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Author	Corinna Lüthje, URO corinna.luethje@uni-rostock.de

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Executive Summary

The purpose of this document is to summarize and document the results of Task 7.5. In Western industrial societies new technologies often encounter acceptance problems. The rejection of new technologies is due to the way in which technical innovations are usually planned, communicated and implemented. Appropriate means of improving social acceptance are participatory research and development. Space@Sea offers an opportunity regarding participation in the development of modular floating islands right from the start. This makes it possible to minimise the distance between developers and future users. Stakeholders can get involved in the process and thus gain valuable knowledge or introduce a new perspective to the developers. The adaptation of the design to their needs and the constant communication during the development process fosters the stakeholders' acceptance of the project. Thereby, undesirable developments can be detected and corrected early in the process. Task 7.5 of the Space@Sea project contains 27 qualitative interviews with people from different stakeholder groups from Germany, Norway, Denmark and the Netherlands. The sample includes people from Rostock, Trondheim, Aarhus, Alkmaar, Rotterdam, Den Helder and The Hague. The three different groups were potential inhabitants, investors and developers as well as governmental officials. The interviews were conducted to analyse what kind of visualisation worked best, how the interviewees liked the most recent design, which reaction of the citizens the interviewees anticipated and how they assessed the feasibility of the project. The project is assessed differently in the locations participating in the survey. The design received mainly positive feedback from Rostock's repondents. Assessments from the other cities' respondents were more reserved. Rostock's respondents expect mainly positive reactions from the citizens. Aarhus is expecting a vehement rejection of the project. Citizens' reactionsmight also be reserved in Trondheim and the Netherlands. Rotterdam could be a potential location as the city is already familiar with floating development. Furthermore, the harbour area provides potential development area. Floating develoment could be interesting for Rostock. Due to the survey, many decision makers in the city are now familiar with the project: potential investors as well as administrative and political representatives. Recommended further actions are workshops with the participants of the survey to inform them about the project's progress and to keep them interested as well as actions regarding public relations to familiarise Rostock's citizens with the concept of living on the water.

1. Introduction

Subsequent to Task 7.2, Task 7.5 is concerned with the issue of social acceptance regarding the living platforms. Task 7.5 is concerned with the perspective of different stakeholder groups of the living space platform of Space@Sea: potential future inhabitants, governmental officials, and investors and developers. Their perspective is of great importance for further architectural and technological developments, for social acceptance and for the future realisation of Living@Sea.

In chapter 2 the theoretical framework of social acceptance is presented. In chapter 3 the method and the sample used in this research is discussed, subsequently chapter 4 describes the results and the conclusions are drawn in chapter 5. In annex 1 the references can be found and in annex 2 the transcriptions of the interviews.

1.1 Relation to the overall project

In Task 7.2 (D7.1) a list of functional requirements was created, which was a basis for the work of the other tasks in work package 7. The resulting designs were visualized in various forms (brochure, maquette, video), which in turn were presented to the stakeholders from different groups to check the liking and acceptance of the designs. The results of Task 7.5 (D7.4) serve as an input as background information for the project partners of Space@Sea.

1.2 Approach

While Task 7.2 contained qualitative interviews with potential future inhabitants and put the focus on how the interviewees were envisioning the living platforms, Task 7.5 is posing the following question: *How content are the potential users with the realisation of their suggestions regarding the living platform's design?* In order to answer the question, the participants of the survey of Task 7.2 were interviewed once more (PIs, Sample 1).

The survey has been extended by further stakeholders (Sample 2). The questions concerning Sample 2 are the following: *How do investors and developers (IDs) as well as Governmental Officials (GOs) assess the need of living platforms on their city's waters? Do they like the current design? Do they think that the project is feasible? What kind of pitfalls do they expect?*

Another question both samples contain is the following: *Which kind of visualisation do the stakeholders prefer?*

For approaching the questions, the method of qualitative and guideline-supported interviews was chosen.

2. Theoretical Framework: Social Acceptance

There is a persisting ambiguity about the term "social acceptance". Some authors speak of social acceptability, whereas others prefer the terms public, social or societal acceptance (Wüstenhagen et al. 2007; Wolsink 2012; Heiskanen et al. 2008). Yet others claim the interchangeability of the terms "acceptability" and "acceptance" (Forunis et al. 2017). Following the framework of Wüstenhagen et al. (2007), social acceptance is the result of acceptance within three dimensions:

- Socio-political acceptance: The acceptance of technologies and policies by the public, key stakeholders and policy makers. It resembles acceptance on the most general level.
- Community acceptance: Acceptance on a local level, i.e. the acceptance by local stakeholders, residents, local authorities and NIMBY people. It centres on issues of procedural and distributive justice, as well as trust towards external actors. *NIMBY* means: not in my backyard. NIMBY idea suggests that people have positive attitudes towards something (e.g. technological innovations) until they are actually confronted with it, at which point they oppose it for selfish reasons (Wüstenhagen et al. 2007). NIMBYism describes that the difference between general acceptance and then resistance to specific projects can be explained by the fact that people support e.g. renewable energy as long as it is not in their own backyard. (Wüstenhagen et al. 2007)
- Market acceptance: The process of market adoption of an innovation. Acceptance by consumers, investors and businesses.

Fournis and Fortin (2017) define social acceptability as the process of collective assessment of a given project (understood as complex interactions between technology and society), integrating a plurality of actors (stakeholders) and spatial scales (from global to local), as well as involving the specific trajectory (past present and future) of a political group or polity (community/society). This then stimulates the progressive construction of institutional arrangements and regulations recognised as legitimate because they are coherent with the vision of territory and model of development favoured within the relevant space. According to Kollmann (1998), acceptance research focuses on the adoption of an innovation by users at a given time. It therefore refers to the acceptance of new products and services and their subsequent use (Quiring 2006). According to Rüggeberg (2009), the process of acceptance includes all phases from the perception of an innovation, the formation of an attitude, the development of an intention to buy and use it, the explicit purchase and its eventual use. The concept of adoption (Rogers 2003) focuses on the immediate first use, whereas the concept of acceptance yields towards a permanent usage.

In the context of the project "CreateAcceptance" (Heiskanen et al. 2008), societal acceptance is defined as follows: Societal acceptance exists when there is support for the technology among the expert community, national and local policy makers and when the general public has an informed and largely positive view of the technology. Concrete applications do not meet significant obstacles from local policymakers, residents, the NGO community, or other representatives of social interests. Thus, when the opportunity arises, ordinary people are willing and prepared to adopt the applications in their own contexts and to support them with positive actions.

Considering the framework of the researchers listed above, we conclude the following general definition: Social acceptance is the acceptance of an innovation by the public, key stakeholders, and policy makers on a general and local level. When such level of acceptance has been achieved, people will be willing to adopt the applications into their own contexts when the opportunity arises. Adapted to the Space@Sea project, the following definition occurs: Social acceptance means the acceptance of artificial islands and living on the water by the public and key stakeholders on a general and local level. When the opportunity of living on the water arises, people will see it as an alternative to living on land and have a positive mindset about adopting it into their own lives.

The lack of acceptance for and resistance towards innovations can be ascribed to the negative emotions people associate with them. A fear of change is related to a barrier of not knowing, which means missing knowledge about the innovation (Rüggeberg 2009). Tiedke et al. (2003) criticise communication problems in the planning process, insufficient information flows, a lack of participation offers and communication difficulties between experts and citizen.

Factors that create acceptance can be (Borg et al. 2017):

- Providing knowledge about procedures, technology, opportunities and risks as a prerequisite for a factual discussion.
- Building trust through information and continuous communication between relevant parties (operators, media, politics, citizens) without hiding of negative aspects or risks.
- Transparent action through active continuous information and inclusion of the stakeholders.

Social acceptance is considered to be achieved when:

- The innovation is supported/accepted by the general public as well as on the local level. This is resembled by the acceptance of an innovation by the expert community, national and local policy makers, key and local stakeholders, residents, local authorities and NIMBY people.
- The general public and local community have an informed and largely positive view of the innovation.
- Concrete applications do not meet significant obstacles from local policy-makers, residents, the NGO community or other representatives of social interests.
- Ordinary people are willing and prepared to adopt the applications into their own contexts, when the opportunity arises.

Quiring (2006) resumes that the question of acceptance should not first be raised after the completion of the technical development but accompany the whole process from the collection of ideas until the launch. This means, social acceptance is a matter of constant communication and participation.

Participatory research increases the chance of a public and social acceptance. “Participatory research methods are geared towards planning and conducting the research process with those people whose life-world and meaningful actions are under study. Consequently, this means that the aim of the inquiry and the research questions develop out of the convergence of two perspectives – that of science and of practice. In the best case, both sides benefit from the research process.” (Bergold et al. 2012) Participatory research does therefore not only contribute to the production of knowledge, but is part of the public relations work. The latter does not only aim for the improvement of the overall image but also for structural homology (Faulstich 2000). Structural homology describes the harmonisation of opinions and intentions of developers, scientists and stakeholders. Keywords regarding structural homology are acceptance, trust, candour, responsibility and credibility.

3. Method and Sample

Establishing structural homology is a matter of communication. The Space@Sea project consists of 17 European partners who cooperate with each other within a total of 12 work packages (WPs). To avoid aberrations, information about future occupants and other stakeholders are essential for them. The Space@Sea project used participatory research in form of a circulating process. Developers and stakeholders did not communicate directly but via structured inquires and the subsequent communication of their findings. First, the necessary information the developers required was gained in Task 7.2 by means of a written survey of the WPs. A panel of seven potential future inhabitants according to the target group was formed and participants were asked about their experiences, needs and wishes. The findings of these qualitative and guideline-supported expert interviews were forwarded to the developers and eventually applied in the design. Task 7.5 is aiming on finding out if the potential users are content with the realisation of the living platforms. Furthermore, the survey has been expanded as more stakeholders have been included. Like in Task 7.2, qualitative, guideline-based expert interviews were conducted to obtain the necessary information.

3.1 Expert interviews

Experts are considered to be people of a specific social sub-area who are being asked about their experiences concerning this specific field (Blöbaum et al. 2016, p. 175). They are valuable sources for gaining special knowledge about the investigated social issue (ebd., p. 174). Experts of this study are thus people who are experienced in living in an artificial and isolated environment (PIs), (Sample 1). Such living environments are offshore platforms, container vessels, cruise liners. Further experts taking part in the survey are investors and developers (IDs) as well as governmental officials (GOs) (Sample 2). Exploratory expert interviews serve the purpose of creating a first orientation when it comes to thematically unknown or unstructured fields of research (Blöbaum et al. 2016, p. 178). They are fundamental sources of information in a new field which does not contain a fair amount of source literature yet. Moreover, the experts' exclusive and special knowledge is of crucial matter for further tasks of the overall Space@Sea project.

3.1.1 Guideline

A semi-structured interview is determined by "necessary candour and structuredness in a conversation" (Loosen 2016, p. 139). The interviews started by welcoming the respondents, followed by a short introduction of the project and information on how the interview would be conducted. Furthermore, respondents had been informed about the anonymisation of the transcript and its further use. They were then asked for their agreement on recording the interview. The voice recorder was then switched on and the interview started.

The guidelines have been constructed according to the information the partners of the project required. Said information has been figured out during a workshop in Rostock on 11 July 2019. Furthermore, the workshop offered the possibility to train its participants on how to conduct an interview.[1] The interviews in Rostock were conducted in German, whereas the other partners conducted them in English. To do so, the original German guideline has been translated for Sample 2.

The guideline for Sample 2 (IDs and GOs) contained five thematically arranged sections with a total of nine questions. The guideline's thematic structure was composed of 1) the city's current situation, 2) current approaches to solving the problems of the city 3) floating development, 4) visualisation, and 5) interest and new opportunities. Posed questions were the following:

- What are the urban development/spatial planning challenges the city had to manage over the last couple of years? What do you think will become problematic in the future? (Section 1)
- How is the city dealing with shortage of space? (Section 2)
- What is the city's strategy on sustainable land development? (Section 2)
- Are there any development plans along the waters of the city? What kind of developments are they? (Section 3)
- Are you familiar with floating development? (Section 3)
- Can you tell me something about any past or future floating projects in the city? (Section 3)
- I will now present you a visualisation of a floating development project. These are artificial, floating islands in modular design, with which additional place for housing can be created. If you like, I can give you more information about this after the interview. Please, take your time to look at it an tell me what you think about it. (Section 4)
- Do you think floating development could be interesting for your city? Why is that and where? (Section 5)

Besides these questions, the interviewer's guideline included a list of questions about various subject areas. If respondents did not talk about some of the topics on their own accord, they were simply asked about it. The thematic

[1] The interviews were conducted by David Kirkwood, Nienke de Korte, Susann Kowatsch, Fen-Yu Lin, Corinna Lüthje, Johanna Pohl and Dieuwe Wierema.

questions were composed by means of the results of the workshop and included the subsequent topics: land shortage, land reclamation, climate change and sustainability, attractiveness of the visualisation, imagination of the concept based on the visualisation, attractiveness of the design, social acceptance, feasibility.

