social contracts are used to explain how cities transition through different contexts of temporal, ideological and technological character and how they are sensitive to variables such as context-specific histories, geographies, ecologies and socio-political dynamics. The concept of hydro-social contracts can thus be understood as a way to describe

*"…the pervading values and often implicit agreements between communities, governments and businesses on how water should be managed. This contract is shaped by the dominant cultural perspective and historically embedded urban water values, expressed through institutional arrangements and regulatory frameworks, and physically represented through water systems infrastructure"* (Brown et al., 2009, p. 848).

To further address the transition cities are going through, Brown et al. (2009) proposes a transition framework presenting a typology of six city states (see figure 17).

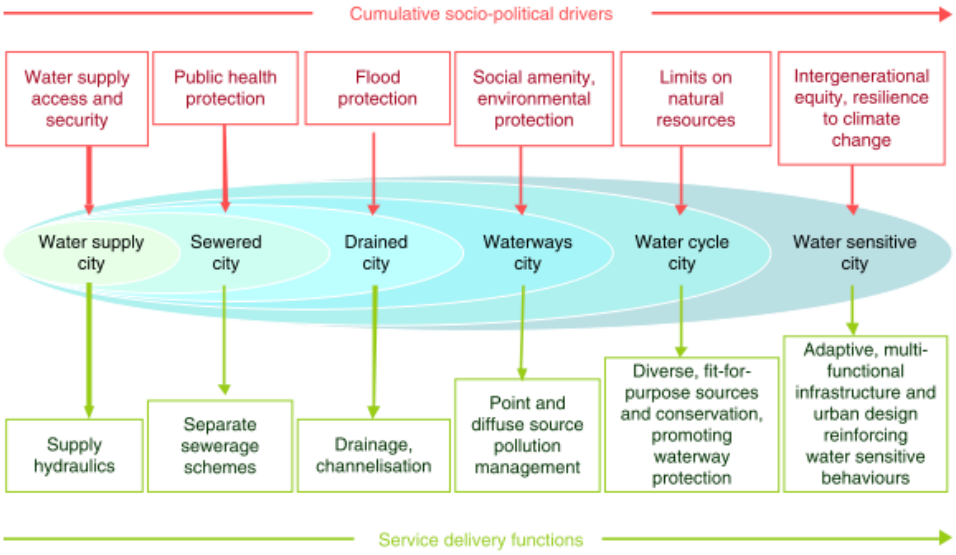


*Figure 17: The Urban water management transitions framework proposed by Brown et al. (2009) (Source: Brown et al, 2009).*

Brown et al. (2009) suggests that a transition towards the vision of more sustainable Water Sensitive Cities is needed and sees the framework as a way to understand the scope of the hydro-social contracts across cities (Brown et al, 2009). The framework will in this report be used to understand and describe the hydro-social contracts currently existing in a Danish and Dutch planning context, and how these need to change, if we are to move to a more sustainable and liveable stage of water management in coastal cities.

## 5.2 Lock-in of socio-technical systems preventing transition

Brown et al.'s (2009) framework can thus be used as a point of departure for change, guided by different typologies of sustainable water management and presenting the vision of the water sensitive city. Yet, transitioning from the current to a more desired state is not an easy task. As Unruh accounts for, some of the biggest challenges experienced in the development of sustainable and resilient cities lie not only within the development of innovative technologies itself, but also when these have to be implemented in society. To understand the resistance of change, it is of relevance to investigate the term Techno-Institutional Complex (TIC), which characterises the situation that arises when large, complex technological systems are embedded in a powerful social context, governed by private and public institutions (Unruh, 2000). These embedded technological systems create a lock-in effect through a combination of systematic forces which are driven by technological and institutional self-interests (ibid.).

Unruh exemplifies through the automobile industry how institutions can underpin a lock-in situation through amongst others the establishment of disciplinary departments where the staff is trained to educate others and refine the knowledge underpinning the certain dominant design and thus contribute to a self-sustaining system consisting of similarly disposed professionals and institutions. As he explains,

*"…these disciplinary professionals tend to be quite conservative and can actively resist challenges to orthodox methods. Thus, standard approaches developed within a disciplinary context can become locked-in as 'curriculum' for long periods of time"* (Unruh, 2000, p. 823).

Unruh's (2000) arguments in his understanding of lock-in are primarily related to the energy sector and the barriers for diffusion of non-carbon technologies. The same principles and elements can be argued to be present in the water and planning sector in general - and possibly many other sectors.

In a water and climate adaptation perspective, the wastewater system can be understood as a complex, socio-technical system consisting of interrelated components and elements of both physical, social and informational character, which are connected in networks. Examples here would be pipe structures, sewage systems, retention basins, channels, treatment plants etc. which are all managed by different public and private social institutions. It is becoming increasingly recognised that a transition of our large-scale socio-technical systems is necessary in order to address the issues of climate change (Jensen et al., 2016).

Although large-scale systems in general in most transition studies have been viewed at a national scale, increasing attention is levelled towards cities as being essential in the transformation of these large-scale systems (Jensen, et al., 2016). Jensen et al. argues that place-specific urban concerns should be prioritised higher than large-scale systems, as doing so would provide a particular transformative potential, with a better opportunity to challenge traditional boundaries and ways of managing the system at this scale (ibid.).

The question is thus, how do we break out of this self-sustaining system?

As this study is not limited to the understanding of the current lock-in of planning practices within the urban and coastal sphere, but also about overcoming these path-dependencies and contribute to the development of new practices, Unruh's considerations on escaping lock-in is of relevance as well. The reason why the lock-in situation is so difficult to disrupt is explained by North (1990) as:

*"once a development path is set on a particular course, the network externalities, the learning process of organizations, and the historically derived subjective modeling of the issues reinforce the course"* (North, 1990, cited by Unruh, 2000 p. 825).

An understanding of the lock-in and lock-out phenomenon presented by Unruh (2000) could help identify potential solutions to the current issues as well as providing a framework for a transition towards a more sustainable water management with value creating multifunctional coastal protection projects.

The next section will present several concepts derived from ANT, as a suggestion of how new ways of involving, organising and collaborating with stakeholders can create room for a change within the current lock-ins and hydro-social contracts.

## 5.3 Concepts from Actor Network Theory

As presented earlier, cities currently find themselves in an ongoing and necessary transition of our society. Within this framework of cities being composed of socio-technical systems, we are inspired by Actor-Network thinking and thus drawing on insights from actor-network theory (ANT), in particularly the recent attempts to transfer this kind of thinking to urban studies (Blok, 2013).

The concept of ANT was developed in the 1980'ies and addresses how diverse networks consisting of both social and material actors can be established, developed and maintained or dissolved. Furthermore, it addresses the strategies behind the formation of these dynamic relations in order to achieve a certain common goal (Law 1992; Callon 1986a). The theory further deals with the process of translation in which interdependent actors of human and non-human character enter into alliances through four phases, moving from the present state to a desired 'actor world' in which all actors are aligned in ways that allow them to reach their common goal (Callon, 1986b). Anders Blok (2013) explores the analytical potentials of ANT in an urban perspective, arguing that it provides a new ontology for the city by viewing the city as "*heterogeneous and dynamic assemblages of humans and non-humans*" (Blok, 2013), rather than singular objects. He further introduces the notion of 'urban green assemblages' as a way of transferring the sensibilities from ANT to the study and understanding of knowledge making and active dynamics happening across specific urban sites, scales and relations (Blok, 2013), which allows for an analysis of how negotiation processes can take place between different actors in urban space (Munthe-Kaas, 2015).

The ANT-thinking is applicable for the understanding and staging of the ongoing work that has to be conducted in order to establish or change relations when seeking to move from an undesirable situation to a more favoured one by developing new networks and actor-worlds. The conceptual framework of understanding the city as urban assemblages consisting of heterogeneous actors is

also suitable for the focus of this study, investigating complex processes happening in the urban sphere.

## Bridging the gap

As part of the understanding of how change can occur, the concept of obligatory passage points (OPP) is introduced. The term OPP is in literature explained and defined in a variety of ways. In an ANT perspective, the OPP is understood as a point of knowledge, through which the solution to a given problem must flow (Murdoch 1996, p. 738). It can be explained as a situation that has to occur, where all enrolled actors must come together in order for them and their interests to be aligned and continue in one direction. Callon (1986b) illustrates how the OPP can be seen as a way of getting several actors' interests funnelled into a narrow passage point, to reach desired outcomes as exemplified in his study of scallops, fishermen and scientists in St. Brieuc Bay (1986b) (see figure 18).

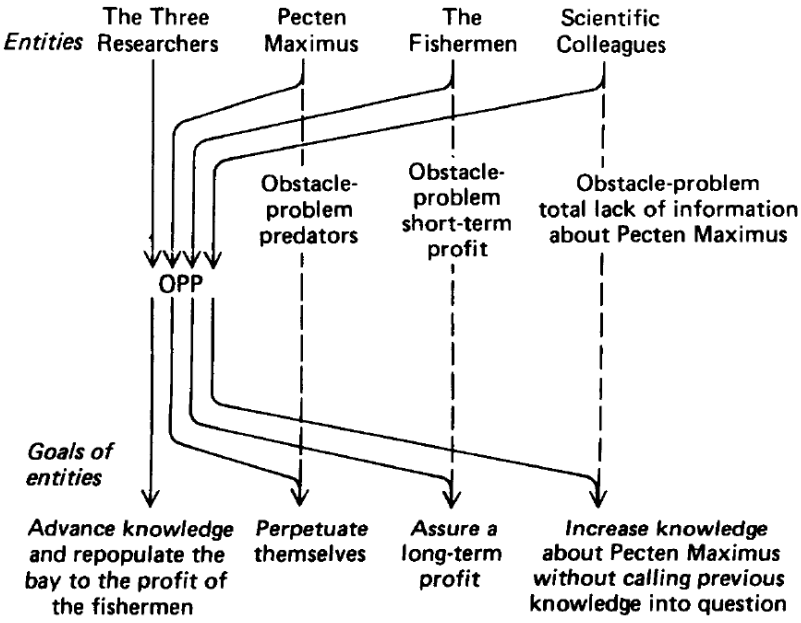


*Figure 18: Illustration of the concept of Obligatory Passage Point (OPP) (Callon, 1986b).*

In Callon´s example, the researchers establish themselves as an obligatory passage point by posing the question of how scallops anchor? The other involved actors (the scallops, the fishermen and the scientific colleagues) must recognise how they can benefit from answering this question and thereby pass through the passage point – all recognising that they are dependent on each other and must form alliances to reach their goals. These goals are in this case defined as the survival of the scallop's species, the economic survival of the fishermen and knowledge creation for the scientific colleagues.

Star and Griesemer (1989) suggest a complementary way of analysing a translation by introducing the concept of boundary objects (BO), which contain several obligatory passage points negotiated with several kinds of allies. The BO is a rather abstract, analytical concept, but can be defined as

*"objects which are both plastic enough to adapt to local needs and the constraints of the several parties employing them, yet robust enough to maintain a common identity across sites"* (Star and Griesemer 1989, p. 393).

The BO's position in the translation process is illustrated in figure 19 below:

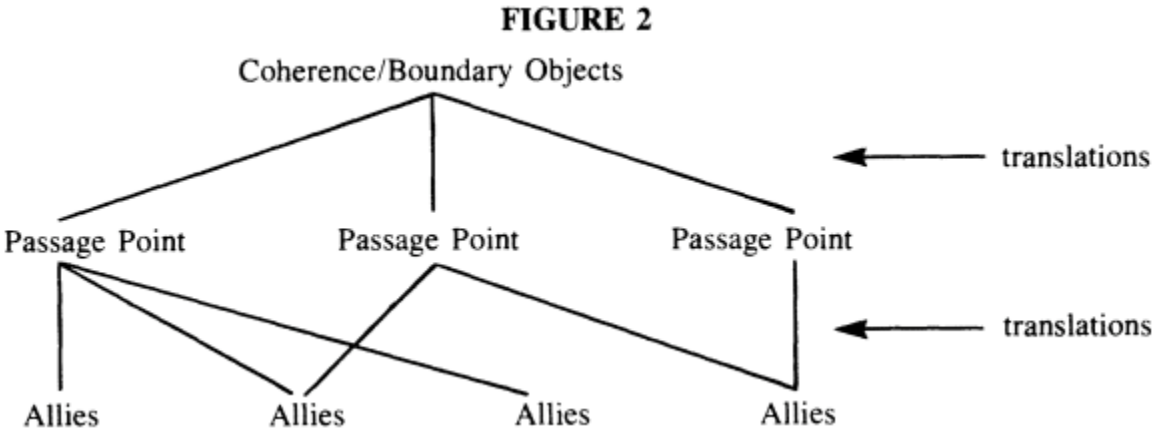


*Figure 19: Conceptualization of Boundary Objects (BO) (Star & Griesemer, 1989).*

Star and Griesemer (1989) explains the concept of BO in their institutional ecology study, addressing the issues of heterogeneity and cooperation arising for the participants involved when conducting scientific work with diverse groups of actors. Although our research is not exploring a scientific work situation, it is exploring cases where heterogenous actors are - or perhaps should be - cooperating on the planning and implementation of an urban and coastal development project to create added value. The authors present different kinds of boundary objects in their study: *repositories*, *ideal type*, *coincident boundary* and *standardised forms* (Star and Griesemer, 1989), as illustrated in figure 20 below.

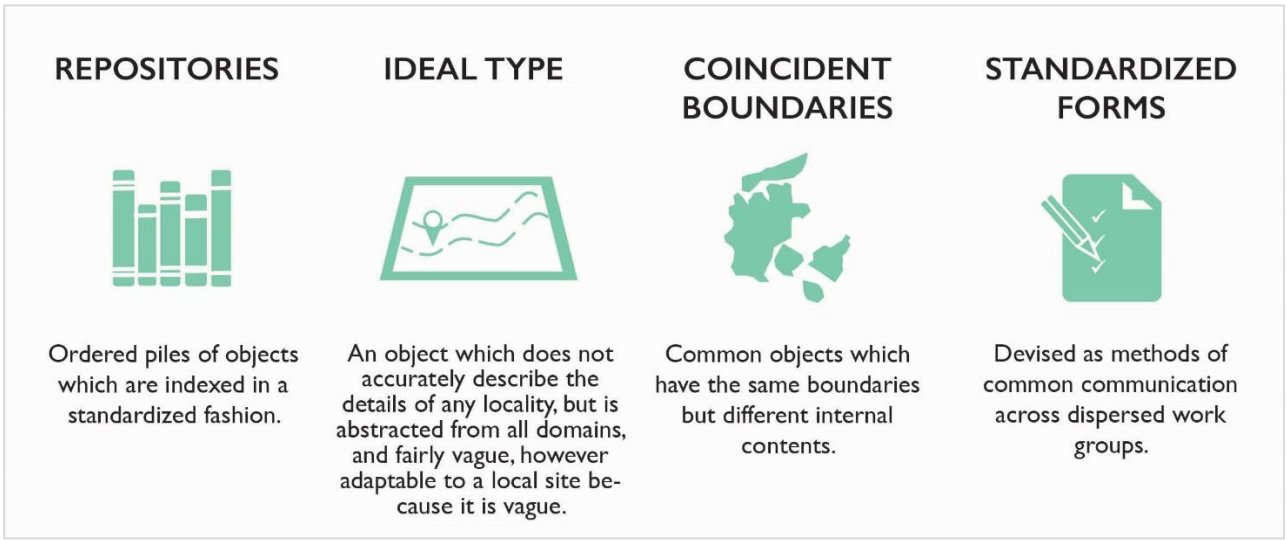


*Figure 20: Different kinds of boundary objects as explained in Star & Griesemer, 1989 (source: author)*

The most interesting type of boundary object for our approach is the 'ideal type' and 'coincident boundary'. Yet, the nature of all kinds of BO's is characterised by them being simultaneously "*concrete and abstract, specific and general, conventionalised and customised*" (ibid., p. 408) and can thus be applied and adapted to many contexts and situations. *"Boundary objects thus have the potential to both analyse and facilitate adoption of an innovative idea, product or technique"* (Fox, 2011). In summary, boundary objects establish a 'shared syntax or language' (ibid; Star & Griesemer, 1989) which enable people from different communities or social worlds to represent their knowledge by providing them with a type of 'device' which make them capable of communicating their questions, ideas and concerns etc. across boundaries.

