City of the Future

TOWARDS THE STOP OF THE WESTWARD MOVEMENT OF THE PORT

CASE HAVEN-STAD

An approach for the municipality for the mixed-use redevelopment of industrial areas.

M3E | MSC THESIS | APRIL '20

TU Delft

City of the Future

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COLOPHON

Master Thesis

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Date	April 2020

ACKNOWLEDGEMENTS

In front of you lies my graduation thesis, which is the last brick to complete my master's studies at the University of Technology in Delft. Thus, obtain my master's degree in the Management of the Built Environment.

Unlike many students who wanted to become an architect, I started the bachelor Architecture with the intention to end up in a dual master of Urbanism and Management. This came together in the Management in the Built Environment, where I specifically chose to dive in a topic related to the urban area development.

The research is set around the development of the Haven-Stad. Immediately after reading many news articles regarding this development, I noticed that it was less in favor of the heavy industry. This raised many questions about the role of the heavy industry in urban redevelopment projects and I wanted to understand this from the perspective of the heavy industry as well as the municipality of Amsterdam.

This led to the narrative, where I try to understand what the overall value of the heavy industrial port company is. How that could be translated into one or more alternative strategies for mixed-use redevelopment projects. It ended up being a journey through the various research topics as well as seeing a diverse set of companies and the municipality.

Nevertheless, this research could not have happened without my mentors, Yawei and Erik, the interviewees consisted of various companies in the Coen and Vlot harbor, Minerva Harbor and the Cornelis Douwes parks, the Port Company Amsterdam, ORAM and the municipality of Amsterdam.

Lastly, I'm graceful to the support I received from my family and friends.

Enjoy reading,

Abdullah Bakaja

April

2020

CONTENT

MANAGEMENT SUMMARY

PROBLEM STATEMENT

A lot of business parks have been targeted for urban redevelopment projects in the past years. At a certain moment, the Chamber of Commerce started to realize the impact the transformation had on the availability of business parks, which has decreased. Also, this contributes to the scarcity for well-developed business parks in the metropolitan region of Amsterdam for the coming decades. The Chamber of Commerce ended up ordering a valuation of the remaining business parks located in the metropolitan region of Amsterdam, in order to a hold of their value that is at risk.

The valuation was focused on the public and economic value of the parks and done by the STEC Group company (Bruil et al., 2007). They found out that the municipality is targeting very well-functioning business parks, that are difficult to replace due to immense scarcity (De Kort & Beekmans, 2018). The challenge in the Haven-Stad development plan is in line with the challenge of the Chamber of Commerce. The industrial areas in the Haven-Stad consists of part of the Westpoort, the Minerva Harbor, the Sloterdijk areas and the Cornelis Douwes parks in the northern part of Amsterdam. These areas are all targeted for industrial redevelopment into mixed-use area work-living area. The companies that may remain are the ones that do not exceed the environmental class higher 3.1 regarding noise and 2.0 regarding the other aspects can remain in the area. The ones that don't fit this rule will have to relocate, which is where the complexity of the development is tested further. Due to scarcity of alternative location and a missing relocation strategy in the development plan. These companies are more than just an environmental obstacle towards residential development. From social, environmental and economic perspective they do possess a lot of value. The combination of the issues of developing on scarce industrial land and the relocation of HIPCs are studied in this research. With a final proposal towards the municipality to rethink its development strategy, as it will lead towards loss of value.

RESEARCH AIM, OBJECTIVES & QUESTIONS

The aim of this research is to understand the current approach of HIPC in industrial harbor redevelopment projects, the values of the heavy industrial port companies and how these can be translated into mixed-use redevelopment strategies for the municipality, in order to retain the HIPC value in the mixed-use project. This results in the following main research question: **To what extent can the value of the HIPC enhance their mixability in mixed-use redevelopment projects of industrial harbor areas? Case Haven-Stad.** The answer to this question will be given based on the following four sub-questions:

SQ1 What is a mixed-use industrial redevelopment project?

SQ2 What are the considerations of the HIPCs and the municipality about the Haven-Stad development plan?

SQ3 What factors affect the relocation strategy and how can the HIPC-value interfere?