The guideline for Sample 1 (PIs) was reduced to section 4, because the questions have already been posed to the participants or because the participants did simply not have the required information regarding a certain domain.

3.1.2 Stimuli

Section 4 (visualisation) contains three different media stimuli: printed brochure (Fig. 1), maquette (Fig. 2), and augmented reality film/video (Fig. 3). According to the project status of June 2019, all stimuli are based on an identical set of data. The contents of the brochure are available in Annex 2.

Fig. 1 Brochure

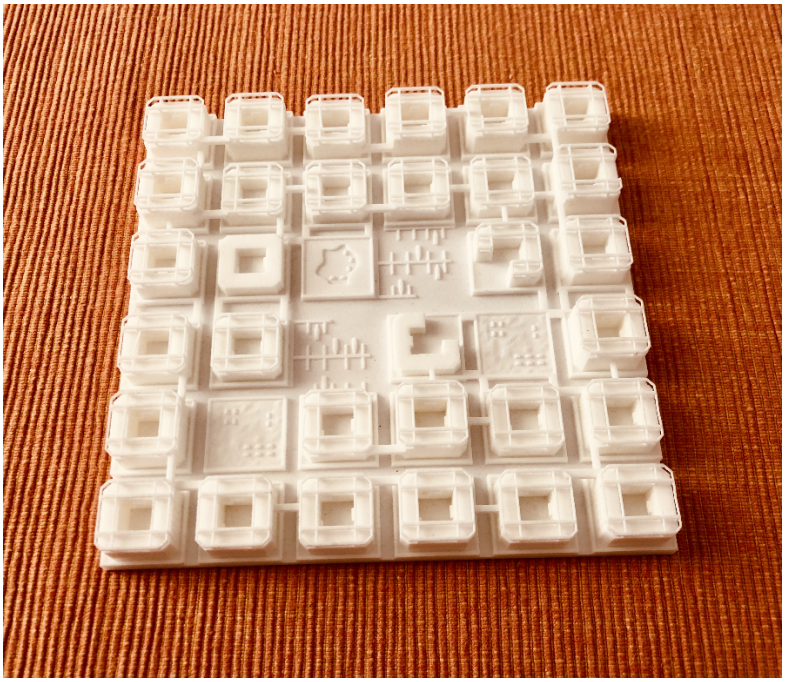

Fig. 2 Photo maquette

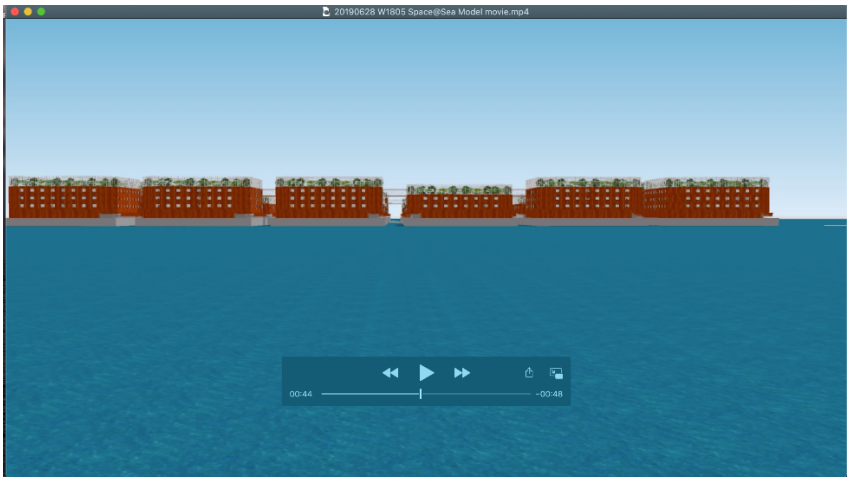

Fig. 3 Freeze-frame video[2]

3.1.3 Sample

A total of 27 interviews has been conducted. Elicitation took place from August to December 2019. Five out of seven participants from Task 7.1 were recruited once more (Sample 1). These 5 interviews were held in Rostock. The participants' former numeral abbreviations have been changed to the letters PI to adapt them to Sample 2. The participants' names will not be mentioned due to anonymisation reasons.

Abbriviation	**Former Abbriviation (D7.1)**	**Country**	**Stimulus**
PI1	D	Germany	Brochure
PI2	E	Germany	Maquette
PI3	B	Germany	Video
PI4	A	Germany	Brochure
PI5	C	Germany	Video

Fig. 4: Sample 1: potential inhabitants (PI), n=5

22 people participated in Sample 2, including seven investors and developers (ID) and 15 governmental officials (GO). 12 interviews were conducted in Germany (Rostock), seven interviews took place in the Netherlands (Alkmaar, Den Helder, The Hague, Rotterdam), two in Norway (Trondheim) and another one in Denmark (Aarhus). The participants[3] agreed to their names being mentioned in the report, but asked for the anonymisation of their answers.

Investors and developers from Germany were the managing directors of the business development company Rostock Business, the housing associations WIRO, WG Warnow and WG Schifffahrt-Hafen as well as Rostock's former mayor and the managing director of the real estate family foundation Kunz. The Netherlands' and Denmark's

[2] https://www.youtube.com/watch?v=q1sYWFabA_Y&ab_channel=Waterstudionl

[3] We would like to thank Rainer Albrecht, Sigurd Bjørgo, Roland Blank, Luke Davids, Jeroen de Bok, Andreas Engelmann, Leif Harald Hanssen, Andrea Krönert, Holger Matthäus, Frits op ter Bergen, Thomas Paulus, Arno Pöker, Franziska Richert, Arno Segeren, Waronne Sint, Barbara van den Broek, Sem Vrooman, Steffen Wandschneider-Kastell, Christian Weiss, Anne Zachariassen and Ralf Zimlich for their participation.

investors and developers were from Noord-Holland Noord and the Port of Aarhus. Governmental officials from Germany were deputies of the state parliament Mecklenburg-Western Pomerania (constituency Rostock) and representatives of the city parliament of Rostock – the latter covering the whole political spectrum (including members of the committee of urban planning & regional development as well as members of the environmental committee). Furthermore, the head of urban planning, urban development and economy and the senator in charge of construction and environmental issues participated. Governmental officials from the Netherlands included urban developers from Den Helder, The Hague and Rotterdam as well as a water manager from Rotterdam. Representatives of the Department of Regional Development in Trondheim and the Trøndelag County Council completed the sample.

Abbreviation	**Country**	**Stimulus**
ID1	Germany	Brochure
ID2	Germany	Maquette
ID3	Germany	Brochure
ID4	Germany	Video
ID5	Germany	Video
ID6	The Netherlands	Brochure
ID7	Denmark	Brochure
GO1	Germany	Brochure
GO2	Germany	Maquette
GO3	Germany	Maquette
GO4	Germany	Video
GO5	Germany	Brochure
GO6	Germany	Maquette
GO7	Germany	Video
GO8	The Netherlands	Video
GO9	The Netherlands	Brochure
GO10	The Netherlands	Maquette
GO11	The Netherlands	Maquette
GO12	The Netherlands	Maquette
GO13	Norway	Video
GO14	Norway	Video
GO15	The Netherlands	Video

Fig. 5: Sample 2: investors and developers (ID), governmental officials (GO), n= 22

There hast been an even distribution of stimuli for the entire sample (n=27). The brochure was handed out in nine of the interviews, the model/maquette was presented eight times and the video was shown during the conduction of ten interviews.

3.1.4 Locations

Participants were recruited from seven cities in four countries: Rostock (Germany), Trondheim (Norway), Aarhus (Denmark), The Hague, Den Helder, Rotterdam and Alkmaar (Netherlands). A common feature of the cities involved in the study was their location close by the water. Challenges regarding the urban development were of different nature.

Rostock

Rostock is a city in Mecklenburg-Western Pomerania, located at the Baltic Sea and the Warnow estuary. With around 210.000 inhabitants, it is Mecklenburg-Western Pomerania's largest city and the economic centre of the federal state. It is a Hanseatic city as well as a university city. Back then, Rostock has been a centre of the aerospace industry, today it is mainly a location for maritime industry. Besides, tourism plays an important role for the city. After the Second World War, a rise in population from 70.000 to 250.000 inhabitants until the end of the GDR lead to the construction of an international port and the aforementioned maritime industry, such as shipyards and fishery. Large housing estates (prefabricated buildings), originally built for workers, make up the largest part of Rostock's living space up until today. Back in the 1970s and 1980s, the modern prefabricated buildings were very popular. During the post-reunification period, the number of Rostock's inhabitants sank below 200.000 and many prefabricated buildings were dismantled. An opposed trend reagrding the population has occurred during the past few years – Rostock is getting more attractive; its population is growing. Until 2035, the estimated population growth is around 225.000 inhabitants.[4] Nevertheless, large housing estates as accommodation are not in demand. Living space in the historical city centre is tight. There are 21.571 residential buildings with a total of 121.748 apartments in Rostock (2018).[5] 35.182 apartments belong to the municipal housing association *WIRO*. Further major players in the housing market are housing cooperatives, private investors are are playing a rather small role so far. However, the latter's importance has been increasing for the past few years (and is still). The area is limited by the surrounding water(s) and the industry which is also in increasing demand.

Tronheim

Trondheim is located at the western part of Norway facing the North Sea, but very well protected by the island peninsula in front of it. With its 198,219 inhabitatns (in 2019), it is the third largest city in Norway. Mainly large Scandinavian cities are expected to grow in the next decades.[6] The projection that the overall population of Norway will increase a little less than one million until 2060.[7] Its main port activities are related to large cruise vessels. Additionally, Trondheim is amongst other major Norwegian cities (e.g. Oslo, Bergen, Stavanger) facing housing crisis as it strikes students and low-income groups in the country. According to the Norwegian Association of Real Estate Agents (NEF), increasing demand by the students for private housing and the decreasing number of new buildings are likely to lead to further inflation in the housing market[8]. While the city has experienced intensifying land use, increasing urban population density and denser urban housing, it is located in the vicinity of water and creating usable/livable space on water might be an interesting alternative for the city to deal with these challenges.

[4] https://rathaus.rostock.de/sixcms/media.php/rostock_01.a.10965.de/datei/__Präsentation_Bevölkerungsprognose_Flächennutzungsplan.pdf
[5] https://rathaus.rostock.de/de/wohnungsbestand/254115
[6] https://link.springer.com/chapter/10.1007/978-3-030-11674-3_11
[7] https://www.ssb.no/en/folkfram
[8] https://www.tnp.no/norway/economy/3148-housing-crisis-strikes-students-and-low-income-groups-in-norway

Aarhus

Aarhus is the second largeste city in Denmark and is located at the east side of the country facing the Baltic sea. It is home to the main industrial port in terms of container handling and an important trade hub in Kattegat. The port has developed a Master Plan for the Outer port in 2018, which will be an extension of 140 hectares. The expansion plans correspond to approximately 50% of the existing total area and will lead to a total port area of 420 hectares. "Port of Aarhus wishes an extension of approx. 300,000 sq. m, which forms the first phase (expected to be completed in 2030). The other two phases are of 650,000 sq. m (expected to be completed in 2048) and 450,000 sq. m (expected to be completed in 2060"[9] . It the city with the youngest demographics, with 48,482 inhabitants aged under 18 and the second fastest growing Danish city, with an expected growth 3,500 per year until the year 2035[10]. There is no housing shortage in Aarhus; however, there is a desire to introduce more exclusive waterfront housing. The port of Aarhus seems to be open to the idea of floating development, but focusing more on energy production, greenery and other recreational purposes. Regarding floating ports, the authorities would like to see more real-life successful examples before taking this option into account in the master plan. Once the proof of concept is there, reclamation might partly be replaced with floating structures.