In the perspective of transition and translation, the concepts of obligatory passage point (OPP) and Boundary Object (BO) will both contribute to the understanding of cooperation and communication between the different actors involved in coastal protection projects, specifically in relation to the Climate Harbour. These concepts will constitute the basis of an investigation of how it is possible to bridge the gap between different social worlds and qualify actors to a shared understanding of coastal protection. Furthermore, a dialogue about value creation as well as improved liveability can be opened up, thereby potentially facilitating a common language to improve involvement, cooperation, communication and relation to the harbour area. Thus, the concepts are not only used to investigate whether and how boundary objects can occur, but also how we as researchers in the process can contribute to their existence.

## 5.4 Democratic experiments and collaborative practises in an urban design perspective

As this thesis addresses amongst others the themes of involvement and participatory processes and planning practices, it is of relevance to look further into the notion of democratic design experiments from a collaborative and participatory urban planning perspective.

In recent years, it has been increasingly recognised how co-creative urban planning practices can benefit urban development and involvement of citizens. In this planning approach, the act of experimentation is playing a new and important role. Transitioning to this more participatory planning approach is widely discussed in literature and with different terminology. Binder et al. (2015) argues how:

*"…participatory design, or rather collaborative design practices, may well be seen as democratic design experiments extending the forms of mediation and representation in politics through thinging and the making of publics"* (Binder et al., 2015, p. 156).

Participatory design practices originate from a critical reflection of how design comes into being, pointing out how design processes are not only about solving societal problems through professional solutions, but also involving and encouraging non-designers to participate (Binder et al., 2015). Thus, adopting a more co-creative urban planning practice implies that the designer is not an exclusive character in the planning process and that several different forms of relevant knowledge and expertise exists. In this perspective, the role of the planner can be seen as more of a navigator than a designer (Munthe-Kaas & Hoffmann, 2016).

## Co-design

It is found in literature that an encounter between ANT and co-design is of relevance when exploring participatory design experiments and how co-design can be a response to challenges posed by ANT (Binder et al., 2015). According to an ANT perspective, 'things' are being perceived as socio-material assemblies rather than just objects, which according to Binder et al. (2015) should be applied in design practices as well, as design is usually considered a 'thinging' practice.

A way of understanding public participation in practice is through the so-called 'Hybrid forums'. These can be explained as

*"…heterogeneous open spaces where actors, including experts, politicians, technicians and laypersons, come together in an atmosphere of uncertainty, to 'take measurements' of often controversial issues of concern to the people involved"* (Binder et al., 2015, p. 156).

These hybrid forums are connected to 'urban green assemblages', arguing how hybrid forums can be composed of "*architectural engagements with sustainability projects*", thereby "*entangling a range of mutually contentious knowledges, material practices, and value commitments within an urban green assemblage"* (Blok, 2013, p. 12). Through this Blok explores how architects inscribe urban natures into plans for the future, arguing that particular actors like the architect plays an essential role in uniting divergent sustainable urban planning projects, because some kind of architectural proposal will act as an obligatory passage point for the actors involved and their knowledge, thereby suggesting that architects and/or their inscriptions act as mediators (Blok, 2013).

In continuation of this view on sustainable architecture, Blok (2013) also suggests a strong emphasis on context in design, since architectural proposals will give material form to site-specific settlements. He further proposes three ways of dealing with context in design, all with different future visions: *Context bound design*, referring to architecture with 'natural' qualities and crafted from local materials; *Context-free design* focusing on a modernist, dominant sustainable architecture not bound to a particular place and centered on efficient technology and; *Context-rich design* consisting of traditions from community-based architecture and with advanced technologies referring to their social ecologies (Blok, 2013).

Binder et al. view co-design or practices of participatory design through the lens of ANT as laboratories, emphasising how "*participatory processes mobilise and align collaborators (...) through the making and enactment of design representations that act as boundary objects*" (Binder et al., 2015, p. 159), thus 'drawing things together'. These laboratories should not be seen as closed settings, but rather as embedded in the city as living labs, where it becomes possible to open up networks and thereby mobilise different actors in new ways (Munthe-Kaas & Hoffmann, 2016). This could in practice be facilitated in the form of a workshop or similar encounter between different actors. But Binder et al. (2015) also encourage further experimentation with collaborations and

democratic design experiments through i.a. design activism, yet this will not be further explored in this research. The notion of democratic design experiments can be explained as *"working by making issues experientially available to such an extent that 'the possible' becomes tangible, formable, and within reach of engaged yet diverse citizens"* (Munthe-Kaas & Hoffmann, 2016). Planning design is thus seen as a process of prototyping and working with engagement of possible worlds instead of aesthetics.

In this research, we are particularly inspired by the idea of opening up the city - in this case Middelfart - for discussion and (re) imagination of desirable futures as presented by Munthe-Kaas and Hoffmann (2016) in relation to the concepts related to democratic design experiments and collaborative practices.
Through an actor-network inspired approach, we seek to investigate, understand and shed light on how the different actors involved - or not yet involved - in the case of the Climate Harbour project in Middelfart are related and (potentially) involved in the project and how value creation and liveability can happen in this process. Thus, the concept of actor-network is useful in an investigation of how it is possible to engage in new networks, create alliances and relations across different sectors and types of actors. Also to create more holistic and multifunctional coastal protection projects which creates value for the people involved as well as those using the area through a more collaborative and experimental approach.

## 5.5 Limitations of the chosen theoretical framework

The previous sections have accounted for the theoretical framework chosen for this study as well as the opportunities and nuances it provides. Yet, it is also important to be aware of the weaknesses or limitations of the theories and the points of criticism which are relevant for this research.

### Actor-Network Theory

Although ANT as an approach can seem rather broad and easy to apply to different contexts as well as offer insight to a great number of different cases, the theory (or concept) also has its limitations. Certain scholars argue that ANT lacks attention to the impact of practices and cultures (Sismondo, 2010) because of ANT's way of viewing human and non-human actors as equally influential. Further because of an externalised perception of actors, it fails to account sufficiently for the subjective human characteristics such as culture and practices (ibid.). Blok (2013) does however argue that seeing ANT as promoting flat social territories, without attention towards cultures and practices, is a misunderstanding. He emphasizes that by refusing to imagine overarching power structures it is possible to study the concrete practices of socio-material ordering within specific urban relations (Blok, 2013).

In this study, practices and cultures are essential elements and as it investigates a transformation process, the importance of them must not be underestimated. Therefore, we seek to use these concept through the lens of other frameworks such as democratic design experiments.

### Boundary Objects

The theory of Boundary objects has generally been well-praised (Worrall, 2014) and can be viewed as an all-embracing concept because of the abstract theoretical definition. However, one of the progenitors of the concept, Susan Star, points out how *"boundary objects are not useful at just any level of scale or without full consideration of the entire model"* (Star, 2010, p. 34), which is important to be aware of when seeking to apply the concept to different objects and in different contexts.

Further it is important to be aware of the attention the notion of boundary objects has received due to its degree of flexibility, which by some is considered a limitation (Worrall, 2014). It is argued by Fujimura (1992) (in Worrall, 2014) that the theory is disadvantageous in the attempt of stabilising actors or allies (as presented in ANT) because BO's are too elastic and flexible giving room for too much negotiation (Worrall, 2014). Yet, at the same time others (Kimble et al., 2010) have been criticising BO's for being too mechanical and for not making them subject to the local context and conditions, arguing that BO's should be seen in the context of the people who chooses them as well as their motivation and communicative role (ibid.).

### Democratic design experiments

The notion of democratic design experiments which is also used extensively in this thesis is a relatively new concept building on a collaborative, participatory and co-design thinking. It has not yet been subject to specific criticism. Munthe-Kaas (2015) does however mention that "*It is (...) still a challenge to transfer the new understandings of the local area further into the planning process"* and that the knowledge gained from design experiments easily can become lost in the process (Munthe-Kaas, 2015).

As all other concepts and theories applied in this thesis, it is important to be aware that choosing this framework sets a certain direction of the research and leave out other possible approaches. Thereby we have taken on a more practical and experimental approach rather than more analytical approaches like i.a. using Arnstein's (1969) 'Ladder of Citizen Participation' for analysing levels of existing participation processes or discussing from a more policy-oriented perspective the transitions from government to governance.

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# 6 Analysis

The analysis chapter in this report is divided into two larger parts.

The first analysis part explores and unfolds the part of the research questions that addresses the linkage between coastal protection and liveability in different contexts and the issues related to the transition of planning practices that this combination requires. These themes will be analysed partly on the basis of experiences from a research trip to the Netherlands, a literature review, as well as from interviews conducted with experts in the field of urban planning and climate adaptation in both the Netherlands and Denmark, who are occupied by these issues on a daily basis.

The second part will explore the case of the Climate Harbour project in Middelfart through the notions of creating liveability through collaboration on the basis of the framework of ANT and concepts derived from studies of democratic design experiments.

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# ANALYSIS PART I

## 6.1 Lock-in and barriers for combined liveability and coastal protection projects

The core issue of the linkage between coastal protection and liveability is the task of linking a solution that combines something technical with something a lot more abstract and intangible like urban life. This section will explore different concrete examples of the existing lock-in still occurring in Denmark and the Netherlands when trying to deal with these new types of solutions.

### Sector budgeting and tax limitations

All nine actors interviewed for this study highlight the lock-in related to the current sectoral separation of authorities and organisations, their departments and related budgets as one of the main barriers for linking and financing coastal protection and liveability. This sector-structure does not make them suitable for very integral or interdisciplinary projects. Researcher and former employer at Rotterdam Municipality, Van Veelen (2017) emphasises particularly the difficulty in bringing budgets from one department to another in the Municipality of Rotterdam, as the teams dealing with different aspects of the public realm is divided in different departments, which constitute a barrier for creating a project favouring several areas (van Veelen, 2017, p.c.). This is also the case in a Danish context, as Cassøe (2017) explains:

*"The issue is to transfer a budget from e.g. the culture and leisure administration to the technical and environmental administration, if the goal is to create urban life through finance from the cultural department, but has to be addressed through a technical facility. That is where the framework conditions are difficult and where the municipalities are locked-in"* (Cassøe & Borchmann, 2017, p.c.) [Authors' translation from Danish].

At the same time, it is also politically and economically difficult, because the money from the sewer department managing the wastewater is based on taxes, and in the Netherlands, it is not possible to raise taxes for the sewers and then spend it on parks and public space (van Veelen, 2017, p.c.). This issue becomes even more apparent when trying to make above-ground solutions, and further highlights the need for reorganisation of both regulations and practicality within the organisations. As Hoogvliet, an expert advisor from the research institute Deltares points out:

*"…we are now in a phase where we want to do very integral projects, but organisations on the government side are not organised in that way, and the financial structure there is not organised in a good way. And that gives a lot of "white noise" a lot of bureaucracy, a lot of talking, and a lot delay"* (Hoogvliet, 2017, p.c.).

A further issue is the economic insecurity. In Denmark attention is brought to having water on the surface instead of in pipes underground, as this is already a well-recognised significantly cheaper solution (Christensen, 2017, p.c.). It seems however, that this situation is not the same in the

Netherlands, where it is still questionable whether this way of making projects is a good business model for some institutions:

*"We have an old system, the way water is drained with the sewage system and we want to change to a new system, with permeable streets and more green - that's the added value (...) We all want to go to this new climate adaptive city, but is it also economically feasible? If you go from one system to another system, you have some transition costs and how do you deal with that (...) how do you finance that with different interests?"* (Bals, 2017, p.c.).

Although economic incentives for moving water to the surface have been recognised (in Denmark), current regulation is still based on the old underground pipe system and so is many of the sector-divided professions and working methods, which will be further explored in the following.

### Lock-in of challenges in traditional sectoral professions

Building on the economic and regulative path-dependencies, one of the issues related to this according to urban planner Christensen (2017), is that there are only few incentives to actually work across these sectors, as it is both inconvenient and the risk is that it will end in failure because no standard procedures exists to guide you (Christensen, 2017, p.c.).

#### *Engineers vs. architects*

One thing is the challenge of lock-ins in the way authorities, institutions and the like are practically organised, as accounted for above. Another aspect is the challenges being faced in terms of cooperation between professions from different, yet intersecting social worlds (Star & Griesemer, 1989) when making these holistic coastal protection projects. The transition to more integrated planning practices require not only better cooperation between those making the technical solutions to flood protection and those designing the urban space, but also better communication (ibid.). These professions have not always been used to integrated working procedures (Nillesen, 2017, p.c.) and speaks very different professional or specialist 'languages'. This is one of the main challenges pointed out by several of the interviewees, which also constitutes a lock-in. Urban designer Nillesen exemplifies the gap between two fields of professions with the story of an architect who created a bypass for a river, but met the very logical, technical and rational reaction from engineers that "*Water does not go uphill!*" (Nillesen, 2017, p.c.). The same impression is given by architect Fluitman (2017), who refer to the Dutch water boards (Hoogheemraadschaps) - often employed by engineers - as generally being solely technical-oriented:

*"They [the water boards] are very stiff and are not in competition with other parties. They are concerned about safety and the very technical solution - not interested in the well-being of the citizens"* (Fluitman, 2017, p.c.).

Further to this difficulty of working across sectors, Christensen (2017) also emphasizes the lock-in of the usual and self-reinforcing path-dependent practises and habits of the people working in these organisations, which seem quite heavy as well.

### *Extensive knowledge as a lock-in?*

With the Netherlands' long history of planning their coasts and their vast experiences within technical solutions and strategic development, they were thought to be frontrunners when it comes to innovative and holistic coastal projects as well. However, the findings from this research indicates that they are not particularly innovative when it comes to the notion about liveability and value creation through collaboration as an integrated part of their projects. This research suggests that due to the early dealing with threats of flooding from the sea, a very centralised, technological controlled planning focus have kept them in a lock-in stage. It indicates that they know the technology, geography and safety levels so well that the 'new' idea about creating different and more multifunctional dikes might create more resistance among planners, than it would in other countries. Even with a change towards a more adaptive thinking, planning and construction, the lock-in regarding liveability thinking is still apparent, as experienced in the Scheveningen case study and supported by interviews (e.g. Hoogvliet, 2017, p.c.; Van Veelen, 2017, p.c.).

With this argument in mind, it could seem like the Danish planning of flood protecting harbours in a liveability perspective actually has an advantage, since it is a quite new field for a lot of planning actors - combining the technical and spatial part in urban areas. Although building dikes, groins and making beach nourishment has been a practice done for many years in Denmark as well, project manager in RealDania, Henriques (2017), mentions how RealDania has just started to explore and decide how they will enter into this field of coastal protection and liveability (Henriques, 2017, p.c.). Thus, it seems like it is increasingly recognised in Denmark that technical facilities for coastal protection should be integrated in the urban fabric.

An example of this liveability focus from practitioners can be seen in the thoughts of urban planner Rasmus Cassøe, stating that there is no technical challenge when dealing with rainwater and climate adaptation. It is expensive, but not difficult, and the complexity lies not within the technical solution:

*"You can build a wall and the problem is solved. That just isn't the challenge. The best advice to give someone facing this challenge [urban flooding] is to not consider this a technical project - this is a social project, and you should consider this a unique opportunity to increase the economy in the city and use it for creating something with a long-lasting value (...) that is an interesting paradigm shift currently happening in our cities, changing from urban planning as being about creating proper infrastructure and harbours to be about liveability."* (Cassøe & Borchmann, 2017, p.c.). [Translated from Danish by authors]

However, according to RealDania in the Seawater Report conducted for them by Ramboll (2015), the technical aspects are not perceived as quite so simple: "*The limited Danish knowledge of features and technical solutions for climate adaptation to sea-level rises is therefore perceived as a barrier to implementing long-term and multifunctional solutions*" (Ramboll, 2015), which again suggests that more experience is needed in a Danish context.

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The lock-ins exemplified in this section are chosen as some of the strongest lock-ins currently existing within the planning practices of multifunctional climate adaptation projects. Other lock-ins has been identified through our research and can be seen in figure 21, but will not be further discussed, since the focus of the report is elsewhere.