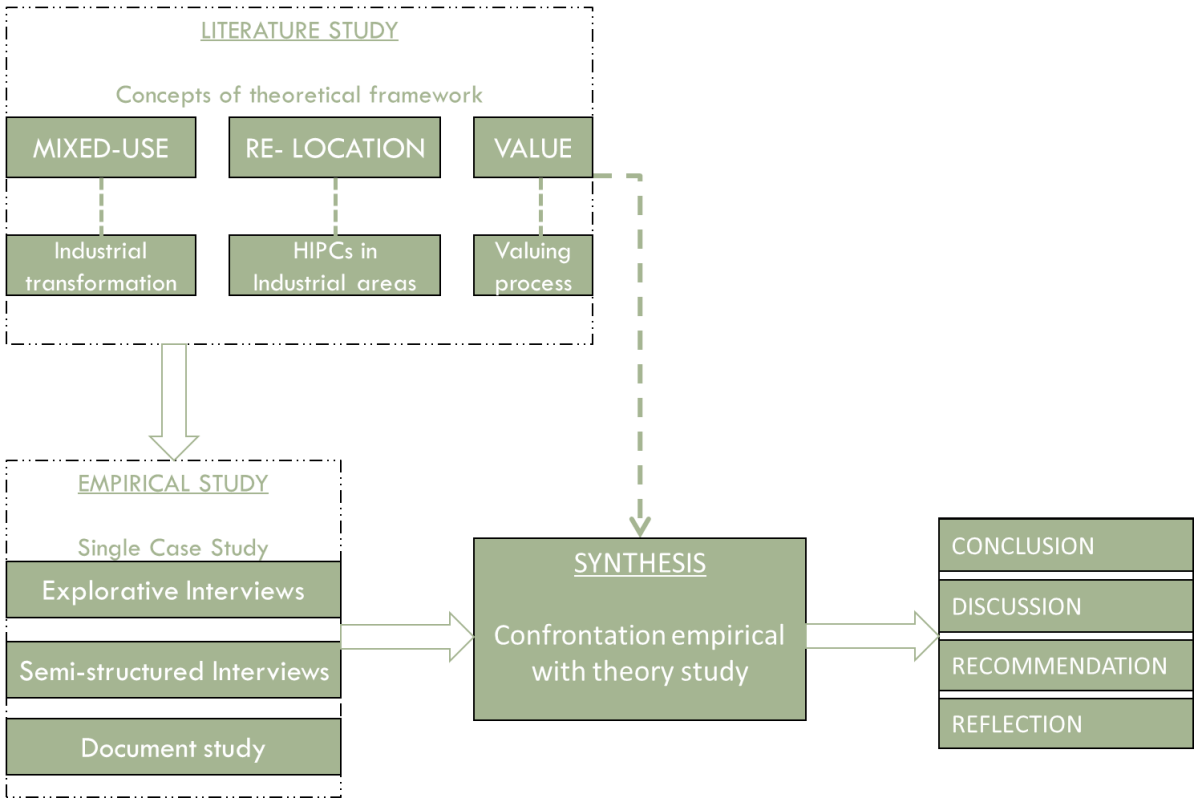
SQ4 What are the overlooked value(s) and how can they be implemented in the relocation strategy to enhance the masterplan?

The first sub-question will increase the understanding of the mixed-use principles in redevelopment projects. The second sub-question is to identify the considerations and conflict points of the HIPCs and the municipality, as well as what the overlooked values are in the Haven-Stad development plan. The third sub-question is will identify the various aspects that affect the relocation strategy and the impact the value of the HIPC development of the relocation strategy. The last sub-question will provide the necessary actions needed in order to implement the overlooked values in the current development and the improvement of the master plan. By answering all those questions, the following objectives will be met: Enhancing the role of the HIPCs in industrial redevelopment projects and providing an advice for the stakeholders in industrial redevelopment projects.

METHODOLOGY

This research is a qualitative research, meant to understand the mixed-use redevelopment of industrial *harbor* areas. It is focused around the development of the Haven-Stad, which is used as the single case study for this research. Even though, it is known that every urban development is unique, especially the Haven-Stad. There are still many lessons that can be learned from it, which can be applied on other mixed-use industrial redevelopment projects.