The Hague

The Hague is a city on the western coast of the Netherlands on the North Sea and the capital of the province of South Holland. With a metropolitan population of 1,054,793 (2019) [11], it is the third-largest city in the Netherlands after Amsterdam and Rotterdam. The Rotterdam–The Hague metropolitan area, with a population of approximately 2.7 million, is the 10th-largest in the European Union and the most populous in the country[12]. The population in The Hague will continue to grow strongly until 2035. In general, space shortage is not considered a major urban challenge in The Hague. In fact, a staggering 300,000 m^2 of office space is available and often remains unused. There is a serious mismatch between supply and demand in The Hague's office market due to several reasons. At the same time, the city plans to build a further 130,000 m^2 more office space by 2025[13]. In terms of housing, the city is amongst other major Dutch cities that struggles to provide residents with more affordable housing. Moreover, traffic congestion in The Hague is considered to be the worst in the Netherlands. Development on water which could tackle these specific urban challenges would seem to be interesting to the city. A more in-depth location scan on The Hague was conducted by DeltaSync in May 2018 and is available upon request.

Den Helder

Den Helder is a municipality in the Northern part of the Netherlands consisting of 56,305 inhabitants (2020). In the previous decade it has been experiencing a 7% population decrease which started increasing again since 2019.[14] It is surrounded by water on three sides, with at the North and West part the North Sea and the North and East side the Waddenzee. The large seaport in the city and is a junction for the Dutch part of the offshore activities in the North Sea, with one of the largest offshore airports in North-Western Europe in terms of personel transport from and to offshore production platforms. The terminal for the ferry services to the island Texel is located in Den Helder, and since 1954 the Dutch naval military base (De Nieuwe Haven).

[9] https://www.aarhushavn.dk/en/news__media/recent_news/archive/expansion-of-port-of-aarhus-subject-to-an-environmental-assessment.htm
[10] https://www.statistikbanken.dk/02
[11] http://statline.cbs.nl/StatWeb/publication/?DM=SLNL&PA=37230NED&D1=17-18&D2=57-650&D3=l&LA=EN&HDR=T&STB=G1,G2&VW=T
[12] https://web.archive.org/web/20140303212054/http://www.zuidvleugel.nl/sites/www.zuidvleugel.nl/files/article/downloads/top_20_europese_grootstedelijke_regios_1995_2011_tno_2012_r11155.pdf
[13] https://news.cbre.nl/the-hague-faces-major-lack-of-office-space/
[14] https://allecijfers.nl/gemeente/den-helder/

Rotterdam

Rotterdam is the 2nd largest city and municipality in the Netherlands. It is in the province of South Holland, at the mouth of the Nieuwe Maas channel leading into the Rhine–Meuse–Scheldt delta at the North Sea. The city has a population of 651,446 (2020)[15] and is home to over 180 nationalities. As a major logistic and economic centre, The Port of Rotterdam is Europe's largest seaport. It can reach all major industrial and economic centres in Western Europe in less than 24 hours. Much of the areas are protected by Dyke ring 14, which provides flood defences for an area spanning 225,700 ha and is home to 3.7 million people. Multiple floating pilots have been realized in Rottedam to showcase climate adaptations measure which the city advocates. It is especially interesting to introduce floating developments to Rotterdam region as floating can add an actual value due to the regional vulnerability in terms natural hazards such sea-level rise and flooding.

Alkmaar

Alkmaar is a city and municipality in the Netherlands, located in the province of North Holland. The city has a total population of 109,444 (2020)[16]. The municipality of Alkmaar historically consists of several cities, towns and villages. Between late 1970s and early 1990s, these separate districts were linked together by the suburban sprawl of buildings. During this period, the population of Alkmaar almost doubled. It is expected that housing shortage in the Netherlands is expected to affect the starters and seniors the most. Alkmaar and its surrounding area are amongst other Dutch regions with the highest growth (62.9%) of over-75 households.[17] As the number of households with reduced mobility will grow over the coming years, making it necessary to create more suitable housing. The waterways in Alkmaar could for instance be used for (smaller) scale of housing.

3.1.5 Transcription and evaluation

The 27 interviews were conducted in 38 to 61 minutes (Sample 1: 21 to 43 minutes, Sample 2: 16 to 56 minutes). They have been recorded, transcribed and evaluated according to Mayring's method, which is a qualitative content analysis (2015). Therefore, transcription did not happen in a literal way, but in form of the aformentioned content analysis (Höld 2009). For the analysis, methods of the summarising and selective record were combined (ibid., p. 663). The method of the selective record only transcribes specific parts of the data. At first, a category system which matched the guideline's thematic questions and therefore the partners' required information, has been determined. The transcript is no chronologically structured record, but structured by the established categories. This specific type of approach corresponds with the structural content analysis (Mayring 2015). When applying the mehod of the summarising record, repetitions of a statement or text passages with no significance for the study, are being omitted. This approach corresponds with the first step of the summarising content analysis (Mayring 2015). When transcribing the interviews, it has been made certain to adhere to the respondents' choice of words and manner of speaking.

4. Results

4.1 Challenges regarding the urban development of the cities

This section will summarise statements from Sample 2 (Investors and Developers: IDs, Governmental Officials: GOs), because participants from Sample 1 (Potential Inhabitants: PIs) were simply not affected by the survey's topic. Only in Rostock it has been possible to directly compare GOs and IDs with each other. Looking at the other locations (The Hague, Den Helder, Rotterdam and Alkmaar in the Netherlands, Trondheim in Norway and Aarhus in Denmark), representatives of only one group participated. Perspectives of GOs and IDs in Rostock did vary, which

[15] https://opendata.cbs.nl/statline/#/CBS/nl/dataset/37230ned/table?ts=1578685738191
[16] http://statline.cbs.nl/StatWeb/publication/?DM=SLNL&PA=37230NED&D1=17-18&D2=57-650&D3=l&LA=EN&HDR=T&STB=G1,G2&VW=T
[17] https://www.capitalvalue.nl/en/news/housing-shortage-in-the-netherlands-rises-to-263000-dwellings

leads to the assumption that the affiliation to a certain group as well as the overall situation regarding a certain location does influence one's viewpoint.

At the moment, Rostock's biggest challenge, according to and concerning the governmental officials, is the shortage of space, especially with regard to living space and the increasing population growth (GO1, GO2, GO3, GO4, GO5, GO7, GO8.). "Rostock is a growing city. […] nevertheless, the influx is territorially limited." (GO1). "They city's area is limited and there is a huge competition when it comes to area. Everybody wants to claim the area for themselves." (GO5). "There are areas left in the federal state, but just not in Rostock." (GO7). Social housing should be enhanced while considering the altered housing needs of people. "We need more living space for each individual, because people are having higher expectations." (GO1). The area shortage also leads to conflicts. "There is a relative area shortage. Not everyone can live in detached house. Also, infrastructure measures complications and civic activities are increasing. Making decisions is therefore taking us longer and the pressure is increasing." (GO2). "How can you cover [the needs] within the urban area, where do you still find unused areas? That can often only be realised at the expense of green spaces, which then again causes a lot of conflicts." (GO3). "There is resistance everywhere: space, nature conservation, neighbourhood, citizens' initiatives." (GO6). It is impossible to meet every requirement regarding living space and living situation. Just recently I've read that there is no shortage of living space, but simply not everyone wants to live in the suburbs." (GO4). According to GO4, there is a particular need for large apartments and homesteads for families with many children and student flat shares. GO6 is thinking even further. According to him, flats of all kind need to be built, including expensive living space. Yet another problem is the repurposing of apartments to holiday apartments, but there is the wish for reversing this kind of development (GO6).

Unlike the GOs, the group of investors and developers in Rostock did not mention the shortage of space as the currently biggest challenge in terms of the urban development, but the availability of the area (ID2, ID3, ID4, ID5) as well as the speed of the administration: "Rostock is big in terms of its area." (D4). "We are way slower than everybody else when it comes to the development of building plans and plans regarding the land use. Which is difficult, because you're reacting to problems with a certain time delay." (ID2). "The city's pretty extensive and there is potential for inner densification of these areas, but those usually fail, because they're not ready to be built yet or because they're taking too long. Expanding the city to the suburban areas would bring infrastructural problems with it. There is a high risk of people moving to the countryside, because building areas over there are assigned more quickly and because there is no space in Rostock." (ID3). "Problematic issues are ownership structures: 'Should I invest in buildings that I don't own?' as well as conflicts of interest: […] There is no other possibility than densification." (ID5). There is a particular need for living space (ID1, ID2, ID4, ID5) for the growing city. It is also problematic that living space is available, it is just not needs-based. In addition, there is a high risk of segregation due to gentrification. Certain population groups are being dislodged from the city centre (ID4). Further challenges lie in the repositioning of the city during the still ongoing post-reunification period. Today's Rostock has gained importance as a living and working space and new functions with an impact on the surrounding area (ID5).

The GOs based in the Netherlands are facing other challenges: "Den Helder is no fast growing city, the population has been going down since the end of cold war, […] Den Helder's most important challenge: reconnecting the city with the sea. The city is surrounded by the sea on three sides but not closely connected to it." (GO8) Shortage of space poses a problem for The Hague, the city is rapidly growing. "No space for building left around The Hague anymore: undeveloped space is for nature conversation, green space area or important landscape area." (GO9). At the same time there are problems regarding the infrastructure: "It's difficult to get to the coast when you want to visit it." (GO9). Rotterdam is growing fast as well (GO10, GO11, GO15). Within the next 15 years, 50.000 new apartments will be needed (GO10, GO11). "The municipality reacts a bit too slow, it's about money and the zoning plan is restricting. Climate adaption, water and greenery are forgotten." (GO10). They are "trying to combine the planning of new housing with sustainability demands." (GO15). But it is problematic that "there is not enough space to build new houses in the city. The municipality has to become creative to find places to build. Current solutions. Floating houses in the harbour and skyscrapers." (GO11). The city is in need of affordable living space for young people and people with low income (GO15). GO12 has a different point of view on the situation: "No issue of land shortage as there are quite a few areas to develop." The challenges coming along with the development of the city are „reorganisation of traffic in the city, re-design and greenification of public space, climate change, making more room for mid-range housing." (GO12).

Trondheim is a fast-growing city as well. The growth of traffic coming along with it is introducing new challenges such as the demand for lower CO2 emission. Growth of the city means densification of the city. Old buildings are being torn down and replaced with new, space efficient houses. Trondheim is also addressing the problem that "over

the last 10-15 years, the agriculture industry has become the 'new actor' in the coastal area. Areas at sea are under pressure because of that growth." (GO13).

According to Alkmaar's investors, shortage of space is not a problem the city is facing. The same is applying to Aarhus: "There are housing demands, but not because of land shortage. There are lots of areas without houses in Denmark. Prognosis that people want to live in the city and are willing to pay money to have an apartment with a sea view. Students can not afford to live in Aarhus but only high-end people. Prices are not for everybody." (ID7).

4.2 Current problem-solving strategies

The answer regarding the current problem-solving strategies for the cities participating in the survey are being separated into two sections: the handling of the shortage of space as well as space development under the aspects of climate change and sustainability.

4.2.1 Handling of space shortage andl land reclamation

- Densification
- Building higher
- Restructuring/repurposing of areas
- Creating appealing living space along the water
- In terms of changes: the handling of the citizens' resistance
- Only little land reclamation (if so, only due to: accumulation or house boats)

Two out of five IDs were not able to give information on Rostock's handling of the shortage of space. ID1 referred to a new zoning plan that – besides economical topics – takes the issues of accommodation, recreation grounds and sanctuaries into account. The zoning plan is supervised by the commission for urban plan, but, according to ID1, representatives from the economical sector are part of the process as well. According ID1, there is around 500 hectare remaining area in Rostock. With regard to the issue of land reclamation, he is only familiar with one case: the accumulation of land for the company *Liebherr* in one part of the river Warnow. The accumulation has had a positive impact on Rostock as *Liebherr* as a crane manufacturer is one of the biggest production industries of the city. Therefore, many jobs have been created. ID4 points out the *Association for Living* (*Bündnis für Wohnen*): "A cooperation of companies from the housing industry is trying to build 6000 to 8000 new apartments until 2025. Especially living space for families and barrier-free apartments. The zoning plan is coming up with strategies regarding open space. Furthermore, three large areas are being developed, providing all necessary requirements. A model that aims on the development of a large district of the city, the development of empty spaces and increase of the population has been chosen. Personally, ID4 is not fond of the increase and densification of the city. He is also sceptic in terms of space development on the water. "You need to be careful with those kind of things. It's just not the right strategy for inland waters. There's a project on the dunes in Warnemünde to see if the protection of the coast can be secured." (ID4). ID5 has problems seeing a strategy regarding Rostock's way of handling the shortage of space: "An overall strategy (meaning more industry or more greenery) for the city, where it'll be in a few years, is missing. Strategy development is a challenge for the general policy because of the city's demographic development. The population is ageing." When it comes to the issue of land reclamation, ID5 (just like ID4) mentions *Liebherr* and the positive impacts on the city. Furthermore, ID5 talks about the endeavours about living on the water that have been undertaken, but also about the conflicts that arise from it: "There are several different stakeholder groups within the city's administration and different expressions of interest uttered by the locals advisory council and the politicians. Living on water also means making it accessible. Then there's the issue of the overall right to keep the water accessible for the resident population and also ensuring them a clear view onto the water. Lots of emotions and conflicts; after the reunification, people were able to reach the water; development concerning water is associated with evil investments. It's a complicated topic." ID5's third issue is the city's harbour: "There is no zoning plan for the harbour. Parking lots are being build on fine areas around there. People don't want a waterfront development, they want to use the harbour for going for walks. They also don't want development on the water, because it disturbs

the view. That's the public opinion and I can sense this kind of mood in from the citizens as well. They got used to the harbour being a public space that is not affected by commerce and habitation."