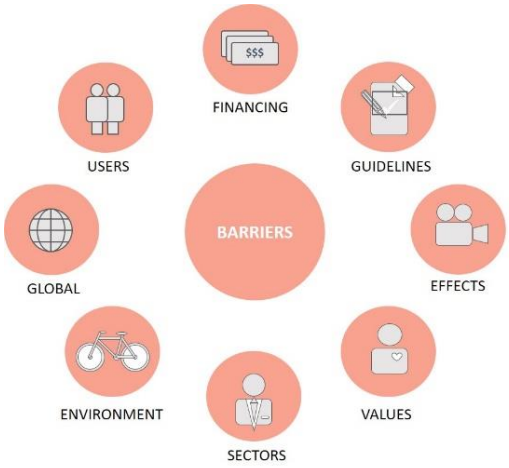


*Figure 21: Barriers for transition of planning practices to combine coastal protection and liveability (source: authors)*

## 6.2 Occurring transitions and lock-out initiatives

### Transition - Strategies to promote holistic solutions

Although many elements are reinforcing the traditional path of planning practices, new initiatives and incentives to break with the lock-in increasingly emerges.

What has happened in Denmark within the past five to ten years is that the climate debate has become increasingly prioritised on the political agenda. A reason for this is the extreme cloudburst incidents happening in Denmark in 2011 and 2012, which are also being referred to as "licence-providing rain". The size of the challenges they caused triggered a burning platform for action, which was not apparent just ten years ago when e.g. new residential buildings were built in datum 1.1 in Sluseholmen in Copenhagen (Cassøe & Borchmann, 2017, p.c.). This 'burning platform' or incentive for change in regulations and practices, can be seen as an example of an external shock (Unruh, 2002) influencing the institutional stability and leading to a form of disruption, in this case resulting in the Copenhagen Cloudburst Plan which required a change in the existing techno-institutional infrastructures and planning practices.

The Netherlands might, as suggested, not be in front when it comes to liveability enhancing solutions, but the increase in flood risk has led to many new national strategies and initiatives addressing climate adaptation from a more holistic approach. These have been enacted within the last decade, as explained in the case description section 3.1, and all have an influence and set out demands for the cities to deal with climate adaptation. As a part of this new-found attention and interest in holistic climate adaptation, the *Rotterdam Climate Change Adaptation Strategy (RCCAS)*

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has been ratified in 2008 (Rotterdam Climate Initiative, n.d.). The strategy explains how as a basis (first circle in the figure) Rotterdam can continue to rely on their current robust system consisting of a variety of different flood defence structures, thereafter focussing on adapting to being less vulnerable and more resilient. This implies and entails increased cooperation with citizens and businesses, corporations and network providers, educational establishments and societal organisations (NGO) as well as linking this to other projects to achieve resiliency (third and fourth circles). The final step is to achieve added value in four aspects of sustainability (Rotterdam Climate Initiative, n.d.) (see figure 22).

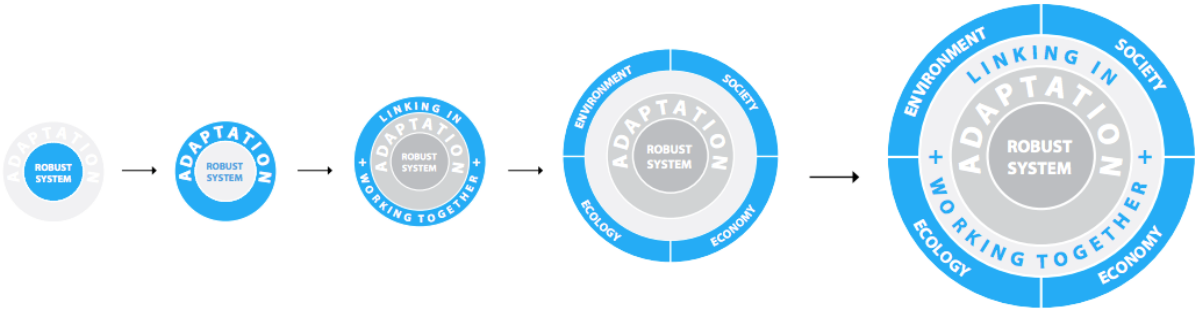


*Figure 22: The Rotterdam Climate Change Adaptation Strategy (Rotterdam Climate Initiative, n.d.)*

The underlying basis of the RCCAS is the transition framework presented by Brown et al. (2009), consisting of a typology of six city states, which is underpinning Rotterdam's transition towards more sustainable water management (Bals, 2017, p.c.). The municipality was inspired by this conceptual tool when they initiated the strategy, and the local water board is using it as a platform to engage with local companies as well as the people, planners and designers of the city (ibid.). As engineer in the water board for the Rotterdam area, Bals (2017) explains *"it's not just about water and climate adaptation, but also the benefits for society, for the community, ecology and environment. So, it's an integral plan and strategy"* (Bals, 2017, p.c.). The question is how these societal benefits are approached and achieved?

The RCCAS can be seen as a step towards changing planning practices and approaches, but as figure 22 illustrates, planners are going to deal with a lot more complex procedures and networks as the aim of an adaptive, resilient, robust and sustainable city requires the involvement of a variety of different stakeholders. Van Veelen (2017) emphasizes the complexity in moving to an approach where you deal with projects of both complex and adaptive character: *"We came from a blueprint planning approach (...) and now we are kind of in a collaborative planning approach, which means many stakeholders are trying together to come up with strategies that acknowledges that the urban system or deltas is a very complex, but at the same time adaptive system."* (Van Veelen, 2017, p.c.) [Grammatical adjustments made by authors]. The level of collaboration can however be questioned, as it is not quite clear if this collaboration is only happening at a professional level or whether it also involves different public actors in a collaborative way.

The increasing complexity is also experienced among designers, who experience a change in their own role in projects, as Nillesen (2017) mentions;

"*It means that your projects get more interesting, but also more complex. We shift a bit from making the design, to also being someone much more in a process, (...) In generally you see that designers can work a bit better with complexity, because they are more used to it*" (Nillesen, 2017, p.c.).

This could show a transition towards an increased focus on design as 'thinging' and the designer as the hunter-gatherer navigating through engagement and collective decision making (Binder, 2015; Munthe-Kaas & Hoffmann, 2016).

These findings indicate that cooperation between professions is generally improving and that designers, landscape planners and engineers now experience being much more involved in integrated teams compared to the situation ten years ago (Nillesen, 2017, p.c.; Hoogvliet, 2017, p.c.) This suggests that new alliances and networks are being established.

### Transition - of the hydro-social contract

We are currently seeing a slow transition towards a different management paradigm for water and urban planning, which in both Denmark and the Netherlands implies complex hydro-social contracts, similar to how Brown et al. (2009) describes the Australian situation. As mentioned, the Netherlands and Rotterdam in particular are inspired by Brown et al.'s (2009) framework aiming towards a water sensitive city.

With an increased focus on holistic solutions, managing climate adaptation in an urban context implies very physically different water system infrastructures with water as an integrated element in the urban space. This also entails an altered distribution of functions and responsibilities, which means new stakeholders such as the community is playing an active role in managing water and climate adaptation. In practice however, giving citizens a more implicit and active role makes the hydro-social contract even more complex, and this responsibility of citizens is not yet a *de facto* practice in the Netherlands.

As Bals (2017) explains, the water board in Rotterdam had a campaign a few years ago, with the purpose of making people more conscious about water storage and the importance of making private streets and gardens more green. However, although some people are very positive about the effects from greening, Bals also explains a common reaction from citizens as

*"they really don't like gardening, so they buy a new house, and they put stones everywhere in the garden, and if everybody has a stone garden, it's really not good for the water management"* (Bals, 2017, p.c.).

In order to change this trend, the hydro-social contract must be changed. Private actors need to understand the importance of working with the water, and that wastewater and rainwater need to change from being something only handled by the state or municipality, to something everyone have a responsibility for. Although the management of surface water in cities and coastal flooding caused by rising sea levels is different and have different responsible parties, the complexity is the same. It can therefore be argued that a future hydro-social contract regarding coastal protection would involve similar levels of co-management between business, communities and the government, sharing the risk between both private and public parties.

Borchmann (2017, p.c.) tries to explain how the thinking of working collaboratively with water management can be compared to the Danish media license slogan "*Licence is something we give to each other"* [Authors' translation from Danish]. This is of course also further linked to the discussion about who should pay for the adaptation, which in coastal protection planning has been an issue in Denmark for many years, since the responsibility for coastal protection is divided between landowners, municipalities and the state (Kystdirektoratet, 2017, February 28). The discussion will not be further explored, but illustrates how the hydro-social contract has a say in the planning practices of today.

In the Netherlands, the hydro-social contract has an extremely important role, as people have been dependent on the state to take care of the life-threatening water from the sea through many years. This has also created a strong faith in the Dutch government, and an idea of not having to take any responsibility in the handling of water. Van Veelen (2017) further explains the dilemma between protection and adaptation: When authorities build a big dike, a tendency is that people will feel safe and therefore not adapt their own houses to the flood risk and maybe even renovate their basements in a not adaptive way. This then increases the risk of damage and economic loss, forcing the authorities to continue their technical flood wall strategy (van Veelen, 2017, p.c.). Without going further into an institutional analysis, it can be assumed that for a transition of the hydro-social contract to take place in a Dutch context - and potentially Danish - and to become less unstable, it would require the involvement of practitioners in multi-stakeholder learning. This would have to happen to a larger extend in order to deliver more flexible solutions, which add further complexities to the ongoing transition (Brown, 2009).

### Transition - From Intentions to Practice

As a part of the interviews conducted in the Netherlands all the interviewees were asked about the most important recommendations they would give to Danish planners and practitioners regarding coastal protection projects seeking to also create liveability (these can be seen in table 4 below). These recommendations further illustrate the statement about the more rhetoric focus on added values through liveability.

*Table 4: Important recommendations from Dutch to Danish planners and practitioners regarding coastal protection projects seeking to also create liveability*

| Focus on cooperation and communication | Focus on design and techniques |
|---|---|
| "*Get out and know the projects for the next years. Meet the stakeholders and planners - do not just involve your own (water management) colleagues, but also stakeholders from other fields. Meet and build networks - the sooner the better - and make adaptive and integrated plans*" (Bals, 2017) | "*Work more with nature instead of trying to regulate or organise it – let nature have some space in public space and the built environment. Try to find the contrast between the build environment and the natural environment, this contrast is often very nice"* (Fluitman, 2017) |

| | |
|---|---|
| "*Translate your messages to different languages to break barriers between the different fields. Use for example maps as a tool for translating/explaining. Try to break it down into pieces*" (Bals, 2017) | "*Be interested in the technical elements and understand the mechanisms behind it*" (Nillesen, 2017) |
| "*Do not be afraid of the ideas coming from citizens. Citizens can be interested and worried, but when you as a city/municipality inform and involve them and are being transparent with the information, people are open to collaborate and find solutions*" (van Veelen, 2017) | *"Work with adaptive planning instead of blue prints, remain flexible due to uncertainties*" (Nillesen, 2017) |
| "*It is important to have a good understanding of your goals, ambitions and objectives. If you do not know what you want to achieve, it is difficult to involve citizens properly*" (van Veelen, 2017) | *"Make your project a part of for example an adaptation pathway strategy. Flood defence is a system and not just one building or construction, so you will have to look at the entire system and how the project fits within it and put it into a long-term flood safety strategy. You will have to cope with uncertainties, and one of the ways to do so is for instance to prepare for the demolition of a construction in 50 years"* (Hoogvliet, 2017). |

Several of the recommendations shown in table 4 are very much in line with the approach of the ongoing research project 'Guldet' in Denmark and with the practices that we are seeking to investigate and improve in this research, such as improved cooperation and breaking the barriers between the different fields and involvement of citizens. Especially Bals (2017) mentions how the water board is now focussing on adopting a more holistic approach: *"We need to change or translate our water challenges into spatial development (...) It's another language"* (Bals, 2017, p.c.). Bals further states that:

*"You find these integrated projects, and therefore you need to work together with all the stakeholders in that area, and that you can translate it into a common language, so you can explain to each other why it's important or what the alternatives are"* (Bals, 2017, p.c.).

However, this research suggests that the transition process towards multifunctional coastal defence projects is happening rather slow in the Netherlands and perhaps to a certain extent is more "rhetoric" than action.

When being asked how they worked specifically with value creation (liveability) and which processes they were going through with new actors and stakeholders, only a few examples were mentioned and the answers were not very specific. The case of Scheveningen in The Hague also shows how the intentions of creating life and activity at the dike were present, though without much involvement of the people actually using and working in the harbour (this case is further explored in section 3.2). This could indicate that Munthe-Kaas (2014) was right when he claimed that collaborative planning in general has had more impact on the academic discussions than practice (Sehested, 2009 in Munthe-Kaas, 2014). Hoogvliet (2017) addresses these issues with the statement that *"actually there are not many scientists and technicians who are able to really work in a multidisciplinary team"* (Hoogvliet, 2017, p.c.). This can be seen in the way that dikes and similar engineering constructions are often thought of as an expert field not directly relevant for the

citizens (in traditional planning). A further example is elaborated by Fluitman (2017), who explains that when designing the Scheveningen project, it seemed like completely new land for the engineers to make the dike construction strong enough to carry different sorts of urban design like benches, street lights and bicycle parking. He further states that they were very sceptical about it even being possible and that it took them more than one year to come to the conclusion of the maximum weight (Fluitman, 2017, p.c.). This is of course just one architect's (possibly generalising) perspective on the engineering social world, but supports the previous findings of tendencies for lock-in of practices.

It is important to notice that the arguments and findings revealed here, are based on only a small number of stakeholders and practitioners involved in the planning of coasts in the Netherlands and Denmark, and thus, are not conclusional. Rather, this should be seen as a subject for further investigation, pointing out tendencies potentially valid on a national - and even international - scale.

### The creation of a mutual language

To summarise the discussions presented in this section, some of the barriers keeping the practitioners in a lock-in state regarding the creation of more multifunctional and liveable climate adaptation projects are identified as the 'silo' separation of organisations, practices and budgets; a dominating technical focus; uncertain economics and getting the public understanding and engagement in creating a new hydro-social contract.

It is suggested by Henriques (2017) that most of the professionals involved in cross-sectoral projects have a similar view on the challenge, but different views on how to manage it (Henriques, 2017, p.c.). In an ANT perspective, a successful cooperation is dependent on the creation of a new actor-world, which require the different actors to enter into new alliances and networks (ibid.). For this to happen, they need to acknowledge that they are mutually dependent on each other in developing successful projects.

In order to further unfold the linkage between coastal protection and liveability in practice, a case study of New Boulevard Scheveningen has been conducted (for an introduction to the area see section 3.2).

## 6.3 New boulevard of Scheveningen: an example of working with a combined project

The redevelopment of the boulevard in Scheveningen is a combined solution of a recreational boulevard and dike, and was done for a budget of 75 million Euros. Around 45 million was funded by the state and spent on the dike and coordinated by the local water board. The remaining 35 million was spent on the public space and financed by the Municipality of The Hague, who saw this as an opportunity to also secure a spatial uplift of the area, making this one of the largest financed multi-functional projects in the Netherlands (Fluitman, 2017, p.c.).

Since one of our objectives for this study is to understand the links between liveability and coastal protection and how different values have been created for different actors using the coastal area, a small etnoraid has been conducted, approaching 20 users of the area of which five were local shops/restaurants/organisations (see method section 4.6). Further, two interviews were conducted with designers/architects (see appendix 3 for a presentation).

*Table 5: Some of the added values of the new Boulevard in Scheveningen according to the architects, citizens and shops etc..*

| | Architects | Citizens | Shops & organisations |
|---|---|---|---|
| **Values achieved** | ▫ Experience through design (curves, levels)<br>▫ Safety (from flood and traffic)<br>▫ More life<br>▫ "Greening" with natural dunes and grass/reed | ▫ Safety (flooding)<br>▫ Safety (lights and benches)<br>▫ Safety (from traffic)<br>▫ Access<br>▫ Recreation<br>▫ Exercise<br>▫ Design, curves (interplay) | ▫ Better connection (Museum)<br>▫ Nice design/renovation<br>▫ Safety (in traffic) |
| **Missing values** | ▫ Safety (due to design of stairs) | ▫ Access<br>▫ Not natural enough<br>▫ Safety issues (levels)<br>▫ Spanish architect | ▫ Economical profit (due to access)<br>▫ Parking |

In order to explain how the different values and barriers seen in table 5 have been created, the following sections will be divided in four focussing on liveability through the connection between city and sea, design, usage, and involvement respectively.