First, a literature study on the mixed-use, relocation and value theory is conducted, in order to develop a theoretical framework. That framework is than used for the analysis of the case study the Haven-Stad, which is the first part of the empirical research. The empirical research is completed with the explorative and semi-structured interviews of the HIPCs, the municipality of Amsterdam, the Port Company Amsterdam and ORAM. The results are then compared with the theoretical concepts in the synthesis, which leads to the development of the conclusions, recommendations and discussion, see figure 1 for the research design.



[1] RESEARCH DESIGN, OWN ILLUSTRATION

CASE HAVEN-STAD

Haven-Stad is in the western part of the city, between the Nieuw-West and West districts. It contains various industrial areas located north and south of the river IJ. South, these are Westpoort, the Sloterdijk areas, the Minerva Harbor. North, these are the Cornelis Douwes parks and the Noorder IJ-plas. The areas contain around to 1400 various companies active in various sectors, of which some are classified as heavy industrial companies.

Mixed-use

The many and the various companies in the Haven-Stad region for a perfect ingredient for a mixed-use development. They represent various healthy and revenue producing uses, which is essential for the development of mixed-use areas. However, in the current situation, having vulnerable functions such as dwellings next to these companies might cause some trouble, due to their environmental output.

Relocation

However, the port companies that do not match the environmental restriction within the development plan, are not included in the future vision of the area. One of the major issues in the development plan is a missing solid relocation plan. This might be because of two issues affecting the Haven-Stad development. These are the lack of alternative locations and the limited financial capability of the municipality of Amsterdam.

Value

The various companies contribute a huge amount of socio-economic value to the direct region and seem to be rather content with their current location. As such, that they emphasized the growth opportunities they have in the current location.

CONCLUSIONS

SQ1 WHAT IS A MIXED-USE INDUSTRIAL REDEVELOPMENT PROJECT?

Various aspects of the mixed-use development are analyzed and how the value of the HIPC can enhance their place in such a development. These aspects and enhancement activities are described here.

Mixed-use development

1. An *increased intensity* of use due to a mix of housing forms and tenures.
2. An *increased diversity* resulted from establishing a compatible mix such as combining offices and commercial functions with housing.
3. An *increased integration of segregated uses*, mainly due to overcoming the legal barriers.

Looking at the possible benefits of the development plan and the exclusion of all companies with an environment class above 3.1, these will mostly be on the first two levels of the mixed-use development.

Spatial dimension

The HIPC's have been treated from the perspective that they're only mixable in the horizontal dimension on the district and city scales, due to their environmental output (Municipality of Amsterdam, 2017). In contrast to their ambition to realize a high-density area more focused on the vertical and the block scale of the horizontal dimension (Municipality of Amsterdam, 2017).

SQ2 WHAT ARE THE CONSIDERATIONS OF THE HIPCS AND THE MUNICIPALITY ABOUT THE HAVEN-STAD DEVELOPMENT PLAN?

What are the stakeholders' considerations?

The municipality

- Second level mixed-use development.
- Large number of dwellings executed in high-density.
- Use part of the port for the own growth.
- Continue development plan without a solid relocation strategy.

The HIPCs

- Content with the current location.
- Willing to invest in reducing the environmental output.
- Possible relocation if compensated.

SQ3 WHAT FACTORS AFFECT THE RELOCATION STRATEGY AND HOW CAN THE HIPC-VALUE INTERFERE?

Relocation strategy

The relocation strategy can be considered as an important tool in the urban area development in order to achieve the desired level of mixed-use within the development. Therefore, two essential things are needed; an alternative location for the companies to be relocated at and the necessary money to cover the costs.

Factors affecting the relocation strategy

1. The **shortage** of alternative locations (De Kort & Beekmans, 2018).
2. The **lack of financial capability** of the municipality (EI-2, 2019).
3. **Factors affecting the relocation decision-making process of the company**
    a. **Phase 1: The decision to move.**

The company's growth, the previous migration & the government policy are the main factors related to the HIPCs that can push or pull them to decide to move.

    b. **Phase 2: The decision to move from location A to B.**

The second phase of the relocation decision-making is divided into three stages according to Louw (1996). Each stage is characterized by an important aspect:

- In the first stage "the orientation" the **available square meters** seem to be most important.
- In the second stage "the selection" the **possible alternative locations** are most important.
- In the last stage "the negotiation" the asked **price** is most important; it is also in this stage where the **financial incentive** offered by the municipality will play an important role.