It is striking that some of Rostock's GOs are not well informed about the city's current developments. This can be explained by the fact that some of the group's members are local politicians who just got voted into the office on 26 May 2019. During the elicitation, they were still on their training period. The GOs in Rostock mentioned the zoning plan (GO1, GO2, GO3, GO5, GO6) and the B-plan that is based on the former (GO1, GO2, GO7). There is (self)criticism about the long duration of the process: "By now, the zoning plan has been existing for ten years and areas have been identified that are still not substantiated with a B-plan. It's just going pretty slow and it's unsatisfactory. The realisation of already existing B-plans is also taking very long, about three to four years." (GO1). "Our pace is actually way too slow, but if you wanna do it properly, there's no other way. It's difficult to solve, we would also need more administration staff." (GO7). A new zoning plan ("Zukunftsplan Rostock"/"Rostock's Future Plan") for the next 20 years has been developed recently (GO3, GO5): "We're trying to weigh up all possible options. There are various planning tasks: 'How dense are we going to build, how high are we going to build? But that's a sensitive topic. […] We need to check, if the increase of the city is possible. Further topics of interest are densification, relocation (e. g. of allotments) and the potential extension of some of the city quarters to the surrounding area." (GO4). The other GOs did not mention plans. Resistance is expected: "Most of the time, there's resistance before it even starts. Prioritising and identification of potentials are essential procedures – basically to check, where development can take place without many conflicts." (GO2). "There's going to be a lot of trouble during the next few years because of the competition. A lot of people are reacting only when it comes to the areas in front or in the back of their houses. Then citizens' initiatives start to form. Everybody wants to get anywhere by car, but wants to live "green" at the same time." (GO5). GO5 suggests participation as an attempt to solve the problem: "You just need to get the people on board." Like ID5, some of the GOs mention the discourse "Living alongside/on the Water" (GO1, GO2). "Within the scope of 'Living on Water', the question if it'd be possible to build a few houses on the water came up. There's been the idea of putting house boats on the Warnow as it'd be quite charming. Other countries are doing it as well. And we, on the other hand, are surrounded by water and don't use it enough. There haven't been proper negotiations yet, but the idea's there. Don't know if that's because of the investors or because of the city's administration" (GO1). "We wanna move closer to the water. We've been talking about house boats, but accumulations have not seriously been discussed." (GO2). Accumulations for *Liebherr* (GO2, GO6) and accumulations for residential purposes on Holzhalbinsel and Haedge-Halbinsel (two artificial peninsulas in the the port of Rostock) are being mentioned (GO2). The other GOs did not know about the discourse. It may thus be concluded that the issue has not been discussed to a large extent yet. Via the survey, Space@Sea gained prominence among the decision-makers and a near-term intensification of public discourse might open up new possibilities.

ID6 does not suggest potential measures to solve the shortage of space in Alkmaar. ID7 proposes the re-utilisation of Aarhus' industrial areas. He is not familiar with land reclamation measures. Regarding Trondheim, only GO13 comments on how the space shortage is being handled. Because of the discussion about the expansion of the city, the shallow waters of the Eastern port of Trondheim have been filled with sand. Subsequently, residential buildings were erected.

The Hague is re-developing old areas. They are also trying to work with other cities when it comes to major developments like housing and public transportation (GO9). According to GO9, there are no plans for land reclamation in terms of housing construction, but there is a project regarding the extension of land in connection with the sea-level rise. It has been established for coast protection reasons. Furthermore, GO9 mentions the extension of the harbour in Scheveningen (a district of The Hague) where many apartments are being built. Noise and emissions from the harbour are having a negative impact on the residents though.

Certain districts of Rotterdam, especially the harbour areas, are being transformed as well (GO10, GO11, GO15). A lot of areas are being densified and higher buildings are being erected (GO10). There are plans for residential areas along the waterside (harbour area) (GO10). Land reclamation has been achieved via accumulation in the harbour area (Rijnhaven) (GO11, GO12). Nowadays, parts of the harbour are public areas as well as residential and mixed areas (GO10, GO11, GO12). But a new zoning plan needs to be developed to make the area usable (GO12). In GO10's opinion, there is enough unused area in the harbour of Rotterdam. Therefore, no land reclamation for residential purposes would be needed. GO15 agrees: "Rotterdam is a harbour city, not used to reclaim the water by making land. Keep the areas as they are. Use them to make public parks, put boats over there. Not creating land in the harbour fosters better views and maintenance of Dutch cultural structures."

4.2.2 Space development regarding climate change and sustainability

- A rather irrelevant topic for the IDs
- There are a lot of small individual activities going on in the cities but there is only little strategy behind it (even with existing documents on the concepts)

At first, two of Rostock's IDs were reflexively dismissing the questions on the issue of climate change and sustainability to the representatives of politics and administration (ID1 refers to the senator of construction), ID2 refers to the environmental senator). Eventually, as the interview continued, they were communicating their opinion on the topic, just like the rest of Rostock's IDs. ID1, ID2, ID3 and ID4 talked about the future traffic regulation which is mentioned in the mobility concept (MOPS) of the Hanseatic city. ID1 has a positive attitude towards the district heat concept on the basis of fossil energies (coal-fired power plant at the Warnow): "A power plant can be environmentally protected, unlike many single heating oil systems of private households." ID2 has the exact opposite opinion: "District heat doesn't ecologically make sense, because of the way it's generated. It means burning fossil fuels, coal and gas." ID1 also refers to wind, a steadily occurring phenomenon in Rostock that is a well-used resource. Overall, he is convinced by Rostock's strategy: "I think Rostock is doing fine. But of course, there's always room for improvement." ID3 agrees with ID1 on the positive tendencies. Again, ID2 is seeing things differently: "We're doing things to make the city greener. But if you look closely on what we're doing, you'll see that it's not very innovative. Nothing that other cities is not doing as well or have already done a long time ago. Just to talk about it or consistently working on it, that's a big difference." ID5 does not see an overall strategy: "Many small things." ID2 refers to various time periods in terms of plans for sustainable housing constructions (taking 50 to 100 years) and buildings for trading purposes (taking about seven years). ID4 thinks that ecological construction can pose a problem for investors and regarding the rental prices: "The ecological madness makes people poor and the poorness is preventing them from participation. If we would start refurbishing the buildings, nobody would be able to afford it anymore." ID5 talks about the issue of the society being concerned with the prevention of CO2 emissions, but climate impacts not being discussed sufficiently during urban planning: "I fear that we lack the resources to prevent people from the climate impacts. We're basically just at very beginning when it comes to the inventory and the infrastructure to protect people from climate impact. Societal resources need to be rearranged. […] Days with a temperature of 30 degrees will increase significantly. What does that mean for people living in nursing homes? People living in assisted living? People in hospitals? Are more people just going to die because they can't cope with the heat? Are older buildings going to get air-conditioning systems? What are the overall concepts? If it's very hot for a couple of days, life suddenly takes place outside. And we're not attuned to it regarding the design of public spaces. We would need to invest in it and that's expensive and nobody's paying it."

Rostock's GOs see the issues of climate chance and sustainability as a political task as well (GO1, GO3). They also mention the contradictions between the economy and politics: "Entrepreneurs want to build as cheap as possible, but the political leaders want to support the change. Communal companies ought to be persuaded to build economically around here. That's a political process of almost ten years. There are majorities supporting the idea, but also resistance coming from the citizens." (GO7). Rostock established a frame concept for climate protection in 2011 (GO5, GO6). There are complaints that there are too many small, uncoordinated measures. Coastal protection is a crucial subject. Furthermore, it draws attention to the densification difficulties regarding the space development (GO4). Overall, GO4 concludes that it is: "Maybe everybody needs some time to become acquainted with the work. In general, we're on the right path to work innovatively."

ID6 from Alkmaar and ID7 from Aarhus did not have much information about climate change and sustainability in terms of space development. According to GO13, the issues of climate change and sustainability are of great importance for Trondheim. There is fertile farmland in and around the city that needs to be protected. CO2 emissions in the city have been and are being reduced radically (new vessels, electrical buses, make it possible and safe to use bicycles, no taxation of electrical cars, making houses more energy efficient). GO14 does not have information on the topic either.

According to The Hague's GO9, there are "all kinds of projects in the city", which he is just not familiar enough with. GO10 states that "everything [in Rotterdam] has to be sustainable", but he does not have more detailed information on the subject. "Ideas are there, they want to be sustainable, but it's going a little bit too slow – especially in the political way." (GO10) "City is taking some actions to make Rotterdam a climate proof city." (GO11). GO12

and GO15 state their ideas for improvement for Rotterdam: reorganisation of traffic, re-design and greenification of public spaces (GO12), getting a more sustainable mobility system, isolating buildings, transform from traditional forms of energy (coal, oil, gas) to wind and solar energy, use of residual heat from the industry or green houses to heat houses, changing the harbour areas to more environmental oriented water systems, working with the tides (GO15).

4.3 Floating development

- Not well-known in Germany
- New to the majority of the German respondents, but they are now more familiar with it because of the interview and the survey
- Varying assessments of the starting situation for floating development in Rostock
- IDs know less about floating development than GOs
- GOs in Norway and the Netherlands are better informed about floating development than the ones in Germany
- Floating development is especially advanced in Rotterdam
- Rotterdam: cheap and social housing construction in the industrial harbour area. Rostock: fear of development costs being too high, notion of luxurious housing along the waterside

Three out of five of Rostock's IDs are not familiar with the plans concerning Rostock's waters (ID1, ID2, ID3). ID4 mentions plans to deepen the Warnow's fairway, "so that larger ships can enter the city harbour as well. I myself are seeing it as crucially and not sustainably at all." Furthermore, he talks about the plan to move Rostock's theatre onto the water, but does not consider it to be very sustainable either. ID5 also mentions the theatre on the water, but assesses the idea very differently: "It's a shame that the plan is not being pursued, the idea is simply brilliant." A couple of Rostock's IDs had not heard of the term "floating development" before (ID3, ID4). ID2 differentiates between "floating cities" and "floating houses". In his opinion, both matters are too costly. He is sceptical of floating cities: "It's just so much more expensive than anything else […] and I think it's also using up an infinite amount of resources." (ID2). He is not fond of floating houses either: "There are a few floating houses in Germany already, size-wise they are almost like holiday parks. I think, right now it's impossible to realise it in a way that people would also be able to afford it. […] There are no floating cities in Rostock. But people are coming in on a regular basis, asking for a property connection to build floating houses. But nobody has done it so far. Of course you can do it, but it doesn't solve any problems. It's just something that is 'nice to have' and there are a lot of providers by now. As long as we've got the possibility to build detached houses on dry grounds, that's probably the more reasonable option. And if one day we don't have that option any more, we can think about the other option more intensively." (ID2). ID1 remembers a company that was building floating houses a few years ago. He cannot remember any details though, only that they have been erected for tourism purposes and not for permanent living. ID5 recalls that developed pontoons made of concrete "15 or 20 years ago". The pontoons would have been connected to the waterside via jetties and would have been capable of carrying detached houses. "He was annoyed about the fact that he couldn't sell these things, because the needed a certain amount space that wouldn't be provided. […] There were also a few legal issues, but they have been solved during the past 15 years." (ID5). He is very interested in these kinds of projects, but finds them also very challenging. In 2025, the National Garden Show (BUGA) is going to take place in Rostock. According to ID5, floating houses were being discussed, "but the majority was too uncertain about it. But as the BUGA is taking place at the city harbour, it would provide us with perfect opportunity."