## Liveability and water

One of the issues often experienced when creating redevelopments of harbour or coastal areas is the separation between city and sea, which is seemingly common for both the Netherlands and Denmark, as old industrial harbour areas have been shielded from the cities (Stedet Tæller, 2016, January 12). Yet, in the Netherlands, according to Nillesen (2017, p.c.) researchers and practitioners are aware of this challenge. Nillesen has done a research-by-design study of Scheveningen resulting in three different future proposals of the development of the area, in which one of them focuses on improving this connection: "*In the design we really choose to extend the city, so you could get 'the city by the sea', which is really not existing in the Netherlands*" (Nillesen, 2017, p.c.). This way of researching different alternatives for the future development suggests that to an extent the approach taken by Nillesen and co. is further in line with that of Mouffe (2007, in Munthe-Kaas, 2014) as they are not talking about just one 'right' answer for the urban development, but rather proposing alternative scenarios that are very dependent on i.a. the political situation, the future

flood risk etc. It is though yet unknown to which extent proposals like these will be decided upon by pure, dominant political institutions or how much influence the citizens will have in the creation of their own future. However, these are only future proposals and are not connected to the actual development project that has been carried out in Scheveningen, which will be explored below.

### Liveability through design

One of the concepts of the design of the New Boulevard Scheveningen was to reunite the different parts of Scheveningen, which is divided in three areas: the small village in the center, the harbour and the recreational area. Before the reconstruction, the three areas were working more or less independently (Fluitman, 2017, p.c.), and the boulevard can be seen as an attempt to connect these areas and thereby attract people and life to the waterfront. When talking to the architect about what values and ideas were prioritized in the design, especially the experience of the boulevard was mentioned, and how the different curves and levels would create a good experience for the users; a feeling of not just transporting from A to B, but a possibility to enjoy the trip, the water and the architecture (see figure 23) (Fluitman, 2017, p.c.).

*Figure 23: The New Boulevard, Scheveningen seen from The Boulevard Hotel (Photo: authors)*

The architects' focus has primarily been on the aesthetic and practical (non-car) transportation functions. When making projects focused on liveability and value creation, the way you choose to work with design is crucial. Binder (2015) emphasizes how design should be a proposal that performs and gathers representatives and that it is *"as much about involvement and participation of non-designers as it is about bringing professional solutions to societal problems*" (Binder et al., 2015,

p. 154). The designers' focus on the experience indicates that the design has had more attention than the actual users of the area. Fluitman (2017) mentions how some regulations had to be made after implementation, amongst others adding banisters to the stairs to secure that people do not fall, since many of the users are elderly people or families with children. This indicates that with a better collaborative involvement this issue could perhaps have been avoided. Further, if you look at it from an assemblage urbanism perspective, this can be an example of how urban spaces should not be seen as planned or designed objects, but rather as design 'thinging', which makes it possible for different actors to imagine alternative ways of urban life (Munthe-Kaas, 2015).

In the case of Scheveningen it can however be questioned whether the interesting potential of combining objects and functions has made the new boulevard a case of designing for multifunctionality instead of accommodating flexible use and values.

A specific critical point expressed repeatedly by locals was the choice of a Spanish architect to design the space instead of a Dutch, arguing that the Spanish have a very different culture and climate than the Dutch (field notes, 2017, see appendix 9). This was done as the designers argued that the Spanish have a much longer tradition of working with public space (Fluitman, 2017, p.c.).

### Liveability through usage

As this research focus on liveability, part of the case study was to observe the usage and activity of the area and how these facilitated urban life. According to the lead architect on the project, the proposal was to make a lot of public space and the wide, paved pedestrian path gives multiple opportunities for activities (Fluitman, 2017, p.c.). This was also the impression when visiting the area on two sunny days in early spring, where many different activities like walking, skateboarding, sitting etc. was taking place and the area was visited by people from different age groups, which can be seen in the visual compilation on figure 24 below (field notes, 2017, see appendix 9). Most of the activities did however evolve around some sort of transportation and it did not seem that the coastline in itself was the destination, rather a mean of getting to other places in a nice way.

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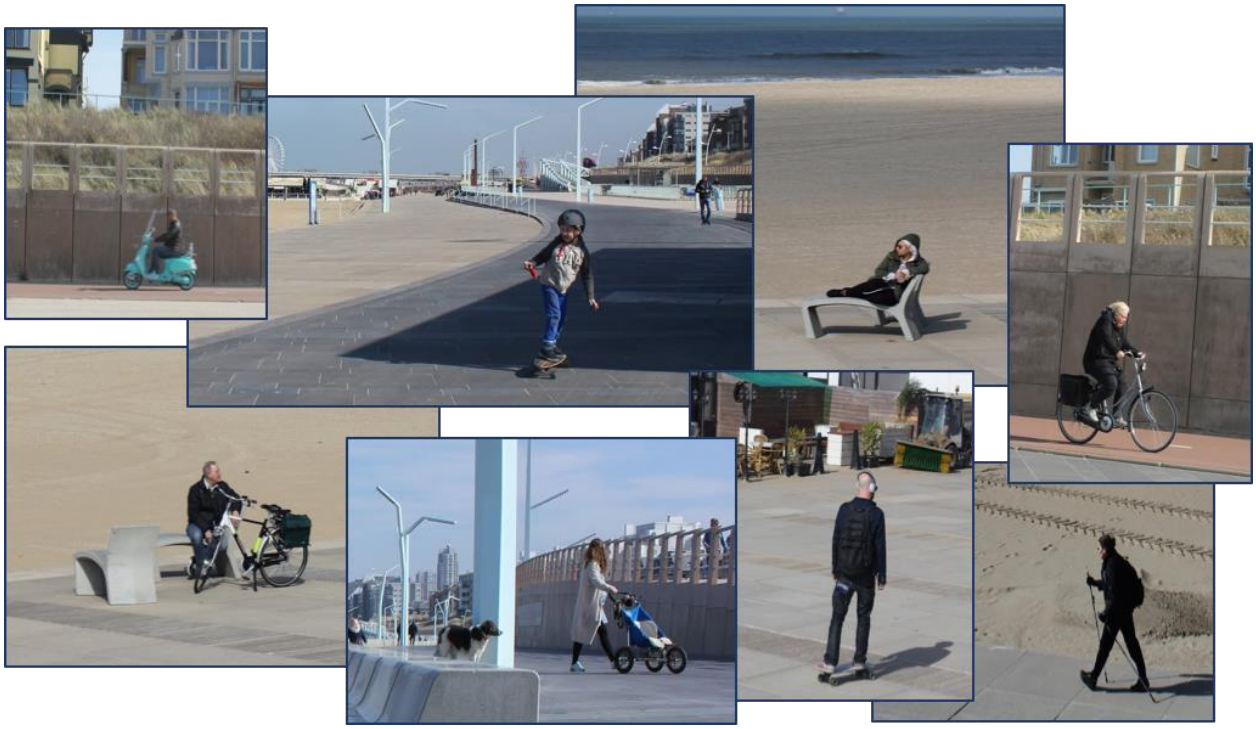

*Figure 24: Different activities and usage of the New Boulevard Scheveningen in March 2017 (Photos: author).*

### *Seasonal changes*

Although a nice and sunny day allow for all kinds of outdoor activities, the situation is very different in the winter time. According to Fluitman and several locals, the boulevard is very empty in the winter as the beach pavilions along the boulevard serving food and drinks are only there in the summer, being rebuilt every spring. Thus, the area has a very different appearance in the winter (Fluitman, 2017, p.c.; field notes, 2017, appendix 9). Several of the younger citizens approached mentions how the beach and area is completely overcrowded by tourists in the summer, making them not want to be there, and thus seeking to other areas (field notes, appendix 9). Further to this, several of the shop owners mentions how, even though there are a lot of tourists, they do not spend that much money. A research shows that the average expenditure per visit is only around 19 Euros (Blom & Segeren, 2013). This suggests that seasonal change has not been taken into account when designing or planning the project, which leaves an unutilised potential for making a more liveable area during all seasons of the year.

## Liveability through involvement

As part of the study of how liveability and urban life can be created and facilitated, local actors have been approached to find out whether and how they were involved in the planning of the redevelopment in Scheveningen. According to Fluitman (2017, p.c.), a great number of local associations, organisations and businesses had been involved, however, this was facilitated by the municipality's own engineering department IBDH[1] (Ingenier Bureau Den Haag).

[1] It has not been possible for the researchers to get comments from anyone at the IBHD.

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Yet, none of the twenty consulted local passers-by approached recalled to have been involved or very informed before the construction of the project. Of the local business owners spoken to, the perception was that they had been informed and consulted through written information material (like newspapers, flyers etc.) and via public meetings. It was mentioned however, by a local restaurant owner and the receptionist of a hotel, that their proposals and opinions had not really been addressed (see appendix 9 for a list of approached actors).

Statistics from the Municipality of The Hague show that Scheveningen has a very active associational life in different cultural, sporting, political and charitable organisations, and that only 8% of the citizens do not have a membership with an association or organisation. 40% of the citizens in Scheveningen are members of a sports organisation (Den Haag, 2013), which could be seen as a great potential for arranging activities at the boulevard area and increasing their relation to the harbour[2].

### *Access - involvement of users influenced by the redevelopment*

According to users of the area, issues of access and economical profit are some of the problematic elements. Several beach shop owners mention that the accessibility from the city to the coast have become worse, and that this has had an effect on the economy, yet others say they experience the same number of customers. In general, the connection between the city and beach is not very easy to see, and access to the beach can only be gained through assigned pathways as seen on figure 25 below.

[2] The local running club Clingendael do use the area, but it has not been possible for the researchers to get in contact with their manager

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*Figure 25: Physical connections between Scheveningen city and the beach (Photos: author).*

A case of successful involvement is the Museum Beelden aan Zee. According to Fluitman, the museum was involved in the design phase and they were very interested in keeping the sea view over the boulevard (Fluitman, 2017, p.c.), which was maintained. Additionally, a better connection was made between the museum and the sea, as seen on the photos below (figure 26). According to a receptionist at the Museum, the redevelopment has been very positive for them and their guests, as they have a better and more visible access to the museum and because of an improved outdoor exhibition integrated in the boulevard (see figure 27). Yet this receptionist was not aware of whether the museum has actually been involved in the planning[3] (field notes, 2017, appendix 9).

[3] It has not been possible for the researchers to get comments from other representatives from Museum Beelden aan Zee.

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*Figure 26: Access to and view from Museum Beelden aan Zee (Top photo: Beelden aan Zee (n.d.); middle and lower photo: authors)*

The Museum can thus be argued a positive example of how, a focus on the connection to the city can create more value for the project and the people. Although the specific circumstances are not known, it seems that for this actor there is a feeling of ownership and the project has been more embedded in them.

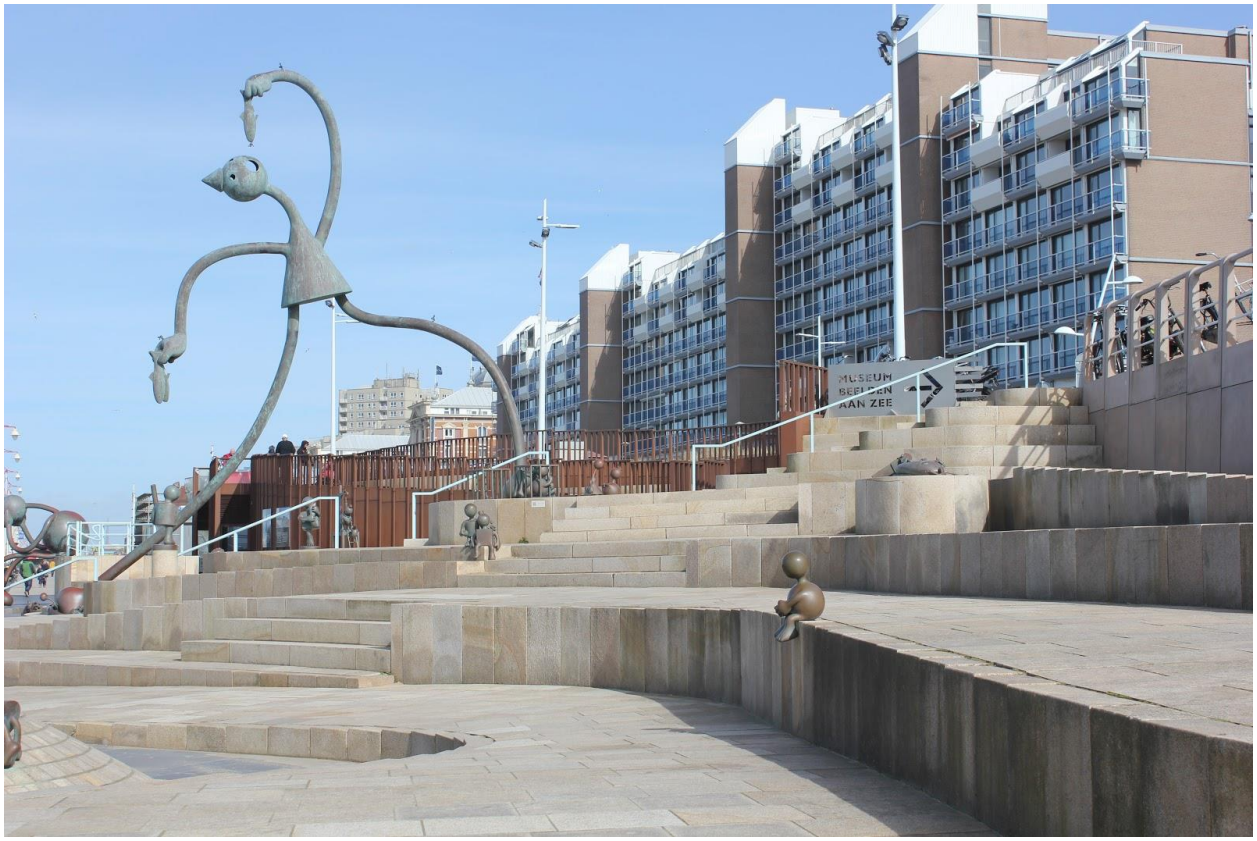


*Figure 27: The integrated sculpture exhibition in front of Museum Beelden aan Zee (Photo: authors)*

## Scheveningen conclusions

Scheveningen is seen as one of the biggest public space projects in the Netherlands; "*We have big infrastructure projects, but this kind is quite unique*" (Fluitman, 2017, p.c.). In general he believes that Scheveningen was the first project in this scale and that a lot of people see the qualities in this kind of project. This view is supported by Gielijn Blom, a former planner at the Municipality of The Hague, who refer to the project in an article as an 'eye-opener' which shows that "*there is an alternative to the usually sober and effective [technical] approach to public works by the Dutch government*" (Blom & Segeren, 2013) [translated from Dutch by authors], arguing how the project has contributed to urban life and spatial quality in the area. Fluitman also describe the project as an eye-opener for other coastal protection projects in the Netherlands and points out how politicians are now very interested in telling the success of the project (Fluitman, 2017, p.c.).

A project like the redevelopment in Scheveningen do add value to the area and for the people, as explored. However, our study also suggests that due to the fact that only a few of the local organizations and stakeholders had been democratically involved, opportunities for value creation and expansions of urban life can have been missed.

Even though the basis of these findings has not been an extensive research of the involvement process, it is suggested that the municipality to a certain extent has had a relatively traditional approach to public participation and that further relations to the coastal area could potentially have

been achieved if the involvement had been of a more integrated, collaborative and value-oriented character.

## 6.4 Sum up of analysis part one

The Dutch experiences confirm and unfold the assumptions that planners still face great challenges in the process of planning, designing, involving and constructing multifunctional coastal protection projects that includes liveability enhancing activities. Interpretations following the interviews, observations and impressions of the Netherlands, reveals three issues that has come to our attention:

- There are still challenges in the sector-separated organisation and with the cooperation between water engineers and designers/architects. No new or alternative types of actors seems to have been involved in the projects investigated.

- There is a general lack of working strategically or deliberately with value creation in climate adaptation projects and with stakeholder involvement: more attention should be concentrated on the involvement of stakeholders and the opportunities of value creation that can happen in this process

- Local stakeholders do not feel sufficiently involved in the redevelopment project of Scheveningen, there is a need for a more inclusive approach

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# ANALYSIS PART 2

## 6.5 The Climate Harbour

This chapter evolves from the identified outcomes and discussions about lock-ins, transitions, value creation and liveability in a planning context generated in the first part of the analysis. In the following, The Climate Harbour in Middelfart will be used as a case to further investigate and discuss the notions of creating liveability through collaboration. This will be done by exploring the involvement processes of the Climate Harbour project as well as suggesting our own developed concept for involvement.

### The Climate Laboratory thinking

The Climate Harbour project originates from a development strategy for the whole of Middelfart of which the other initiatives of the The Climate City and The MidCity Strategy are also part (field notes 4; field notes 5). The project manager for the Climate Harbour and the Climate City, Helle Baker, is employed by both the municipality and utility company, which suggests that this project from the beginning has been different than most of its kinds and that the municipality has great ambitions for the Climate Harbour. Furthermore, the municipality want Middelfart to work as a Climate Laboratory, showing how climate adaptation can be handled in a new and innovative way and work as a platform for other cities. However, how is this actively seen in the Climate Harbour process, and what can this do for the project as a whole?

As presented in the theoretical framework, Blok (2013) discusses the notions of urban assemblages and how science and technology studies in an urban sustainable setting should focus on the more context related socio-technical artefacts. He also mentions how sustainable urban design should concern itself with "*how future visions come to have performative effects in the present*" (Blok, 2013, p. 19). Furthermore, three ways of seeing design is introduced: Context-bound design; Context-free design; and Context-rich design.

In the case of The Climate Harbour in Middelfart, there has been a strong political focus from the beginning to create a project that, in line with the Climate City, could be used as a showcase of the Municipality's green, innovative and sustainable profile (KlimaHavnen Udviklingsstrategi, n.d.). This can be seen as a huge advantage in the planning process, as the budget for construction and involvement has been unusually big (field notes 5: Sejer, 2017, p.c.). However, it has also put some sort of pressure on the involved planners and actors to create good processes. With a strong political focus and a need to control the process, it has been important for the planners to also have a more controlled involvement process (field notes 4; field notes 2) and maybe pulled in a direction towards a more context-free design. An example of this could be the focus that architects from EFFEKT has brought on the dike at a project group meeting in February 2017, still early in the process and before actual public involvement. EFFEKT wanted to create a dike with the capability of showing how to solve climate adaptation issues, while also creating a beautiful material-consistent sea front, that could be Middelfart's "claim to fame" (field notes 2). The Climate Harbour could be the city's face to the north and a big opportunity for being a showcase with predesigned multiple functions incorporated in the urban dike (see idea catalogue, appendix 2) (KlimaHavnen

Udviklingsstrategi, n.d.). With this thinking in mind, the visualisations of the dike have further been used in the involvement phase as a 'boundary object', teaching and showing the different actors how new innovative climate adaptation can be done, and what role it will have in the harbour (the notion of boundary objects will be further explored later). In this way, Blok's (2013) notion about the performative effect of future visions - in this case the visions of being a laboratory and showcase - have had an effect on the present way the planners have chosen to involve stakeholders and to talk about values in the project.

The climate laboratory thinking and the urge to create a more innovative project also springs from a wish to create a project supporting the urban development in the city, which is rooted in local needs - a solution in 'Middelfart'sk', as the planners from CFBO call it (field notes 5: Sejer, 2017, p.c.). Hence, there has also been a focus on a more context-bound design in the process. This has further led to the engagement with the research group 'Guldet' (see Preface), which focuses on new ways of thinking about values, collaboration and urban life in climate adaptation. The notion of context-bound is a subject that is both mentioned in the development strategy, as well as talked about at the internal meetings we have been attending during the process of this research. However, in the beginning of the process there was not a clear strategy for how to accomplish this (field notes 1; field notes 2). Furthermore, it still seemed to be a challenge to express the values associated with the climate laboratory thinking and local needs. As the process and project developed, it can therefore be argued that the project group and the project in itself started the work towards a future vision where a more context-rich design is in focus.

The notion of context-bound, free and rich design is helpful in the understanding of the differences in design imaginaries and their effect on the present, however, they are only touching the surface of the situational controversies that shape coastal protection projects of this type.

#### *The Climate Laboratory thinking as a boundary object*

The climate laboratory thinking could further be seen as a boundary object in the shape of a 'standardised form' if used in the same way in all projects (Climate City, Climate Harbour, Midtbyplanen etc.) bridging the gap between the projects and facilitating a continual language used in the communication of the three development projects in Middelfart.
It could also be understood as an *interessement-device* serving the purpose of getting the actors interested and enrolled (Callon, 1986b) in how the laboratory thinking can contribute to the community, thus the laboratory thinking and approach encompass much potential for the future development of the city. The next section will look into the current lock-in/out and transition phases in the Climate Harbour process and how this is being addressed.

### 6.7 Transition of working with values

Working with liveability and values in climate adaptation is not an entirely new thing, however, it is still filled with a lot of contradictions as accounted for in the first part of the analysis. Mostly, because coastal protection projects with multiple functions will demand a new use of the space in the harbour, clashing with existing functions such as parking, roads, fishery, industry and apartments with a sea view.

This is also the case in Middelfart. An example which illustrates this is the parking space in the harbour. As seen in figure 28, a lot of the area within The Climate Harbour project area, as well as in the nearby city, is occupied by parking spaces.

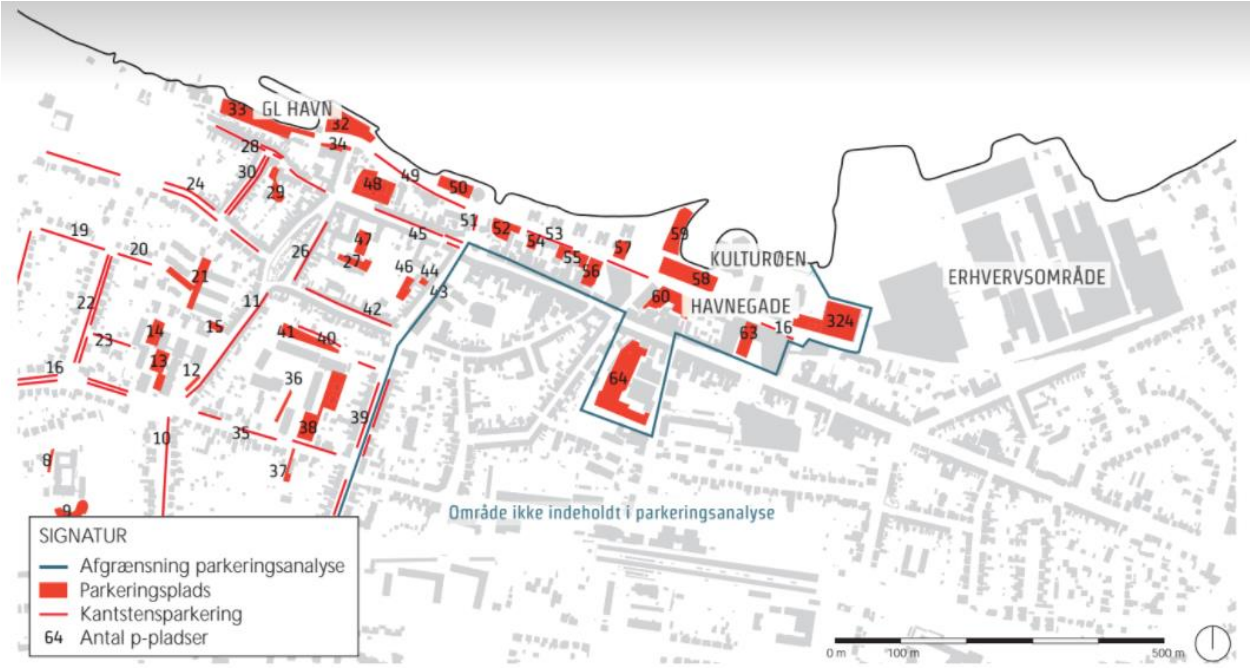


*Figure 28: Current parking spaces in The Climate Harbour area (Source: KlimaHavnen Udviklingsstrategi, n.d.).*

The process planners of the harbour (CFBO) express their concern with the amount of parking spaces in the development strategy for the harbour, and highlight one of the challenges in the harbour as how to make this into a remaking area (KlimaHavnen Udviklingsstrategi, n.d.). When explaining this at the project group meeting, it was notable how a planner from the road and transport department mentioned the fact that Middelfart has been elected as Denmark's Best Parking City (field notes 2– see appendix 11). This, together with the fact that the municipality (so far) has decided not to remake/develop any of the big parking spaces in the harbour shows that some kind of lock-in is still happening. The lock-in might be linked all the way back to a fossil fuel-based society, however, can also be seen as a lock-in of the road planners' and politicians' ability to see the potential or meaning in a redevelopment of parking spaces. That being said, a transition in the municipality is definitely going on, as expressed in the quote below by the technical manager from Middelfart:

*"You have to challenge the system a bit [regarding parking spaces]. The total value of this project will also be about how brave we are".* (field notes 2 – see appendix 11).

Yet again, we are experiencing the same barriers as in the Netherlands, emphasising that often the path-dependency lies not within the individual employee, but in the system as a whole. In the case of Middelfart, it was actually on a very individual basis that the Climate Harbour became a project focussed on added value and liveability. According to Borchmann (2017) it was a visionary manager

at Middelfart Utility who triggered this talk about climate adaptation and added value five years ago (Cassøe & Borchmann, 2017, p.c.), in a time where it was not as obvious to talk about.

The example with the parking spaces illustrates that there is still a transition going on in regards to the different social worlds and politics involved in the project.

Another transition going on is that of planners', designers' and architects' view on how to 'create' liveability and values in design. Munthe-Kaas (2015) mentions the new notion of how life in cities will "*challenge the traditional, centralized city planning model, where decisions about urban development are being shaped and executed by urban planners in urban space without much dialogue with citizens*" (Munthe-Kaas, 2015). Furthermore, Binder et al. (2015) suggests that the designer should rethink her self-image and not try to produce "the new" or predict what is to come in the future, but rather focus on socially engaged design practices that projects change (Binder et al., 2015).

It could be argued that there is still a small lock-in in relation to this centralized planning due to the fact that there was a lot of talk at the Climate Harbour project group meeting about where the different activities should be and what kind of different target zones the harbour could have. That being said, the planners still express a great deal of attention towards involvement and organisation of people. Cassøe (2017) talks about:

*"how to change this [projects] from being a work of art (værk) to become a foundation. Architects often make things into pieces of art, focusing on this as the most important, however, it is much more about making a foundation, a social piece of art"* (Cassøe & Borchmann, 2017, p.c.).

Cassøe and Borchmann furthermore advise not to see these kinds of projects as technical, but as social projects, and that this is a paradigm shift which is going on in cities in general. A shift from making technical projects to focus on liveability, which also makes cities compete in totally new ways compared to what they did 10-20 years ago (Cassøe & Borchmann, 2017, p.c.).

## 6.8 New alliances in Middelfart

In order to bridge this gap between both professions and other actors and to organise the citizens, a common language and new alliances must be created. Working with a new language requires a process of translation, which in ANT can be described as interdependent actors' (humans and non-humans) journey through different phases of alliances moving from the present to a desired 'actor world' where all actors are somehow aligned (Callon, 1986b). This alignment of allies is happening through what in ANT is referred to as an Obligatory Passage Point (OPP)(Callon, 1986b). This line of thinking is further expanded by Star & Griesemer (1989) with the notion of Boundary Objects (Star & Griesemer, 1989).

In the case of the Climate Harbour in Middelfart, several different Obligatory Passage Points and Boundary objects are used as a mean of trying to enrol and mobilise people from different social worlds adding to the understanding of why the transition process is complex and difficult.

### *Involvement meetings as Obligatory Passage Points: The City Forum*

One example of an obligatory passage point in Middelfart is the City Forum meetings, which can also be referred to as an urban hybrid forum which is *"entangling a range of mutually contentious knowledges, material practices, and value commitments within an urban green assemblage"* (Blok, 2013, p. 12). In this case consisting of different actors representing a variety of associations, organisations, businesses and other local stakeholders in Middelfart and their interests (see the full list in appendix 9). The City Forum has been established as a means to manage continuity through an assembly which can be summoned repeatedly throughout the planning process of both the Climate City and the Climate Harbour (Cassøe & Borchmann, 2017, p.c.). It is crucial for the project group to include The City Forum in the planning process. Thereby the meetings with them act as an obligatory passage point capable of marshalling different human and non-human actors such as the project group and the Climate Harbour development strategy and the harbour itself in this sub-network where negotiation can take place (see figure 29). However, a question is: who is enrolling who? According to Cassøe (2017) the aim of the meetings is not to make the actors in the City Forum point out specific proposals or adjustments, but rather important agendas and having these agendas disseminated to the responsible architects and designers (Cassøe & Borchmann, 2017, p.c.). This could implicate that the planners still want the control of the project and specific design solutions. Hereby it could be interpreted that the city forum contributes with minor inputs to overall issues and are enrolled in already defined goals and thus not giving completely new design ideas.

Figure 29 below visualises the translation process in which the mentioned human and non-human actors are channelled through this meeting which serves as an OPP whereby they should ideally all achieve their goals. The different goals can in this case be argued to be: *influence, ownership and value creation* for the actors in the City Forum; *public support and contributions* for the project group and *survival and increased liveability* for the harbour.

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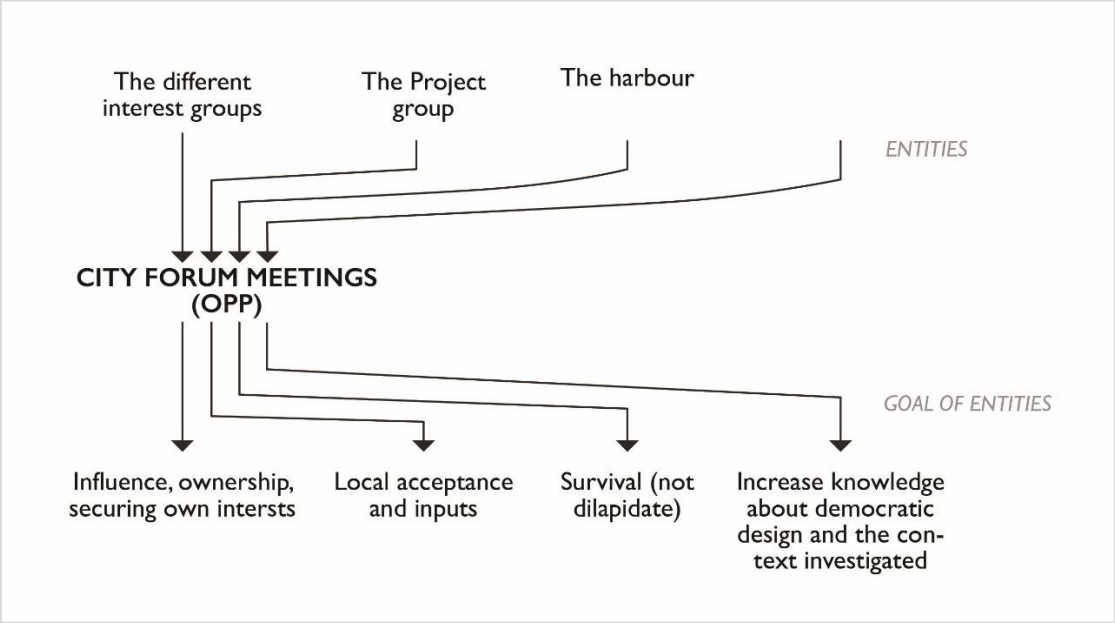


*Figure 29: Own interpretation of the City Forum meeting as an obligatory passage point (Source: author, inspired by Callon, 1986b)*

To expand the understanding of what is happening in the process, the notion of boundary objects can be argued to also occur to ensure that the actors involved are able to communicate in this process. Further, the boundary object empowers these different individuals to transform their knowledge (Fox, 2011). In the case of the City Forum meetings, it can be argued that the physical development strategy for the Climate Harbour containing a visual idea catalogue of possible designs of the dike can be seen as a key non-human actor and boundary object in this process, as both CFBO and the architects from EFFEKT use this inscription as an important mediator in articulating urban localities as matters of concern (Blok, 2013). Through this understanding, the different actors in Middelfart and their interests all have to be aligned in different points of passages, of which the City Forum meetings is one example. Though for the actors to reach their goals - in this case to develop a successful harbour area - boundary objects in the shape of for example the idea catalogue serves, as a tool to bridge the communicative gap and thereby facilitate that citizens adopt the Climate Harbour strategy. This combination of OPP and BO in the context of the involvement meetings is visualised in figure 30 below.