Like ID4, GO1 mentions Rostock's plan to dig the Warnow: "We are facing the problem that the city harbour is silting up. […] There are discussions about letting small cruise liners enter the harbour. But the harbour would have to be partially closed for security reasons then. And emission-wise, the cruise liners are not even close to the emission standards we'd like them to have. We aware that it's not good and I doubt that one would like that much emission right in the city." The BUGA is also a concern for the GOs who assess the situation differently. According to GO1 and GO2, it is solely about the development around the water. GO3 utters that "living or rather building on the water is a subject in the scope of BUGA." GO4 confirms: "There's a small plan regarding BUGA: a floating quarter on the Warnow. 20 to 30 floating houses are going to be placed on the Warnow." A former discourse on house boats is still

present on some GOs' minds and again, there are various assessments. "There were discussions about house boats, but house boats don't solve the housing problem and moreover, pose problems regarding supplies and waste disposals." (GO2). "The subject living on water has only been discussed to small extent. Living on water or house boats makes up the flair of cities located near the water. And because of the Warnow, we're also well and beautifully located. We've been checking on which sites along the Warnow it's theoretically possible to live. And we've been thinking about floating houses. They wouldn't be on fixed platforms, but connected with the waterfront or jetties. We made this observation for the entire city. But to date we weren't able to find a site where the concept would be feasible. There have also been potential investors from time to time, but so far there has just been no result." (GO3). Some of Rostock's GOs are familiar with the term of "floating development" (GO1, GO2, GO4), but do not have much background knowledge about the topic. GO3, GO6 and GO7 are not familiar with the term at all. The interview and Space@Sea made this possibility more apparent to the GOs.

ID7 is not familiar with any plans regarding the waters of Aarhus. This also applies to his knowledge about floating development. ID6 does not mention any kind of plans for Alkmaar, but talks about the planned extension of harbour of The Hague. The extension is "problematic because it is part of water sea. Not allowed to do that much." ID6 is familiar with floating development regarding power generation: "Major plan for energy islands has been presented. Purposes: energy storage, work and transport. This makes it possible to build wind farms further away from the coast."

GO13 has no knowledge about development plans to expand onto the sea regarding Trondheim. GO14 concretises: "The county provides the municipality with guidelines for coastal planning but final decisions are made within each municipality. Municipalities are allowed to plan the nautical mile off the coast." Neither GO13 nor GO14 are familiar with floating development for housing purposes, but both know it for other reasons: aquaculture business (GO13) and fish farms (GO14). Groups involved in the planning process would be "the regional government, state authorities of pollution, state authorities of animal welfare, state directorate of fisheries, state body that is responsible for the traffic routes [and the] municipality." (GO13). "For general coastal planning the county provides the guidelines. Also: municipalities which sometimes get together to find common guidelines on how they want to plan their coastal zones. Sometimes there are problems about implementing the guidelines locally as local politicians have a say in the planning as well." (GO14). It is striking that both GOs are only mentioning the involvement of the authorities, but not the citizens. Overall, they are optimistic about the citizens' acceptance of such projects: "Some like the ideas very much, some say they want to keep their traditional way of building." (GO14). "Mostly positive. They will never physically interfere as the floating structures seem to have a certain distance to Trondheim and it creates a lot of jobs and good food." (GO13). "Challenges regarding floating villages are infrastructure, road access, technical installation, waste and wastewater." (GO14)

Like ID6, GO8 mentions the plans about expanding the harbour of The Hague. He furthermore mentions the planned recreation of the connection between the city and the sea. GO9 talks about The Hague's extension of the harbour of Scheveningen and developments on the north side of the city: "almost finished, opening in a couple of months. Projects are a mixture of leisure, residential parking. There is not much development on the coast, focus is rather on the developments in the city centre." GO9 says that there are no developments on the water. Regarding Den Helder, GO8 mentions that there might be house boats on the canal in the future: "There are no concrete plans for floating projects, but sometimes the topic comes up. There have been thoughts about floating development in some of the harbours and a cooperation between the city and the ministry. Sketches have been made about floating buildings, buildings in the sea. But no realisation. Sea is dynamic, lots of currents."

There are "a lot of developments around the waters of Rotterdam." (GO11). Developments involve parks alongside the water as well as already well-developed floating development: "Nassau haven: floating houses, Merwehaven: floating farm, Rijnhaven: floating park." (GO11). "Floating housing, more is planned next to the floating farm. Future plans: modern, contemporary house boats, going to be realised soon." (GO12). "Merwehaven: floating farm. South side oft he city: floating houses." (GO15). GO15 talks about "a lot of space along the vacant harbour areas" and about ecological development: "changing the harbour areas into more environmental orientated water systems, more natural environment by means of working with the tides. Creating houses above the water on polls or sticks is better for recreational, ecological water system than floating structures." There is only little information about resistance coming from the city's inhabitants, at least there are no reactions that GO11 and GO12 would know of. "It's a social housing area. People don't have a strong economic position and enough social problems already. They don't worry about new developments or maybe they think it is good for the neighbourhood. But concerning the floating farm, some people were worried about the animal welfare." (GO12). GO15 would even speak of mostly positive reactions.

According to GO12, it could be challenging "that floating development is not real estate. Floating, not bound. Sometimes it's problematic to finance it. Fire department has difficulties because it is hard to find escape routes."

According to GO15, regulation is important in terms of securing certain standards for the housing areas. This approach can be traced back to the existing floating houses (social housing) that were initiated by the city to revive the harbour areas and to make them more attractive (GO15). In Rotterdam, the local government supports pilot projects, the city's communication is going well and skilled and creative architects are being employed (GO15).

4.4 Visualisation

Three different types of stimuli were used for the conduction of the interviews. The stimuli (brochure, video, maquette) were created based on an identical set of data. Each interviewee was presented one stimulus. The following chapter contains the entire sample, including the PIs, and is divided into five paragraphs: the respondents' assessment of the visualisation types, their first impression of the project based on the stimulus, their suggestions for improvement as well as their thoughts on the project's feasibility and the anticipation of the citizens' reactions.

4.4.1 Assessment of the visualisation

Out of 27 respondents, nine were presented with the brochure, eight with the maquette and ten with the video. The maquette as the haptic stimulus turned out to be the most problematic one. Only four out of eight respondents liked this type of visualisation, four did respond negatively. Their main points of criticism were the maquette's monochromatic and abstract nature. "A little too white, a little too monochromatic. Would somehow need to be more colourful to convince me." (GO6). "To be honest, with no explanation, I would not have seen that this is floating. Maybe it would be more clear if the water would be blue or it would be in colour." (GO11). "For some people it's just very abstract, I think." (GO10). The brochure and the video got a similar positive feedback. Five respondents reacted positively to the particular stimulus, one responded negatively. Three out of nine respondents had a neutral opinion regarding the brochure, the same applied for four out ten respondents who watched the video. The brochure was perceived as plastic (ID1) and conveyed a good impression of what to expect (GO5). The video "makes it easy to grasp for the layperson" (ID4). ID5 criticised the composition of the video: "Maybe they are trying to build up some tension. But I don't want to be discouraged." "The flight part is a little too quick, maybe to really get the idea of seriously being there, but it becomes quite clear what the proposal is." (GO8). Based on the visualisation, 24 of 27 respondents were able to envision what the realised project would look like. Only three respondents (film: one out of ten, brochure: two out of nine) were not able to envision it.

4.4.2 First impression of the project based on the visualiations

The majority of respondents reacted with a certain excitement and fascination, though some of them were impulsively repelling it (GO1, GO2, ID2, ID4). Some of Rostock's respondents impulsively remembered a German advertise slogan for chocolate while trying to describe the stimulus: "Square. Functional. Good." (ID1, ID5, PI3). Many respondents associated the visualisation with a familiar place or a concept known from the media. These associations are of both pleasant and unpleasant nature: the dystopian film "Waterwold" (ID4), the Alcatraz prison (GO2), but also Barcelona (GO11, GO12, GO15), Venice (PI2) and Amsterdam: "I image it to be a little like Amsterdam. Lots of canals and bridges. Right now, it looks a bit too modern and bare. But after some time has past and as soon as people are going to live there, it will have a nice atmosphere to it, I think." (PI3)

Some were spontaneously envisioning potential scenarios: "We're going to build a whole new city on a big lake. All sorts of stakeholder groups are going to be involved, the sustainability experts, the demographers and development experts, citizens - all of them are going to work together. For about five years they are going to work together, and they are going to plan this. And then we are going to build it like this. It is going to be an intergenerational project because it's going to be completed in 25 years or so. It will be a topic that concerns everyone, and people will be emotionally connected to the project, a social project." (ID5). GO3 has a positive attitude towards the project being realised in a big dimension and is envisioning a self-sufficient city: "A small, floating city placed in the sea. So that's also an interesting concept, I like it." PI1 already makes suggestion for a specific use: " I think a university campus for students would be awesome. It would be cool if the university building was placed right in the middle and students

were living in the dormitories around it. But it would need to be affordable. If you can tell people 'I'm living on one of those islands', that would certainly be cool."

Overall, the PIs are satisfied with the realisation: "Well, I'd move in, if the thing is going to be realised." (PI1). "I wouldn't know whereabouts in the world to put it right now, but it's not a bad concept at all. And it's definitely a great view. At least on a good day." (PI2).

The respondents are fond of the potential diversity the living platform provides: "Well, I think it's interesting that it's so compressed. I think there don't seem to be enough boats or moorings for the number of apartments." (GO4). "I like that so many parts of live are being combined, working, living, leisure time and so on. But it's striking that there are no trees, no parks you could walk through. That means, the whole thing is somehow limited." (ID1). In contrast to ID1's utterance, many other respondents were reacting positively to the planned greenery and the rooftop gardens (GO4, GO5, GO7, GO14, ID3, ID4, P1, P3, P4, P5). The modular design receives positive feedback as well, as it allows a certain flexibility (PI3). "I think it's interesting to think about modular building on water." (GO10)

Some respondents' assessment is rather ambivalent: "I think it's very interesting. And it's something new. No matter how close people are living to the water, they are still living on solid ground. That wouldn't be the case here. And that's certainly exciting. But things that we do on a regular basis will probably become problematic. For example, going to the supermarket and doing grocery shopping." (GO4). "Not sure if some people wouldn't get the jitters living there permanently. But it's an interesting concept. I could image living there. But you'd have to be aware, that you'd always have to take to boat to get from one place to another." (GO7).

There is also some criticism. ID and GO1 call it an "urban development catastrophe." GO2 confirms: "A very linear design, it's a bit overwhelming. Nowadays, regarding urban development, this wouldn't be built by no means. It's a compact, almost aggressive design." (GO2). Main points of criticism are monotony, density and narrowness as well as its size. "It's very monotonous. Do people wanna live that monotonously or wouldn't they prefer a certain variation?" (ID5). "It's the same type over an over again, extremely boring, it's almost like a modern prefabricated building. Individuality got lost completely. […] Well, no. Just imagine you're young, you go out drinking and aren't capable of finding your own house as you come back, because the other 499 houses around look exactly like yours." (ID2). "So I see floating and it's a little bit all the same. If you are there, I think you don't know where you are and you will get lost quite quickly." (GO10). "It would be too monotonous for me." (ID1). "Well, regarding technical development, there are definitely more progressive designs. It's cubes. Every cube is of a similar structure and form and then pepped up with a little greenery on the top." (ID4). The cubical shape is also criticised by ID2 and PI3. "It's such an industrial design, I can't picture it at all. I'd prefer a more organic design that merges into the landscape and allows people to dwell. If you want people to be excited about the project, this design is probably the wrong choice. In general, people are moving closer to the water because they want to be close to nature, because they're drawn to the vastness of the water. The design over here looks like they are going to be accommodated in barracks with canals in between. I'm not getting the concept behind it." (GO2). "I'm not so fond of the architecture. It's all a bit uniform. Looks a bit like the prefabricated buildings erected back in the GDR. But connected to the water." (PI2). "Would be boring. Especially because it looks like it's far away from any country." (ID6) "What's missing is a central place for getting your supplies, like supermarkets and stores. A city centre is missing. It's a bit too separated, there is no central point that everybody can reach without any complications. Looks a bit futuristic." (GO6). "In my opinion, what makes a classic city – that the city has been expanding, originating from the city centre for various time periods – is missing." (ID1)

ID2 criticises that the design looks extremely dense. Other respondents agree. "I think it looks quite cool. It looks a bit densed. A lot of houses on a small part but I think it's very interesting, I've never seen anything like that before." (GO11). "Why make such a dense urban fabric when you make it in the water? I would expect more room around the building blocks." (GO12)

Besides the dimension of the design being too large (GO5, GO14, ID4, ID5, PI1), some respondents expect enormously high construction costs (GO2, GO13, ID3): "Well, if we're talking about cost-efficient and socially acceptable construction, this project just isn't compatible." (GO1)

4.4.3 Suggestions for Improvement

Based on their first impressions of the visualisation, some respondents made suggestions for improvement:

- "You could adjust the design to the particular waterline and offer an interesting solution regarding the urban development." (GO2)
- "More variation in the structure." (ID6)
- "Why would you build it in the middle of the sea? You can build it near the coast. More connected to the shore." (ID6)
- "If it's not a self-sufficient island, it would probably be better to build it close to the shore." (PI1)
- "It's a bit too much of an unity. Would probably better to vary in height or use various building materials. Right now everything seems to look the same. Those rooftop gardens everywhere, isn't that a little boring? People need variety." (GO5)
- Is it possible to add something like a beach? Or a lagoon? Somewhere in the middle or around the edges? Like a floating local recreation island." (PI4)
- Could you make one section a swimming pool or put one on the roof?" (PI3)
- There are no balconies. At least not on the sides facing the sea. But I think a lot of people would be happy about their own balcony, so they can grow some plants." (PI4)
- "But if we scale this down and say that this one and this one are planned for one family, then I could join the idea." (GO14)
- As the roofs are made of glass, you can also use the gardens during winter. Probably very pretty when it's snowing for example. Did you also think of green houses for the gardens? So you can grow vegetables in there?" (PI4)

4.4.4 Feasibility

The respondents' thoughts on the feasibility of the project based on the visualisations vary, are mainly positive. Eleven out of 27 respondents (GO1, GO3, GO4, GO10, GO15, ID1, ID3, PI2, PI3, PI4, P5) assessed the project to be feasible, six did not think it is feasible (GO7, GO5, GO15, ID5, ID7, PI1 and five respondents were uncertain about the project's feasibility (GO6, GO8, GO11, GO12, GO14). Five respondents did not comment on the question. Their assessments were made based on various criteria such as technical feasibility, costs, law and societal aspects.