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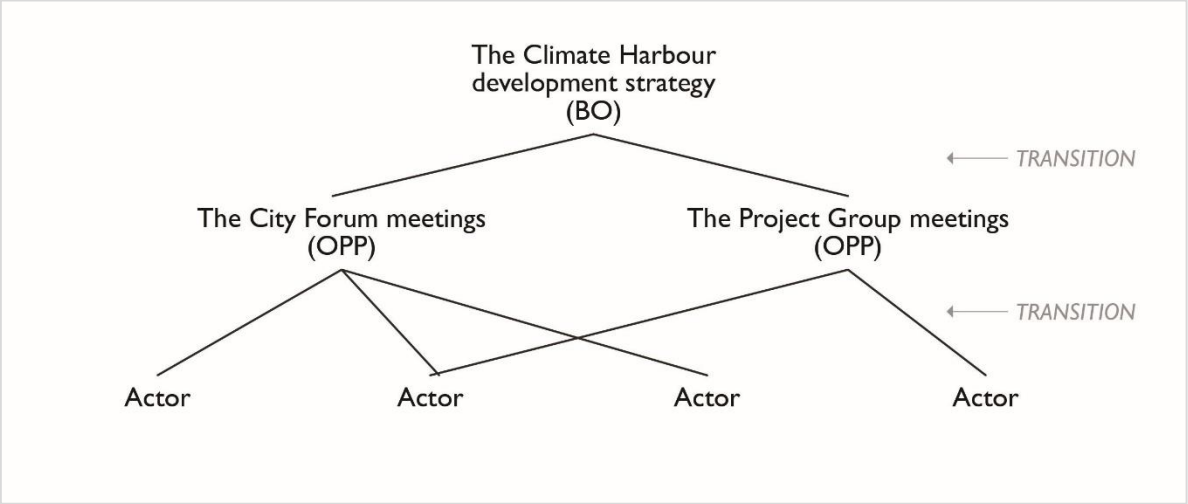


*Figure 30: Illustration of how the climate harbour development strategy can be seen as a Boundary Object..*

While OPP and BO are good at developing and maximizing the communication and interdependency between the different worlds, a further focus must be put on the design practices and translation in order to go from an obsession with 'objects' to a focus on 'thinging' as socio-material assemblies (Binder et al., 2015).

In order to do this, the notion of collaborative design and democratic design experiments will be unfolded in the context of the Climate harbour in connection with the concepts of OPP and BO, thereby introducing a new example of a contributional approach to experimental democratic design.

## 6.9 The Climate Harbour involvement approach and process

So far, the involvement processes in the Climate Harbour project have consisted of an innovation workshop, a vox-pop, meetings with the City Forum, bilateral meetings with a variety of stakeholders, and an upcoming public meeting (see a timeline of events in figure 7, section 3.4).

The two-day innovation workshop was arranged by CFBO and involved i.a. the City Forum (Cassøe, 2017, p.c.) According to Cassøe (2017, p.c.) the first day was spent getting to know the area with the City Forum. The next day the project group and consulting architects/engineers converted these inputs to a strategy which was presented for the City Forum in the evening, resulting in positive municipal support (ibid.). It should be mentioned, that the workshop was dominated by a lot of internal and external professionals and politicians keen to have a strategy developed and ready for the forthcoming biennale in Vienna, and it can be questioned whether this two-day process of developing a concrete strategy and design proposals was too short to make collaborative involvement?

The most recent involvement has been conducted by Lise Sejer from CFBO and Virginie Le Goffic from EFFEKT in the shape of two intensive days in Middelfart, meeting amongst others Vestre Skole,

the Youth Council, the Disability Council and the chairman of the local trade association (field notes 5).

### *Workshop with Vestre Skole*

As part of the research, we were present at the workshop at Vestre School, observing the involvement approach as well as how the children managed the tasks presented and what outcomes it gave. Four classes of sixth- and seventh-graders took part in the workshop.

The workshop consisted of a short introduction to climate adaptation and storm surge followed by four tasks divided in four stations (field notes 3, see appendix 12 and figure 31 and 32).

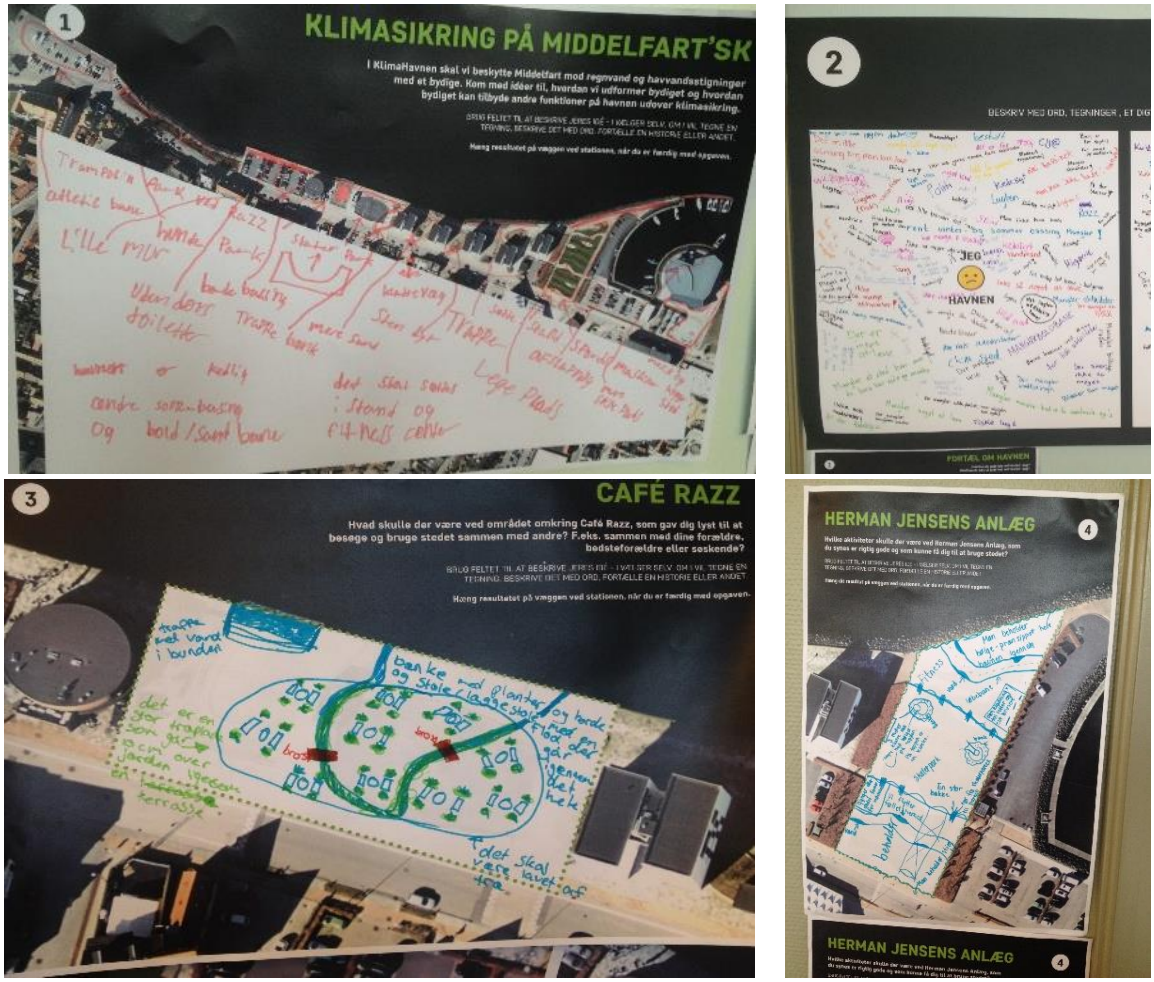


*Figure 31: Photos of the four "stations" at the School workshop (Source: author)*

In general, the children were engaged with the task and were happy to talk about their ideas and drawings when asked. Although the children were very creative in their ideas, many of them were inspired by or directly copied the proposals from the Climate Harbour idea catalogue presented by the planners in the introduction. This suggests that imagining things that do not yet exist or thinking outside the box is difficult - even for children. Hence, the idea catalogue yet again worked as a boundary object. The question is however, how much you should seek to influence the participants

regarding a specific design? Le Goffic (2017, p.c.) do refer to this as always being a delicate balance between facilitating creativity and placing too many ideas in people's minds. Not showing any examples at all often lead to people having too much trouble coming up with their own ideas (field notes 3). Thus, to facilitate or qualify a creative discussion about the (unknown) future, one must seek to create an arena where different possible futures in some way are visualised or where different forms of knowledge is presented in a way that it can lead to the creation of new possible futures.

The following is a list of the interpreted purposes of the workshop for the planners:

- Obtain ideas for an understanding of the participants relation to areas in the harbour
- Get inputs to the further design of the dike
- Make the participants feel involved in the process/ownership of the harbour
- Meet the political request of further public involvement before next City Forum meeting.


*Figure 32: Children from Vestre Skole were paired and equipped with markers and sheets they could write and draw on and presenting ideas for facilities in the Climate Harbour (source: author)*

The extensive involvement carried out by CFBO/EFFEKT involving actors like the local school and other alternative actors not often actively involved in these kinds of projects, indicates that the political attention and the relatively large amount of economic resources available has positively influenced the level of involvement, which is not the norm.

It could however be questioned if this involvement happens as a part of a collaborative design or through a more participatory approach. It can further be questioned whether this approach actually qualifies the participants sufficiently to take part in creating urban life in the harbour?

As one of the main objectives of the Climate Harbour project is to have a more liveable and active harbour, the next section will account for our own attempt to develop a qualifying and collaborative approach to let potential users of the harbour have the opportunity to actively engage in 'designing' the use of the harbour.

## 6.10. Democratic design experiments with locals in Middelfart

As explained earlier, this research is particularly interested in investigating and understanding how different actors involved - or not yet involved - can help create more urban life and activity in a coastal protection project. In our approach, we seek to expand collaboration between users, stakeholders and designers, adopting a focus on the role of planners or designers as facilitators instead of detached observers, inspired by i.a. Munthe-Kaas (2015).

The concept of democratic design experiments can be an important tool to qualify more actors and opening up debate as to what junctions or issues are existing in the given place (Jensen et al. 2015). Democratic design experiments are therefore a way of trying to explore the different ambiguities existing.

## Our experimental workshop

The experimental workshops conducted in this research can be seen as small democratic design experiments carried out with two different actor groups: teachers from the local high school and members of the local youth council, representing young people of Middelfart. These two actor groups were chosen due to the learning perspectives the harbour could facilitate and because they (the students and children) are the potentially future inhabitants of Middelfart, particularly benefitting from the Climate Harbour project. A further description of the participants, the setting and the form of the workshops can be found in the methodology chapter, section 4.7.

### The workshop as Obligatory Passage Point

As a form of democratic design experiment, the workshops were committed to finding new forms of emerging public actors and for these to be able to express themselves and explore alternatives. Thereby enabling them to form new relations and for socio-technical networks to emerge, as suggested by Munthe-Kaas & Hoffmann (2016). In this way, the workshop itself can also be seen as an obligatory point of passage of which knowledge and solutions to the issue of creating a liveable harbour must flow. The workshop is a way of marshalling different actors in a forum where potential enrollment and mobilisation can happen, for the actors to organise themselves in new networks engaged in making the harbour more liveable. As part of this process, the identity cards then work as boundary objects, as we shall explore in the section below.

### Identity cards as boundary objects

The first workshop session (see section 4.7 for a further description) had the purpose of facilitating the creation of a new 'language', expressed by the participants themselves. This was attempted through the presentation of seven different identity cards and an open one, showing how the harbour in Middelfart could have different identities and stories (see figure 33 and appendix 6).


*Figure 33: Samples of two of the seven identity cards (source: author)*

The form of these identity cards is meant to be suitably abstract or symbolic for them to be used in different contexts not related to any specific design, yet still concrete enough to break the ice and facilitate a dialogue about the harbour area, its identities and histories. In this way the identity cards can be seen as an 'ideal type' of boundary object (Star & Griesemer, 1989). Thereby they are setting the base for a more specific dialogue and cooperation of activities and relations in the next session.

This approach can be associated to what Borchmann (2017) highlights in her reference to former professor in water management Govert Geldof, saying that "*if you want to do something with water, don't do anything with water*" (Cassøe & Borchmann, 2017, p.c.). The primary focus has to be something else than water or the technical solution itself, something that the citizens are engaged or absorbed in, in their daily life, which is what we are trying to obtain by using different identity cards. From this point of view, the physical harbour itself can also be given the status of a 'coincident' boundary object (Star & Griesemer, 1989), as it can be seen as an 'object' (or socio-technical system) which exist in all the different social worlds of people inhabiting Middelfart, but has different identities in each.

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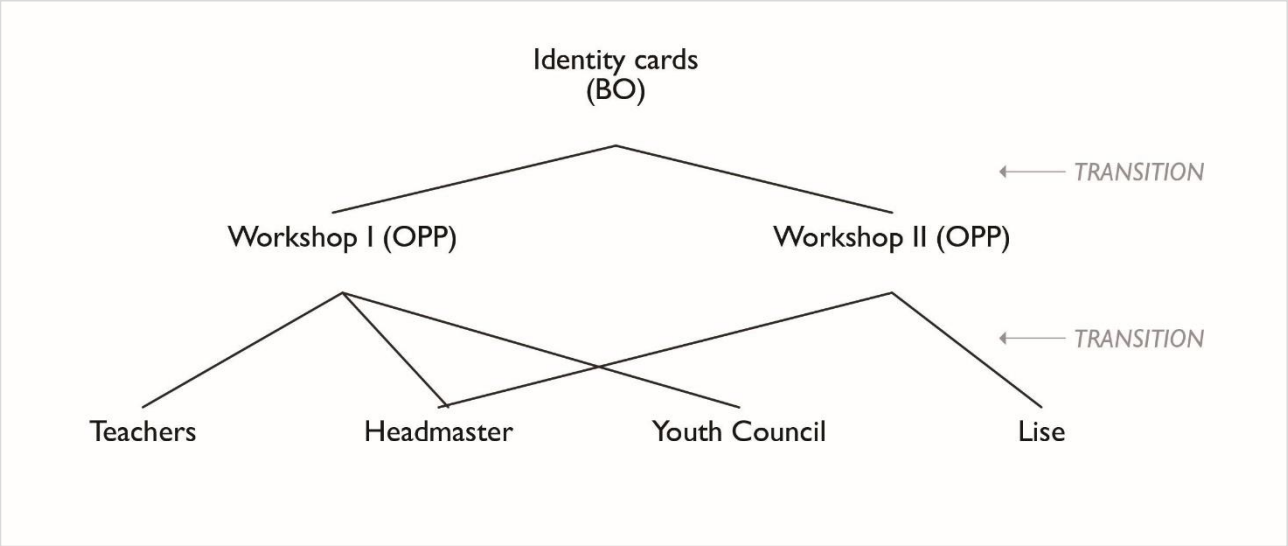


*Figure 34: Illustration of how our identity cards can be seen as a Boundary Object (source: author).*

Summing up, figure 34 illustrates how the identity cards can work as a boundary object for translating knowledge and experiences from both the two workshops carried out with the high school and youth council (workshop I and II) and how these work as obligatory passage points channeling the different social worlds into a somehow more democratic future.

### Outcomes from the identity cards

In general, the different presented identities for the harbour did break the ice as intended and made a conversation possible about identities and histories that could or are already taking place in the harbour, thus creating an arena of possible new relations. Yet, for both actor groups it was difficult to talk about specific values that these identities or stories could create, which automatically led the conversation on to concrete activities, as this was more tangible for the participants to discuss and imagine.