Positive comments: "Easy." (GO13), "I would be feasible. Sure, that's out of question." (PI3), "Feasible, absolutely feasible." (PI5), "It looks very, very professional and also very, very feasible." (ID1), "I have no doubts that somebody will be able to realise it." (ID3), "I think, something like this is possible nowadays." (GO1), "I think, these days, we're having the resources to realise it." (GO4), "I think, it would be relatively simple to realise it like this. Because it's modular it would be quite cheap, I think. Well, 'cheap' in quotation marks." (PI4), "It's not that easy regarding the technical aspect, but mankind has been capable of even more complex things." (GO3), "I think it's possible." (GO10), "I think it won't be easy. It depends on the surrounding. For example, in the Rijnhaven, a lot of people have bought their houses alongside the harbour. I can imagine that they are not longing for this because it will block their nice view on the river. So that could be a challenge. But just to create the floating houses, I think that would be feasible." (GO11), "Probably not to the same dimensional extent, but it could be realised by building maybe two, three or four of these blocks on the water somehow. Simply to create more living space. But I'm not sure if that'd be a permanent solution." (PI2)

Arguments coming from the indecisive respondents: "It's this endlessly long process regarding the building permit. The German construction law and the construction law of the federal state make it extremely difficult to enforce these kinds of projects. It is possible, but extremely difficult." (GO6), "Well, I see some issues. How to get here with a car? How would you get your furniture in your house? But that's not a criterion for the long term. You have to have long-term quality." (GO12), "This one is very big. Then I think it's difficult. But scale it down, I think it might be interesting." (GO14).

Negative arguments: "It would be difficult. Depends on the sight, because you make housing that's even more expensive than the housing here. So it would be for a very, very small population." (ID7), "Right now, it seems to be very, very difficult to realise, because it appears to be so futuristic. But somebody once told me that the internet won't

last…" (GO5), "No. That's way too big and it's going to be way too expensive and too many things will break. I can't imagine it being realised. It's not going to happen. (PI1), "At the moment, it will be difficult to realise because of financial reasons." (GO7), "The feasibility is rather problematic. Starting with the planning regulations. And the problems won't stop when it comes to bringing it to the market. Because it would create very expensive living space. And we would have to react to the arising public debate, because, in the end, we'd create it for a wealthy group of people. If somebody asked me right now 'Would you be willing to invest?', I'd definitely say 'No, I'm not tackling this.' It's too much of an elaborate process and I don't know if I'll make some money of it." (ID5). "It's not easy. That will cost a lot of money." (GO15).

4.4.5 Anticipation of the citizens' reaction

- Rostock: expectation of a mainly positive reactions from the citizens, depending on communication, transparency, early participation and especially on the location. Expected criticism in connection with the discourse about wind turbines
- Aarhus: expectation of rejection
- Trondheim: rather reserved reactions, rough weather conditions are speaking against the realisation
- Netherlands: rather rejecting reactions
- Expected criticism coming from the citizens from every participating city: too expensive and only for the rich, blocking the view over the water, environmental consequences

Regarding Rostock's citizens, GO1 and PI1 are expecting an overall rejection of the project: "The people of Rostock would reject it completely, because the architecture is too much, because it doesn't have an urban development quality." (GO1). "If it's spoiling the view, people won't like it. That's just how the citizens are." (PI1). GO6 mentions the current discourse on wind turbines on Rostock's coast and shows himself sceptic: "At the moment, I can't imagine housing construction of the presented size right by the coast. There would only be little acceptance from the citizens. Of course, the ones who would live there would like it, but the people who want to enjoy the view from the shore would not like it. The latter are already involved in the current discourse about the planned wind park. And said discourse is exhausting." (GO6)

PI1 and PI2 think of Rostock's citizens as being sceptic when it comes to innovations: "I guess, Germans are generally reacting negatively to new things, at least at first. But especially in Rostock, which has a major problem when it comes to housing shortage, it would actually be a solution. But maybe not in such large dimension." (PI2). "At first very critical. People don't like progress and innovation at first. It would cause a controversial discourse and would need various forms of participation to generate a certain open-mindedness." (GO5)

Other respondents expect a curious and open-minded attitude. The majority of Rostock's respondents thinks that – with early communication, transparency and citizen participation – there will be positive reactions: "I think it depends on how you're going to approach it. I think most people will be sceptic first. Transparency is important. And it is also important to promote the project with an already existing, positive example. Over here, these things usually work out well if people have a positive association and if they know that the innovation has positively effected another city already." (GO4). "There is the question on how to communicate it to the public. People need to realise that there is no space anymore. They want more green space and they don't want any more buildings in front of their homes, consequently, we need to shift towards the water." (GO7). "I guess people will be curious. A few would be sceptic because it would be something new and unknown. But I think the majority would be curious and open-minded. A lot of people are associating their place of residence in Rostock with water. And if it is well promoted in terms of providing people with information on how it is going to be like and what kind of possibilities they are going to have, it will be accepted. Of course, it also depends on where exactly it will be erected. If it is going to be placed right at the beach, where everyone can see it or a little further away. But still, I think people will react positively not negatively. And if there are going to be negative reactions, it would be only because it is something people are not familiar with, so they will be a bit sceptic first." (PI3). "I think they will react positively, because it is new, it's fancy and it would comply with the city's image. But the question of who would use it remains. And that's the moment when the truth is being revealed. Because 99 % of the people will say: 'I can't afford that.'" (ID2). "I think the majority of the citizens – except for a few special snowflakes who will think of the project as being rubbish – will find it interesting and would appreciate that the city is considering these kinds of projects. At the end of the day, it

of course also depends on where it would be placed. Far out in the Baltic Sea or with a connection to the mainland." (GO3). "I don't think there will be rejection. But the question of who we would build it for or which clientele we would like to attract, remains. Who would be able to afford that?" (PI5). "The people living in Gehlsdorf (district of Rostock) won't like it if it's going to happen right in front of their homes. But if the majority of Rostock's citizens can be convinced by the new living space that would be created, it would probably work despite the rejection of the Gehlsdorf citizens. It would cause an interesting public debate which we could win if we would just be bold enough. It probably wouldn't cause much trouble if it would be placed in front of the IGA-park (A park where The International Garden Show took place in 2003)." (ID5)

The chance of receiving positive reactions from the citizens of Aarhus seems to be rather small: "This would not be taken up well. I think generally, people in Denmark do not like anything to be put on the water. It's disturbing the view, disturbing the nature." (ID7). Several challenges could also occur Trondheim: "Our climate is harsher and harder than further south. So, I guess when the wind bites in the winter, it bites even harder when it is moist. The wind in between these houses with the open water, when it is cold, when it's 15 below zero, the ocean is starting to steam. So maybe it would be a bit rough in the winter. Because of the sea and the splashing from the sea. But if you build it in the summertime the people would love it." (GO13). "I think some will say 'this is not interesting at all', others will say 'very interesting'." (GO14)

Respondents from the Netherlands are expecting rather negative reactions as well. Den Helder: "I cannot speak for all the citizens but if you would literally make this it would be interesting at first sight but then after that it looks a bit boring." (GO8). The Hague: "People will start asking questions about the ecological impact of this kind of structures on the North Sea. What will be underneath? Is there still life possible underneath?" (GO9). Rotterdam: "In my opinion, from a Dutch context, I don't think they would like to live there. Because it's so isolated. It looks very exclusive, for a few kinds of people. It doesn't seem like an open city where everybody can go. It seems like a city for the happy few. Maybe there's a group which would like to live there because they want to be isolated from the rest of the world in their safe environment but it's not for Rotterdam." (GO15). "When you show this visualisation, I'm not sure if they would say 'Wow, very nice'. I think, you should show more qualities. I think it is really for one group of people. It's not for the social housing. More rich people will live here and will be able to afford it. But I don't think people will say no or will hate it in the first place." (GO10). "You would always look out of the window and always see water. This should be the experience that Dutch people have in mind when they think about living on the water. That you're really ON the water. […] The people living around it, most of the time they love their view and they won't be happy when housing is being built in their view. That their views are blocked." (GO12)

4.5 Space@Sea: Interesting for the city?

- IDs and GOs from Rostock are mainly interested
- Both groups have only a few sceptics
- The imagination of an expensive building process is predominant
- Idea of the project as an indicator for the city's prestige rather than a solution for the space shortage
- Little to none interest in Aarhus and Trondheim
- Varying interest coming from the Dutch cities, including Rotterdam, even though the cities is familiar with floating structures
- The rough weather conditions in the Netherlands caused by the North Sea are considered as problematic
- The large size of the model has a deterrent effect on all cities
- Size would need to be adjusted to the local conditions

After the presentation of the visualisation, Rostock's IDs were mainly interested in a realisation of floating houses for their city. ID1 seems to be interested, but uncertain: "If we placed on the Warnow, the river would undergo some compression and slippage. I think that it is only partly possible. Shore areas are protected areas, so we would have to think about how much environmental protection we would be willing give up for such urban development. And if we put it in front of Warnemünde's shore, there would be the question of how the people living in Warnemünde or Markgrafenheide would react. Because they'd be the ones looking right at the floating settlement." He can picture a

floating town with up to 500 inhabitants. “I could imagine it look like the Holzhalbinsel (peninsula), because houses have been built there as well, I can image the floating area looking like this. And there’s also the former shipyard area in case you’d wanna build something of that size in Rostock, but I think you would rather not.” (ID1). ID2 would consider Space@Sea “in some cases, but not as a solution for anything.” It would contribute to Rostock’s image. “I could imagine it to be ‘nice to have’. But that would simply be for nett reasons and these sort of projects do attract an audience. So, if you built it on a small scale, like building like ten floating houses, you would get rid of those immediately, I would not worry about that at all. But if you built 500 floating houses and demanded a certain and appropriate amount of rent, people probably wouldn’t want it, because there are options that are a lot cheaper and not of significantly less quality.” (ID2). ID3 thinks that the concept is just very interesting: “Yes, it would be the highlight of the area! Maybe a start-up centre for the area, a sort of special work environment, where smart people come together. Certain leisure facilities, outdoor climbing or something like that. It needs to be appealing all year long, not only during the summer months. […] Could be placed in the city harbour, but its space is limited. Otherwise on the Warnow, somewhere near the Breitling (lagoon-like part of the Warnow). Or close to the shore, that would be Grahl-Müritz and Kühlungsborn and it would need to accessible by public transport for larger crowds.” (ID3). ID4 turns out to be more sceptic. According to him, Rostock has enough space to offer onshore and should rather build upwards. “There is the question of where to put it in terms of urban development, it would need to be connected to all the things I mentioned earlier. Maybe it would be possible to realise at least one, but it won’t be feasible on such a large scale, because we just have the Breitling and the Baltic Sea. Where else would we build it? The Breitling is only for shipping and the Warnow underlies certain environmental protection, so it won’t be possible to build there. There are set borders, they start where Rostock’s originally been founded, everything inside these borders is not suitable. So, the space beyond these borders would be the only option, but that is for shipping as well, so it’s a rather pragmatic issue.” (ID4). He also thinks there would be problems regarding the costs of the project: “Depends whether you’re seeing it as a solution regarding urban development issues or as a fancy, expensive innovation. To me, it would be the latter.” (ID4). Theoretically, ID5 is very interested in the project, but fears that there will be resistance coming from the general public. To him, such a project would be an upgrade for the city. He would place it in front of the IGA-Park or in front of the district Gehlsdorf, but only if it was smaller in size.

Rostock’s GOs are mainly interested as well. “Building along or on the water, sure, there is a lot of water because of the Warnow. Starting from the city harbour up to Warnemünde, there lies quite some potential for development. But nature conservation needs to be taken into account. And the water shouldn’t be crammed with floating devices.” (GO1). GO1 cannot image the project bringing a solution for the shortage of space. “Everything that’s built along the water is more expensive than the conventional constructions. We don’t want to build for the affluent clientele only, we want to prevent segregation. It’s not appealing in terms of urban development.” According to GO2, “living on or along the water is interesting, but no solution for space shortage. […] It could be a real eye-catcher!” GO3’s thoughts: “We’re located at sea, so it’s definitely interesting, but currently difficult to realise. There are administrative limitations. But it’s interesting because building area is scarce.” He could imagine the project to be of co-operative nature: “As a mutual project for the Baltic Sea, for all countries around it. The Baltic Sea is predestined for it.” (GO3). He also thinks that the size is problematic: “It would only be feasible on the Warnow and Breitling and only of smaller size. GO4 also addresses the narrowness of the Warnow. According to him, such project could only be realised in the north east, near Markgrafenheide. “It’s difficult to realise it in Warnemünde, because there is so much tourism over there.” GO5 thinks that there is still enough space left and fears ecological consequences as well as resistance from the citizens: “Let’s say floating development is the solution for the housing problem and we going to start building all over the sea. We might end up with a large compact area that would absorb the light for the world beneath it.” GO5 also claims that much more information about the project is required to form a final opinion. In general, he could imagine it “for accommodating people and create living space if it’s not possible in the city any more. But who would live there and how are people imaging living there?” (GO5). For GO6, the size of the model is too large as well but he is very interested in a smaller version: “Living at the waterside and on the water sounds very tempting. We’re talking about space shortage and how to avoid sealing the ground a lot, these problems would be solved by the project. And we always talk about Rostock being a city at the sea, but we are doing way too little to reach the standards such a city requires. We should foster development on the water. The Netherlands are a great example with their old house boats, but that is a country with a lot of water and canals. I can imagine it on the Warnow, but smaller.” He comes up with own visions about the model’s size and where to build it: “I need to get used to the thought of building swimming, high-rise houses. Usually we only talk about small houses or detached houses. We might be able to build one, two, three of these small quarters on the Warnow, but the thing as a whole does not fit on the Warnow. But it would be possible on the Baltic Sea. I’m very fond of the thought of building a

sort of funfair on the Baltic Sea, three to four kilometres from the shore. So there would be no noise pollution. But I can't imagine housing construction along the shore." (GO6). GO7 is the most sceptical: "I think this vision will need a couple more years to evolve properly, but I also don't think that it's going to be realised on the Baltic Sea in Mecklenburg-Western Pomerania. The main argument is our lack of space. Such experiments can't take place in Rostock, you would have to move it to Heiligendamm or Grahl-Müritz. I can imagine they would do it over there."

ID7 does not feel responsible for Aarhus. Regarding Alkmaar, ID6 thinks that the project would be interesting, "not for living, [but] maybe on a small scale". It would not be for agricultural purposes, but for perhaps for power generation. To ID6, the whole project sounds like it is far off in the future. He refers to the Dutch mindset: "In case the water level rises because of climate change, Dutch people's first action would be to prevent the water from coming in instead of building the islands for living at the sea. […] The Netherlands are crowded but it's not that bad. There's enough space left. […] Might be interesting for the Netherlands if it was smaller." (ID6). Trondheim's GO13 personally does not like it: "I don't think any place in Trondheim city. People would take their floating rafts to the beach and would make public beach spaces private." GO14 feels like he is not in the position to have an opinion on the topic.

GO8 from Den Helder thinks that floating development is interesting, because "you are prepared for a lot of changes. Interesting solution for the sea, but only if a solution for how to deal with storms and extreme weather is found first." The project could be realised "on a small scale in some of the not fully used, recreational harbour spaces. On larger scale North Sea." (GO8). GO9 is uncertain whether Space@Sea would be a solution for the problems Den Haag is facing. "North Sea is too rough. People think of the North Sea as one of the only places with a free view, where they can relax. No alderman would start this project at the coast of Scheveningen because of the political part of it. People would not vote for them." (GO8). Nevertheless, he could image floating structures "as an extension of our harbour if it is not disturbing the view or the North Sea's ecology and if it is not used as housing for privileged few who can effort it. People are more likely to see the use of it." GO9 suggest doing it on a smaller scale. "So, you can learn from it and people can get used to it. Less impact on the ecology of the North Sea." Rotterdam's GOs have different opinions on the project. GO10 and GO11 reacted positively, GO12 rejected it ("Probably not, too dense.") and GO15 carefully uttered his concerns. GO10 responded positively but suggested changing the design: "The modular design is interesting but there should be more variety in it. Some sort of advantage needs to be added for the city, e. g. public space on the water." Locations could be along the quays, the river, the waterfront, in the harbour. "On a smaller scale than the model. The presented model looks like it is made fort he sea. Not suitable for the Netherlands." (GO10). GO11 states: "It can definitely be interesting for Rotterdam, because of the sea level rise in the outer dike area." Locations could be "[the] old harbours which are not currently used any more for harbour activities. Rijnhaven, maybe Maashaven as it might not be used in 10 or 20 years anymore." (GO11). "A smaller scale would generally work better due to the available space." (GO11). GO15 mentions the rising sea level in the Netherlands: "Floating is a way of keeping the city in the same spot." The project could be realised in the harbour areas, but the presented version is too big. "It should be interconnected with the existing city. Match it with the scale of Rotterdam's water basins. Start with small scale housing and floating farms and slowly scale up and in the end create bigger floating islands like in the presented version. Maybe in the future there will be different conditions regarding the North Sea or Ijsselmeer." (GO15)

5. Conclusion

It can be concluded that the living platform's design turned out to be surprising for the PIs. They were imagining it differently, but, overall, have been satisfied with the realisation. Especially the inclusion of their requests for green area received positive responses.

Rostock's IDs and GOs assessed the city's situation differently. While the GOs addressed the issues of housing shortage and a general shortage of space, the IDs talked about enough space being available for building purposes. The latter were unsatisfied with the slow speed of administration processes. Shortage of space is also an issue for the Dutch cities, but not so much for Norway and Denmark. Overall, the initial design was evaluated as being feasible.

The design received mainly positive feedback from Rostock's respondents. Assessments from the other cities' respondents were more reserved. But criticism has been uttered in Rostock as well. All cities' main objections were

about the design's size as being too enormous as well the design being too narrowly constructed, too monotonous and too expensive. The maquette turned out to be the least suitable for presentational purposes. This can be ascribed to its monochromatic appearance and small size as both properties do not comply with the complexity of the design.

Rostock's respondents expect mainly positive reactions from the citizens. In case of the floating development blocking either the accessibility of the water or the view, citizens' initiatives will be established. Acceptance can be achieved by good communication, transparency, early participation and a good choice of location. Administrative and political representatives need to be contacted at an early stage.

Aarhus is expecting a vehement rejection of the project. Citizens' reactions might also be reserved in Trondheim and the Netherlands. Expected points of criticism are: the project being too expensive and only for the rich as well as the project blocking the view towards the water and negative environmental consequences.

Recommendations:

- The large size of the design has a deterrent effect on the respondents. It should be smaller, more diverse and emphasise the project's versatility.
- The extent of the arising costs needs to be kept in mind.
- Visualisation need to be more invitingly and appealingly designed. The brochure and the video are very suitable for illustration purposes. The maquette needs to be bigger and more colourful. A combination of all three visualisation would be ideal.
- Rotterdam could be a potential location as the city is already familiar with floating development. Furthermore, the harbour area provides potential development area.
- Space@Sea should intensify its contact with Rostock. Floating development is a new concept that could be interesting for the city. Due to the survey, many decision-makers are now familiar with the project: potential investors as well as administrative and political representatives. Because the municipal elections took place in 2019, there is going to be a certain reliability regarding the political discourse for the next couple of years. Therefore, further actions should be undertaken rather promptly. Workshops with the participants of the survey to inform them about the project's progress and to keep them interested are being suggested. Furthermore, actions regarding public relations need to be undertaken promptly to familiarise Rostock's citizens with the concept of living on the water.