For the second workshop with the Youth Council, the identity cards were supplemented with 26 post-its with examples of values based on our preliminary findings (see figure 35). These words were meant to facilitate the conversation about values to a larger degree, yet they did not have the intended effect, as it still seemed very difficult for the participants to articulate specific values associated with a harbour.

From the dialogue facilitated by the identity cards, the following values have been interpreted to be of importance to the participants and thus examples of specific added values or identities the harbour and increased liveability can potentially create (see table 6).

*Table 6: The interpreted values mentioned in our workshop as a part of session I.*

| For the teachers | For the Youth Council |
|---|---|
| ▫ Cross-curricular learning<br>▫ Biodiversity<br>▫ Community and solidarity across backgrounds and age groups<br>▫ Movement and play<br>▫ Relaxation<br>▫ Aesthetic (sea)view<br>▫ Calmness and peace<br>▫ Local storytelling<br>▫ Authentic/historical environment<br>▫ An accommodating public environment (opposed to private property) | ▫ Social and community related values<br>▫ Learning<br>▫ Knowledge<br>▫ Biodiversity<br>▫ Calmness<br>▫ Green spaces<br>▫ Common public space and initiatives involving food<br>▫ Recreation and relaxation<br>▫ Experimentation and innovation<br>▫ Inspiration and aesthetics from "odd" architecture<br>▫ Greening |


*Figure 35: Pictures from the experimental workshops in Middelfart (photos: authors)*

By giving the participants the opportunity to relate to the harbour through values and stories meaningful to them and their social world, profession and personal interest, it can be argued that they are more likely to contribute to the understanding of their view on liveability in the area, compared to if they were presented with very specific and technical coastal protection solutions

explained in expert/professional language, which they would have no relation to or perhaps not be able to fully comprehend.

The added values mentioned in table 6 mostly relates to the harbour as being a place for calmness and relaxation, however, community related values and a public environment was also mentioned. The values can thus be used by the planner to understand the social world of the high school and Youth Council, and what different junctions that could or perhaps are already existing within them.

In general, the conversation in the teachers' group dealt with different stories about the harbour and its old industries and the gentrification it has undergone in recent years and consequent social change of the area. Further to this, a few highlights of the conversation that did not concern learning perspectives are summarised in the following:

- Fishing/angling as a vital environment in the harbour, including ownership at the harbour area.
- The attraction of wildlife in the harbour - for citizens and tourists
- Associates value to the diversity of the harbour - from the old harbour and hanging gardens, to angling, café life, etc.
- The pre-made identities make the teachers think of other examples of combined coastal protection and liveability like e.g. Samsø.

### Activities in the harbour

Following the conversations of the stories and identities embedded in the harbour, more specific potential activities were discussed in both a learning perspective as well as for the target group of young people. The ideas and suggestions are summarised in table 7 below.

*Table 7: Ideas and suggestions for activities in a learning perspective in a harbour*

| **Activities in a learning perspective** | | | **Activities for young people** |
|---|---|---|---|
| **Natural sciences (biology and physical geography)** | **Social sciences** | **Other sciences** | |
| Projects on stream, currents and energy | The harbour as a political battlefield; observations, field studies and questionnaires | Physical education with pedalos, running (on water?) cross-curricular courses with physical education and biology | Chill-out/hang out with beers and other beverages |
| Discover and explore local flora and fauna in the harbour | Local storytelling | Coordination of water sports activities | Skateboarding |
| Markings of sea levels after storm surges | | Exploring the histories in the harbour, example with the shipyard in the old harbour | Combination of relaxation and sports activities |

| | | | |
|---|---|---|---|
| Comparative studies of water levels in different harbour areas based on DMI | | Incorporating students in different construction activities | Events and happenings in general, like e.g. festivals |
| Study how climate change affects the current and different fish species like garfish and herring | | Activities involving angling | Playgrounds for the kids and benches for the parents |
| | | | Ice cream vendor |

In general, the teachers were highly engaged and came up with a lot of different activities they could facilitate in the harbour, as seen in table 7 above. It seemed that particularly natural science activities were easily related to the harbour, studying processes also related to climate change and effects of rising sea levels.

In comparison, the Youth Council had more difficulties identifying activities that could be staged in the harbour. This can be seen as a consequence of the fact that they already have other places like the marina where they engage in these activities, which suggests that the harbour is a place not merely existing to them. Because of this, they find it difficult to see any potential in it. They only use the local café Razz, the cinema at the Culture Island (Kulturøen) and sometimes relax on the grass areas. However, introducing the seasonal cycle, helped them with the idea of staging activities in the harbour.

The visualisation of a seasonal cycle was presented to further challenge the participants in their mindsets about possible activities at the harbour (see description in section 4.7). The seasonal cycle had a similar function as the identity cards and did also work as a more abstract boundary object, providing the participants with a more specific framework for them to think about activities related to weather and climate (see table 8 below). Thus, it accomplished its purpose as both teachers and Youth Council more easily could identify and invent specific activities which were easier for them to discuss and relate to.

As the seasonal cycle seem to work very well to vary and clarify ideas and proposals, it can be suggested that similar cycles or time frames can be added to this type of involvement. These could be circadian frames focusing on different activities for different times of the day, which could tell something about e.g. safety, need for lighting etc.. It could also be process frames focusing on different types of (temporary) activities for the different phases of construction of the Climate Harbour, to ensure continuous use of the area and not just how liveability can be created when the project is finished.

*Table 8: Identified activities in the seasonal cycle session*

| Seasonal Cycle activities | | |
|---|---|---|
| | **Teachers** | **Youth Council** |
| **Spring** | ▫ Producing energy from wind turbines - cross-curriculum activities<br>▫ Flora and fauna's adaptation to different seasons and to the physical area | ▫ Urban gardening<br>▫ Picnic when the weather is good and BBQ facilities<br>▫ Green areas for relaxing |
| **Summer** | ▫ Skateboarding facilities, street art and "street activities"<br>▫ Healthy restaurants serving locally grown vegetables/herbs<br>▫ BBQ activities and facilities | ▫ Harbour bathing<br>▫ Mini golf |
| **Autumn** | ▫ Measuring wind speed in different seasons - what happens to the wind and water in different seasons? | ▫ Windsurfing |
| **Winter** | ▫ Toboggan run which could be rebuild as a climbing frame in the summer | ▫ Ice skating<br>▫ Christmas market<br>▫ Tobogganing<br>▫ Building igloos and snowmen |

### Outcomes from the argumentation session

The last session about pitching their own ideas served as an exercise of explaining the purpose, practicalities and involvement required for the proposed activities to be carried out in reality, and thus to be locally anchored. Thereby the participants had to articulate the potential of the activities and at the same time consider what it would require to realise them. The teachers had several arguments for why activities in the harbour could be relevant for their curriculum, including the importance for the students of moving out of the classroom and making their own observations and investigations in correlation with the theories taught in class. Additionally, the story of the harbour as a political battlefield was argued as relevant for the students' understanding of gentrification and a way for them to make ethnographic studies and questionnaires for local stakeholders.

The practice of arguing and staging new activities in the harbour is stated as one of many elements in this approach that differ from that of the official involvement. We will argue that this little exercise is quite important as it can start an activation and engagement process through which new networks can be established and can make actors organise themselves in ways that can create more life, activity and events in the harbour. Sejer (2017) also points out how the citizens are capable of achieving much more if they unify themselves (field notes 5).

Through this session it became clear that the Youth Council already have a good knowledge of who to contact if activities should be realised. Middelfart has a very wide and well-functioning associational life and the Youth Council are already collaborating with other associations, local businesses and the city council. Further, they already have experience with finding local sponsors for events. However, it seemed like the workshop made them more aware that several of these kinds of events they usually like to attend - Jazz/music festivals, an established 'Walker Festival' and food markets - could also be happening in the harbour area and that they themselves could contribute to the organisation of these events. An example of such organisation already taking place is a food-community event organised by the Youth Council, where local shops and restaurants have been sponsoring the food.

### Discussion of workshop approach and further process

As researchers (and potentially planners/designers or others carrying out the workshops) the process and outcomes of the workshops have given us insights to and knowledge of the participants' thoughts, ideas and ambiguities about how to create urban life and liveability in the harbour. This knowledge can (and should) be used actively and potentially to adjust the coming process of involvement, planning and development in the area. Although these workshops have just been exploratory, they serve as examples of how democratic involvement processes can potentially be managed. Further, the participants had the opportunity to start a dialogue about identities, stories and relations to the harbour as well as associated activities, thereby creating a new 'language' of and relation to the harbour, which potentially has made them more likely to engage in and organise themselves in new networks initiating liveability-enhancing activities. Thereby, it can be argued that a certain level of double-loop learning (Munthe-Kaas & Hoffmann, 2016) has been achieved through the workshops, in a similar way as democratic design experiments can trigger. (Democratic) Experiments are argued to have the potential to challenge existing urban planning practices by contesting or developing the planning practices through the experiments (Munthe-Kaas & Hoffmann, 2016), which is also what we attempt to do. We do not know whether this will happen, but we argue that these experimental workshops to a certain extent have qualified them to be a more integrated and collaborative part of the future involvement of the redevelopment of the harbour as well as the urban life unfolding.

Additionally, in the evaluation of the first workshop the teachers expressed great interest in our concept, asking for copies of the workshop material and the identity cards in particular, as they wished to use the concept with their first-year students in relation to their multi-subject course on sustainability and innovation, investigating the case of the Climate City. It has not been possible to get feedback from the teachers' experiment yet.

The most essential reason for conducting these workshops was - besides from our own learning - the attempt to contribute with new knowledge to develop new planning practices of a more collaborative character with a value perspective. Jørgensen et al. (2011) explain the different levels of involvement in design as *"(...) going the final step towards the user from observing the user (user-centred design), to engaging the user (participatory design), to collaborating with the user (co-design)*" (Jørgensen et al. 2011 cited in Munthe-Kaas, 2015), which is illustrated in figure 36 below.

Looking at it from a co-design perspective, the level of collaboration in our approach as well as the existing involvement can thus be discussed. Both types of involvement were based on workshop approaches and were more or less interactive. One of the main differences in the two approaches is that of the focus on arguing for and thereby express the potentials of different identities and activities, as explained in section 4.7.

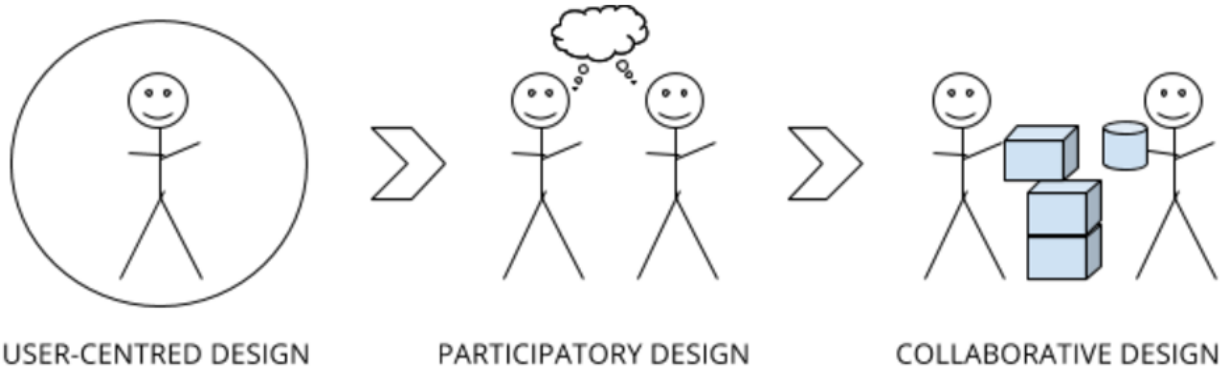


*Figure 36: Illustration of the different levels of involvement as stated in Munthe-Kaas (2015). (Source: author).*

Even though our workshop did not involve actual testing of prototypes at the harbour it could still be a contribution to the collaborative design approaches due to the focus on exploring the harbour together with the stakeholders through their social world. Due to the limitation of time, it was not possible to partake in the whole design process, however the idea is that the participants have been activated in a way so that they now have an interest in the planning process of the harbour. In this way, it can be argued that we through our workshop has qualified a process for some of the potential users of the harbour, which will continue after this research.

The line of reasoning is that the earlier these kinds of collaborations are carried out, the more ownership and engagement could come from the citizens, who will align themselves earlier in the process, which is crucial not only for the planning process but even more in the 'aftermath' of the project implementation. As earlier mentioned, Cassøe (2017, p.c.) argues that these urban development projects should be a *foundation* for future liveability rather than a *piece of art* in itself. Design is thus seen as a process of working with knowledge creation and engagement - a design for and with, not design of - as Munthe-Kaas & Hoffmann (2016) states.

### *Further steps*

This research has explored some of the potential of involving 'alternative' types of stakeholders in planning projects in a new experimental and collaborative way. The experiments conducted are of course just a start, the workshop approach and associated concept can be developed much more.

Next step in the design process could be to actually stage some of the activities suggested in the mini-workshop like i.a. having the youth council arranging a mini-festival at the harbour, using and exploring different prototypes of the dike (i.a. a stage in the dike). It could also be to have a biology class at the harbour.

We have carried out these experiments with teachers and youths, but as mentioned, another suggestion could be to also carry out experiments like ours with other professions or actors in Middelfart, such as the nursing home, historical museum, retail owners etc., of which a more extensive list have been compiled in appendix 10. This can obviously be a very laborious and resource demanding process, but it can be carried out in very different scale and potentially also with different actor groups together at the same workshop, experiment or laboratory.

As accounted for earlier, we already see examples of different ways of forming groups in other places in Middelfart. Another example of this was seen in relation to the Climate City project where citizens, whom experienced similar issues, arranged themselves in street associations (Cassøe & Borchmann, 2017, p.c.). This could happen in the harbour as well, and the City Forum is an example of a group of actors who could contribute to urban life during and after implementation of the Climate Harbour, if activated in a democratic way. Thereby ensuring that the facilities in the harbour will actually be visited and used. As we have experienced in Scheveningen, life and activity does not necessarily happen spontaneously, just because a nice facility has been constructed. The key is - also according to Cassøe (2017, p.c.) - that this potential way of organising around the usage of the area is being discussed at an early stage of the project.

The next step in the development process of the Climate Harbour is that three experimental laboratories will be conducted at different locations in the harbour as a cooperation between CFBO and AAU's research project 'Guldet'. The labs will focus on business development and job creation, learning potentials for children and liveability respectively, and thus continue the democratic design experiment thinking that has been started.

The line of thinking and working with a value-based approach is relevant for many other municipalities and coastal projects and can be undertaken in or by other municipalities, as the need for creating new networks is present in many other urban development projects. When discussing the replicability of the workshop experiments, it is essential to be aware of contextualisation. Each city and harbour is different in geography, demography and urban life, why these experiments cannot directly be transferred. Yet, we will argue that this approach and the thinking behind it is replicable because of its flexibility to be adjusted to different stakeholders and contexts, yet still focusing on the core issues of values associated with liveability, activity, identity and relations to a local area. The focus on learning potential in Middelfart, is an issue that could be interesting for schools and educational institutions elsewhere as well.

### *Temporality as a tool - Design phases*

An issue experienced by the process consultants in CFBO is that there is a major risk of knowledge being lost in the stages between the different defined phases of the project; from those responsible for the preliminary investigations, to the tender processes, to the winners of the tender and to those constructing it (Cassøe & Borchmann, 2017, p.c.). But how do you deal with these in-between phases of a project? One example is the project manager Helle Baker and the established project group, who is involved all the way through and thus enabling knowledge and experiences to be

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transferred from one project to the other. It can be discussed whether this issue could also be addressed by making processes which involve actors in a collaborative way. In our approach, we do not focus on specific design, but are rather interested in qualifying and engaging people to mobilise themselves in networks and through these make the design themselves. As mentioned, this kind of involvement should ideally be carried out throughout the whole duration of the planning process and not just in the beginning or when the project is finished and ready for being used.

Cassøe (2017, p.c.) further explains that there could be a major potential in activating actors and use temporality as a strategic tool. Working with democratic design experiments and this whole discussion about value creation and co-design in a project, has showed that one of the potential of using this strategy is exactly that. By attempting to facilitate for people to align themselves in organised networks, different things could be tried out through prototyping or living laboratories. Thereby temporality can be used as a more dynamic and active experiment to test functions and design before they are build and becomes static. Furthermore, these experiments and prototypes could help figure out how different networks and ownerships exists in the harbour and potentially new ways of creating ownership as exemplified by the chairman of the local trade association talking about the concept of "adopting an activity". He further explained this as an opportunity for companies to test their prototypes and products in the harbour, or sponsoring soccer goals with logos on (field notes 5). In this way temporality can be used as a way of trying out different alternatives that could potentially create life in the harbour. The physical geography teacher attending our workshop experiment also mentions how temporary events or urban spaces can also create more dynamic city landscapes and would be interesting to have in the harbour. Doing these experiments continuously throughout the project planning, there is a bigger chance of stabilising these networks of local actors and thereby having them continuing activities after the construction and implementation phase.

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# 7 Discussion & Reflection

This chapter is divided in two sections each discussing different aspects of the findings and outcomes of this research. The first section gives a broader perspective to the concept of (added) values and liveability and discusses current available tools for documenting and measuring these. It also further accounts for other ongoing discussions in this field. The second is a reflection of what we, as soon-to-be educated Sustainable Cities engineers, have learned through this process.

## 7.1 Value creation and liveability in a broader perspective

After investigating the concept of (added) values and the act of valuing in both scientific literature, through media, through interviews with professionals from different countries with academic as well as non-academic backgrounds and with local citizens, a question that arises is: is it even possible to take on this extended liveability value-based approach when it is such an abstract, subjective, contradictory and intangible concept? In part, the answer is yes - but.. It has to be done bearing in mind that this is not a straightforward task, as it demands a comprehensive transition of practices and approaches, thus challenging the existing lock-ins (Unruh, 2002).

In general, most of the interviewees in this research seemed to find it difficult to speak about values and value creation and to come up with specific examples of what some of these added values or extra functions could be, and very often they focussed on economic values. When talking about 'added values' in the different climate adaptation projects, multiple words and terms were used in the interviews such as: *value creation, urban benefits, community goods, liveability* etc. Hence, it was a continual dilemma in the research that people were either talking too general about value creation, or not being able to express specific values created. Yet, what we did find through the initial research is that added values are often very much associated with community. Our interviewees articulated added value in relation to flood protection projects as *strengthening the community*; *greening opportunities to grow vegetables and flowers*; *working together with people that are unemployed*; *entrepreneurial opportunities*; *increasing of the equality of the area.*

Of the mentioned perspectives, elements such as recreational activity; improved health; relaxation; social; explorative and inspirational values can be interpreted. Concrete examples of physical functions that the planners and practitioners we have spoken to focus on are those of playgrounds, parks, public space improved by having a water element implemented. Generally greening of the urban area is a recurring element. It was not very clear why or how exactly these specific functions were being highlighted, but Nillesen (2017, p.c.) bases her liveability improving design on research on what people find attractive and less attractive.

This could be seen as a consequence of not working strategically with liveability and user-related value creation as a concept in coastal protection projects and also suggests that in order for people to be able to talk about values, it is necessary to be aware of what opportunities and arenas they are given to talk about it in. This goes for both professionals and laypersons not usually involved in urban planning. Talking about added value in relation to technical projects is difficult, however there is a need of more focus on it for values to become part of colloquial language, which calls for developing of new approaches to planning. Further, strong arguments are needed to underpin these new approaches and practices in order to break with the current sectorised practises.

With the experiences gained from the Netherlands, new ways of approaching the concept of value creation have evolved. Values should not only be understood as some specific added functions or design, but also exploring how cooperation and networks can be of value for the project and for innovation within the field of coastal protection. Maybe it is not about "planning" for certain values

in advance, but making sure that different people are involved in the right way and in that way trying to create new values, while ensuring that the main goal of the project is being reached.

### Perceptible and measurable added values

While researching different understandings and use of value creation, it has become apparent that several discussions about the concept of added value and how to measure the potentials they encompass are going on in different arenas of professionals dealing with this in one way or another. As this discussion mirrors how the value concept is currently being perceived and addressed in a broader sense, we find it relevant to present this perspective to vary the discussion.

One of the issues currently discussed in these circles is the difficulty of measuring or documenting the more perceptible kind of values emerging in holistic climate adaptation projects. The debate meeting "*The measurable and the perceptible (added values)*" addressed this specific topic, discussing amongst other subjects how the word evidence has changed from historically meaning something that is obvious or visible for everyone - which you can experience and be in, to nowadays having a meaning of something that can be proved: facts. It was pointed out that today evidence must be ensured when choosing an approach, as errors are expensive. From this perspective it can then be questioned how we should quantify these values? Is the fact-based evidence-approach of today the only right way to measure and experience these values?

It is often easier to persuade or convince people and politicians with a solid, documentable argument based on economic or quantifiable value. An example of this is given by Hoogvliet (2017), who does not belittle the perceptible values, but points out how his organisation Deltares (see appendix 3) is a very technical institute, who focus on quantifying elements within liveability in factors impacting e.g. health:

*"We like to quantify for instance the reduction in air pollution in particles, in reduction of heat stress or the reduction of exposure to polluted water during pluvial flooding (...) But there are very important other factors, which have to do with the safety and the social circumstances of areas"* (Hoogvliet, 2017, p.c.).

This also fosters a discussion of what different tools can contribute with, and what kinds of tools should be used when measuring and documenting these values?

### Need for new valuation tools

Different tools and strategies for measuring and documenting values already exist, of these can be mentioned:

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***PLASK*** - a Danish screening tool developed by COWI consisting of a large excel sheet with data which can be used to compare different alternative solutions from a socio-economic perspective (Christensen, 2017, p.c.). The tool focuses on qualitatively evaluating different aspects of added values on a scale from 1-4, which are divided in four main categories:

- Activities
- Spatial (e.g. aesthetic, safety)
- Natural (e.g. biodiversity)
- CO2-footprint

***I-tree*** - a software tool to assess and manage the structure, function, and value of urban tree populations, estimating the ecosystem services provided by trees, such as their contribution to carbon absorption, energy savings (through shading and/or blocking wind), improvements of the air quality, and stormwater absorption and interception (USDA, n.d.).

***Mapping and Assessment of Ecosystems and their Services (MAES)*** - a methodological tool to calculate what economic value nature's ecosystems has for humans and society. Thereby mapping and valuing those values we as humans benefit from in nature. The services are divided in four categories:

- The provisioning, providing us with material goods of i.a. food, drinking water and lumber
- The regulating, which regulates i.a. Climate, water, air and pollination of crops
- The cultural, generating non-material benefits such as aesthetic, spiritual and recreational values
- The sustaining, supporting the other services through i.a. nutrient cycles, biodiversity and soil formation (Ramboll, n.d.; FAO, 2017)

The tools all have a very different purpose and context and can not be compared directly, however, common for all of them is that they are based on numbers and statistics in some way. They can all contribute with different perspectives on either pollution, emissions or economic benefits etc. in different phases of a project. This is useful in a lot of ways, however, values are not something fixed or static and because different actors may well have very different, and perhaps conflicting goals and also (changing) perceptions of values - as we have explored - it can be argued that there is a need for more tools or devices to supplement these very number-based tools. Christensen (2017) also mention that it was realised through PLASK 1 that adding different values into an excel sheet is very difficult, and even more importantly difficult to work with for the municipalities actually dealing with the problems (Christensen, 2017, p.c.). Further it cannot tell you whom to cooperate with or whether a project area is located right next to e.g. a school, who would be beneficial to involve in the planning process. Thus, he also calls for alternative tools to supplement PLASK in the screening phase (Christensen, 2017, p.c.).

The development of more 'alternative' tools not based entirely on numbers is in its early progress. The research project 'Guldet' is also working with this subject of documenting values as one of their objectives, challenging the way of using only numbers to see and quantify values. In a workshop

conducted by the research group 'Guldet' they have tried to work with how different stakeholders from the Climate City in Middelfart can work with documenting the added values created in the project. This was done by expressing and describing values, and how they think these values can be disseminated to politicians and citizens through different kinds of measuring or documenting. Examples of how the participants suggested that values can be measured is by e.g. amount of people on the streets; whether new street-based communities have been created; how many people know about the Climate City; amount of new jobs created; number of tourists staying in the city; different interests in school subjects; whether children have become more physically active; property value; number of burglaries; amount of flea markets and street events etc (field notes 1). It is noteworthy that many of these suggestions are also based on numbers and statistics, which again suggest that there is a need of an awareness of other tools or ways of documenting values. However, it should also be pointed out that some of the ideas were different, like measuring the height of the hedges, asking people if their neighbourliness had improved and whether more street fairs had been arranged (field notes 1).

PLASK and Guldet are both examples of tools used to document or work with value creation in climate adaptation, through different strategies. PLASK works within different predefined socio-economic categories, whereas Guldet focus on completely contextual values. Both approaches are, however, seeking to support and develop existing planning processes towards a focus on the potential of creating liveability enhancing added value.

It could be argued that our experimental approach can also be added to the more 'alternative tools', focusing more on the aspects of interessement between actors through a project and thereby contributing with knowledge of values and personal stories and perceptions.

This thesis thereby emphasises that there is a need for different ways of measuring and documenting values as a supplement to the existing tools.

### Selling liveability - another perspective:

Values can also be seen from a more commercial point of view, of how to argue for and sell something relevant and attractive, focusing on a more emotionally appealing and ethos-oriented approach. Camilla Frederiksen, a communication consultant, who was present at the debate meeting about added value, argued in her presentation that added value can be created if you are able to identify yourself with your recipient, positioning your project in a human perspective and aspiring to engage people with the "heart" (field notes, 2017, see appendix 13).

Thus, values can be argued to be about turning the "best-looking cheek" of a project or vision towards the actor, which will be a different side for different people.

In this perspective, what looks good for the citizens is not necessarily a selling point for politicians. An example of Middelfart using this strategy (whether deliberately or not) could be that the laboratory thinking and sustainable growth has been a vision for the municipality for a long time, but for the citizens this vision is advertised as a "more green, healthy and fun city" and for the business community it is as "green growth" (Cassøe & Borchmann, 2017, p.c.). This strategy of

"selling" or "advertising" the benefits or values of a project in different ways can also be seen as a way of recognising that the city is characterised by being ambiguous and heterogeneous, why there is no "right" and only solution to the development (Munthe-Kaas, 2015).

## 7.2 Sustainable Cities engineers - from city planner to city navigator

Conducting this research has been a great, challenging and interesting learning process. The journey into this interdisciplinary cross field filled with contradictions, interpretations and no resolute answer has provided us with very valuable experiences in the field of engineering and urban planning. Being part of an ongoing research project - 'Guldet' - has given us a lot of opportunities and insights into the "real world" of planning processes in action, some of which would have otherwise been difficult to gain access to.

It has also led to the understanding of the challenging task that lies ahead for us as planners in this evolving field of climate adaptation and urban development. Even though new tools and guidelines to ease the processes and measure values emerges, the crucial part of being a sustainable city engineer is to have the skills to understand, link and navigate through the different social worlds involved in these kinds of projects, including our own. Engineers and urban planners are thus facing a situation where technical expertise is not sufficient to develop a future sustainable city but should be supplemented with constant navigation (Munthe-Kaas & Hoffmann, 2016). Coming from environmental science backgrounds both of us, this notion about the potential of democratic and collaborative design and seeing ourselves as innovators has been a challenge and personal development occurring throughout this project. Navigating through the different social worlds requires planners to be able to translate each other's perspectives but also to bend existing connections to enable new ones to emerge. Cities are not static, but consists of multiple different assemblages, and thus, planners need to accept that in order to navigate through this we partly need to let go of control.

From what we have learned, this is the task that lies ahead of us.

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# 7 Conclusion

This study has investigated how the planning of coastal protection projects can increase the liveability and added value in an area through a more collaborative involvement of local stakeholders.

By investigating and analysing elements and processes of Dutch and Danish planning practices and experiences within coastal protection and climate adaptation projects, it has become apparent that several elements are still underpinning a lock-in situation of traditional practices, which are inadequate for managing the current liveability agenda. The barriers for change have amongst others been identified as a dominant technological focus, sector-separation of organisations, practices and budgets and a slow establishment of a new hydro-social contract. A transition is, however, occurring and it is found that cooperation across sectors and professions is generally improving, but there are still many barriers to overcome, for example how to move from intentions to practice.

The new boulevard of Scheveningen in the Netherlands has achieved both flood protection and liveability to a certain degree through a multi-functional flood protection project. However, this research suggests that further relations to the coastal area, and opportunities for value creation and urban life could potentially have been achieved if a more integrated and collaborative involvement process had been utilized.

Similar challenges have been found in Danish planning contexts. The Climate Harbour project in Middelfart is, however, an example of an attempt to break with the sector-separated planning and the municipality and utility company have great ambitions for combining a flood protecting dike with liveability facilitating initiatives. Building on the already comprehensive stakeholder involvement carried out in Middelfart, this study finds that an experimental collaborative and value-based workshop approach - In this case with high school teachers and local youths - can contribute to the creation of a new 'language' about the use of the harbour. The workshops thus served as an arena, facilitating a 'qualification' of actors, which has potentially activated and engaged them to organise themselves in new networks. These networks can form the basis for creating more activity in the harbour and seeing the potentials of liveability and the added values it encompasses, by talking about relations, identities and activities from the actors' own point of origin. Thereby this study suggests that democratic design experiments and the thinking underpinning it can contribute to the development of new planning practices within this field, although the workshop concept should be further developed and tested.

Through a combined and extensive research of how the concepts of (added) values and liveability are being perceived, articulated, prioritised and planned for in climate adaptation projects, it has become apparent that existing tools are not sufficient to embrace the complexity of working with values from multiple perspectives. However, based on the current path-dependencies, we find the focus on values and liveability to be essential in succeeding with the ongoing transition. Thus, this research suggests that there is a need to develop new tools and approaches to supplement the

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existing. The research further indicates that there is a general lack of working deliberately and strategically with value creation in climate adaptation projects. On the basis of these findings, we suggest that more attention should be focused on a collaborative approach to stakeholder involvement and interessement, particularly with those types of actors not traditionally involved in professional planning groups.

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## Interviews (p.c.: personal communication)

- Bals, J. (2017) Interview with Jurgen Bals. Interviewed by the authors. Conducted 20th of March 2017 in Rotterdam. See appendix 4.3 for transcription of the interview.
- Cassøe, R. & Borchmann, I.H. (2017) Interview with Rasmus Cassøe and Inger Borchmann. Interviewed by the authors. Conducted 18th of April 2017 over Skype. See appendix 4.7 for resume of the interview.
- Christensen, S.M. (2017) Interview with Søren Møller Christensen. Interviewed by the authors. Conducted 15th of May 2017 in Copenhagen. See appendix 4.8 for transcription of the interview.
- Fluitman, A. (2017) Interview with Age Fluitman. Interviewed by the authors. Conducted 22nd March 2017 in Rotterdam. See appendix 4.1 for resume of the interview.
- Henriques, M.S. (2017) Interview with Mikkel Suell Henriques. Interviewed by the authors. Conducted 10th May 2017 in Copenhagen. See appendix 4.6 for resume of the interview.
- Hoogvliet, M. (2017) Interview with Marco Hoogvliet. Interviewed by the authors. Conducted 31st March over Skype. See appendix 4.4 for transcription of the interview.
- Nillesen, A.L. (2017) Interview with Anne Loes Nillesen. Interviewed by the authors. Conducted 22nd March 2017 in Rotterdam. See appendix 4.2 for resume of the interview.
- Van Veelen, P.C. (2017) Interview with Peter Christian van Veelen. Interviewed by the authors. Conducted 21st of March in Rotterdam. See appendix 4.5 for transcription of the interview.

## Field Notes & Minutes

- Field notes 1: Minutes, Climate City workshop. Conducted 27th of March 2017.
- Field notes 2: Minutes, Climate Harbour Project Group Meeting. Conducted 16th of March 2017. See appendix 11 for field notes.
- Field notes 3: Minutes, Workshop at Vestre Skole. Conducted 16th of May 2017. See appendix 12 for field notes.
- Field notes 4: Minutes, Phone Conversation between Birgitte Hoffmann and Helle Baker, 1st of May 2017.
- Field notes 5: Sejer, L. (2017). Minutes from conversation with Lise Ny Sejer.

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# 9 Appendix Report