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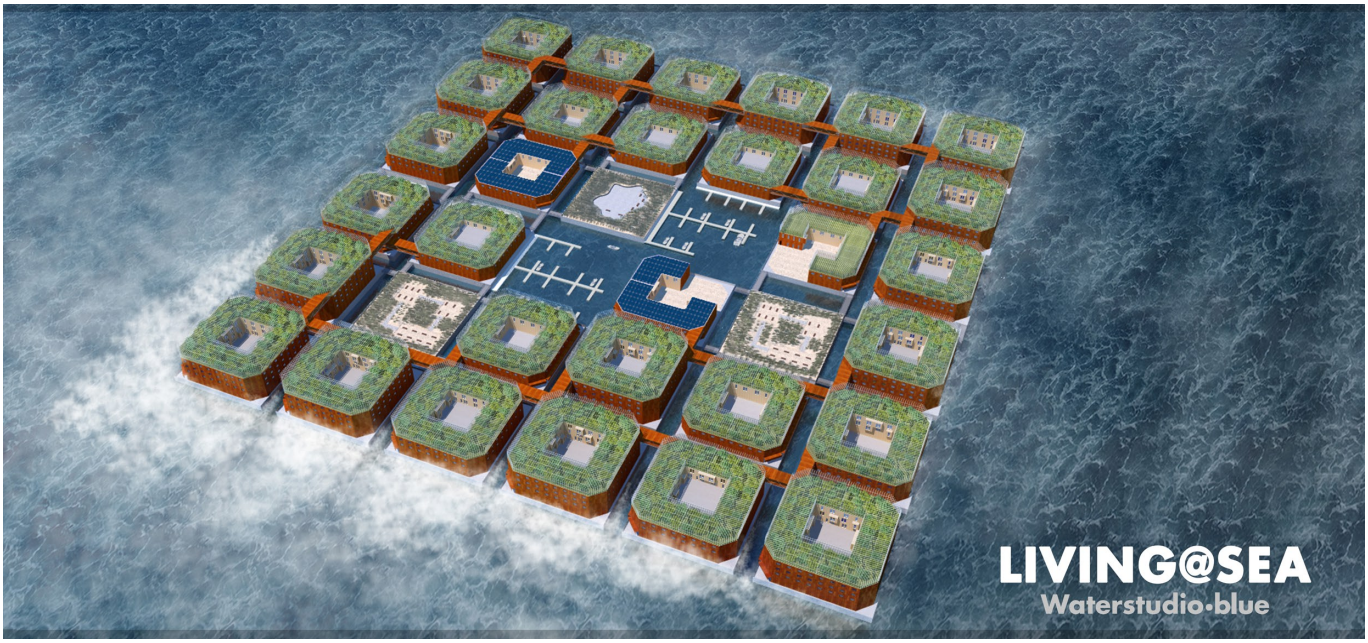
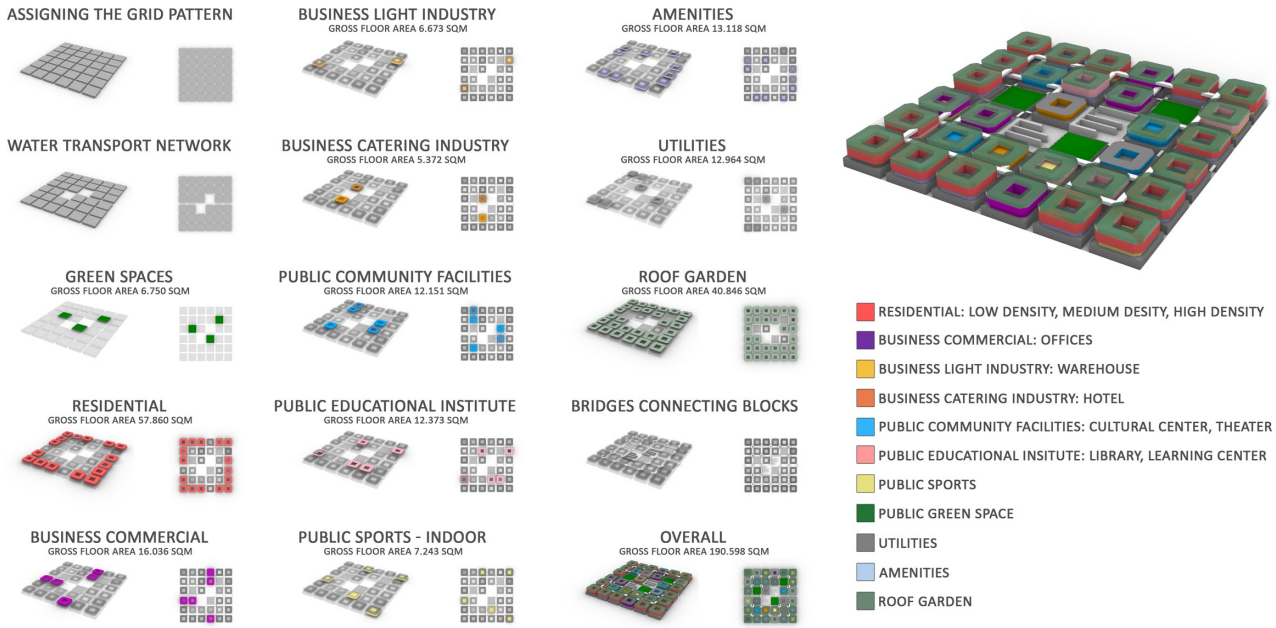
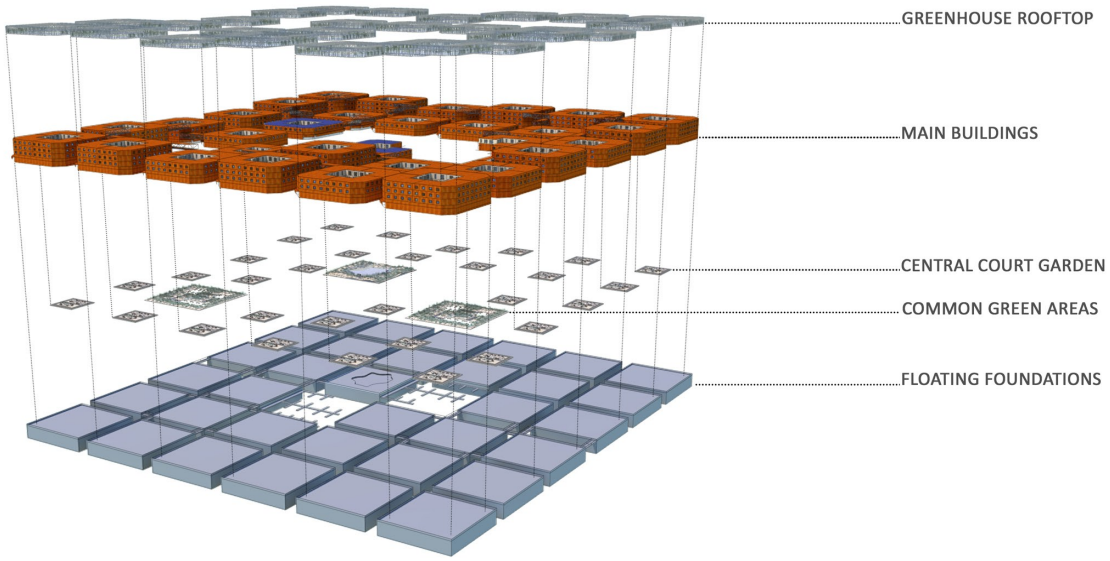
Annex 2: Contents of the brochure



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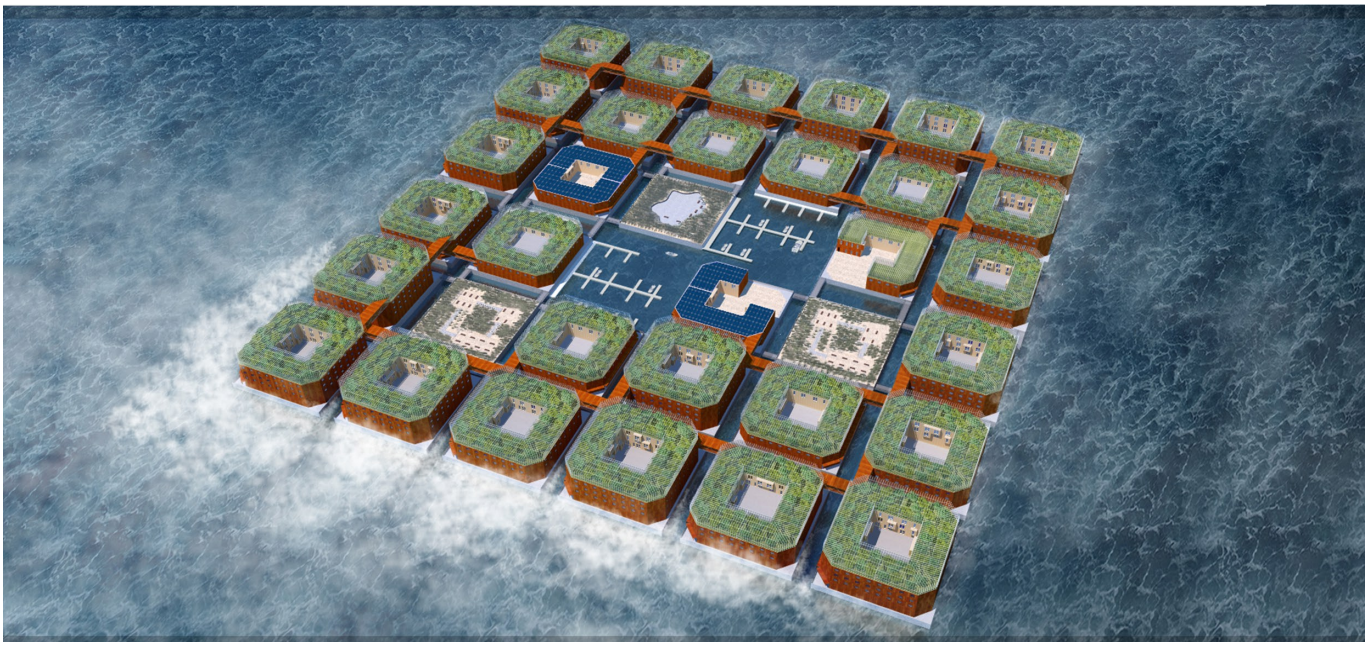
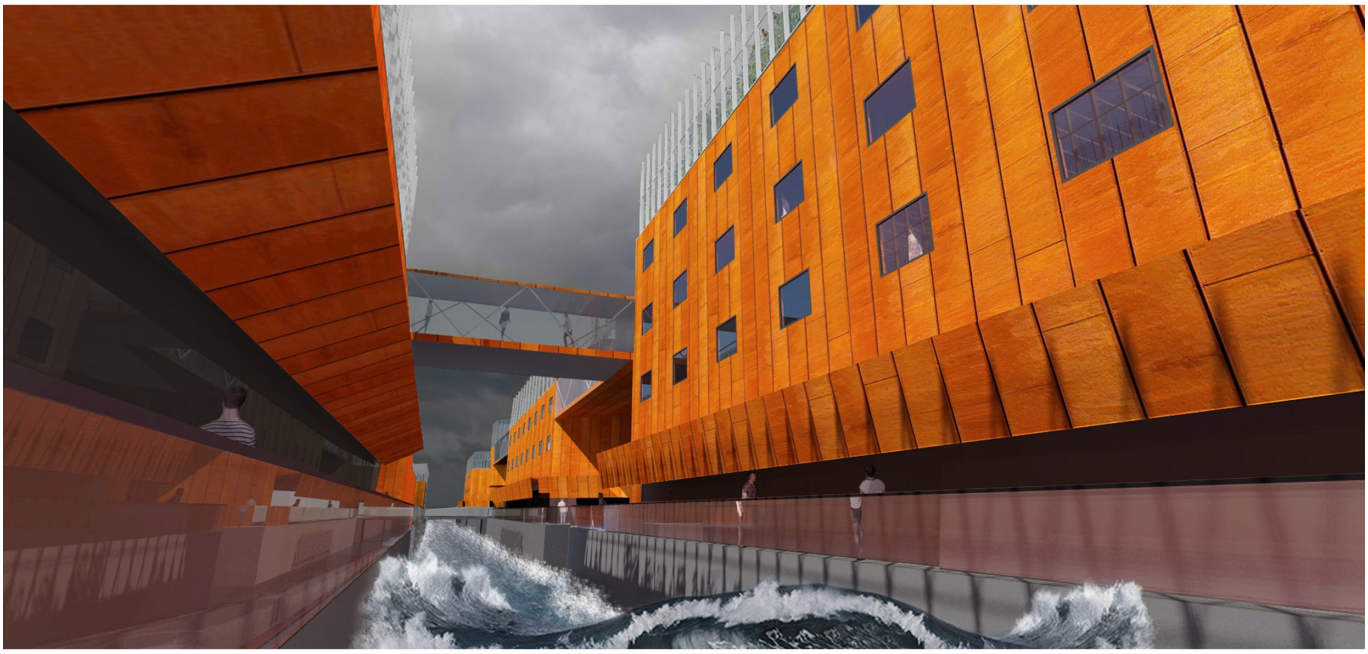
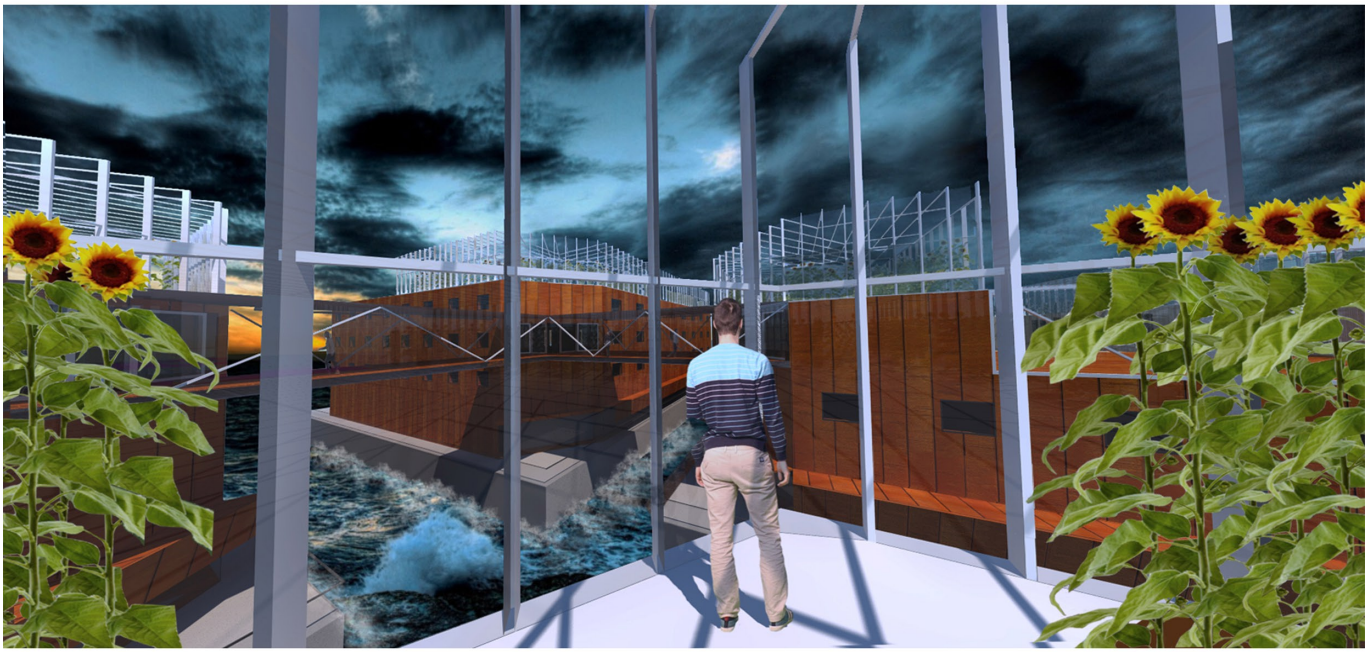
MAIN BUILDINGS
CENTRAL COURT GARDEN
COMMON GREEN AREAS
FLOATING FOUNDATIONS







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