The settlement factors and the level of footloose are the main factors related to the HIPCs that can push or pull them in the decision to move from A to B.

How can the value of the HIPC interfere?

Understanding the HIPCs value and what it means to the city and the development specifically can alter the way they're approached. This combined with the spatial aspect of mixed-use development led to the following criteria to identify the HIPC value:

- **Contribution to mixed-use values: economic vitality, environmental quality and social equity.**
- **Represent a physical and functional revenue producing function.**
- **Placement in spatial dimension according to the development.**

Focus points

There is a clear link between the placement in the spatial dimension and the environmental quality of the HIPCs. The HIPCs with the highest environmental output are placed in the higher scales of the horizontal dimension. This emphasizes their need to enhance their **spatial value** by reducing their environmental output, which in return enhances their option of coexisting with vulnerable function.

SQ4 WHAT SHOULD BE DONE TO RESPECT THE VALUE OF THE HIPC AND CONSIDER THE PULL-PUSH FACTORS IN RELOCATION STRATEGIES TO IMPROVE THE MASTER PLAN?

What are the overlooked values?

Essentially, the value that is been overlooked is **the value of the HIPC itself**. This is more or less a **holistic** interpretation and is nested in all sorts of sub-values; such as: the high socioeconomic influence of the HIPCs on the direct region, the HIPC business chain, the willingness to improve the environmental output and the financial capabilities of the HIPCs.

How to implement the overlooked values?

The implementation of the overlooked value is based on tackling the issues that are preventing it from being included in the first sense. It should be noted that there are three identified underlying issues, these will be discussed as follows and subsequently translated into sound actions to implement the value.

Issue 1 Lack of understanding of the HIPCs

- **Third level mixed-use development**

Issue 2 Lack of alternative locations

- **Focus on the environmental output**

Issue 3 Lack of financial capabilities

- **Cooperation with private parties**

MRQ TO WHAT EXTENT CAN THE VALUE OF THE HIPC ENHANCE THEIR MIXABILITY IN MIXED-USE REDEVELOPMENT PROJECTS OF INDUSTRIAL HARBOR AREAS? CASE HAVEN-STAD.

The heavy industrial port companies represent various sorts of healthy and revenue producing functions, which are essential in the development of mixed-use areas for all the levels. In general, the HIPCs have a high socio-economic impact on the surrounding areas. Overall, the lack of alternative locations and the municipality's financial capabilities in the case of the Haven-Stad, puts more emphasis on the value of the HIPCs. The chances are that their value will be lost due to the absence of a solid relocation strategy. This will have a bigger impact than anticipated, due to their business value and socio-economic impact in the region. The value of the HIPC can therefore be used as a pull factor for the municipality and the project initiators in general, to support the reduction of the environmental output. These changes make sure that the development focuses more on the integration of the segregated uses instead of many dwellings. Therefore, the HIPCs that are in the higher spatial classes will have the opportunity to improve their environmental output and continue their operations in the area.

The current scarcity of available industrial areas, the third level mixed-use development will be a perfect solution to slow this down. Because, the main principle is to integrate the various uses, resulting in less relocations of port or industrial companies. This is in some way considered to be a stop of the westward movement of the port. Causing a much higher retainment of the HIPCs in the area and a higher mixed-use value. Basically, it goes back to the sixth stage of Hoyle's model, see appendix I. This is the renewal of the port-city links, causing a synergetic growth of both city and port or industry. Therefore, more value is created from the same area, compared to when it has solely one function. Also, it changes the perspective of how industrial areas are treated. As they're not necessarily environmental polluted zones but can turn out to be an area were industry is mixed with other work and vulnerable functions. This change in perspective, will be crucial for future industrial redevelopments due to the ongoing scarcity of these parks.

RECOMMENDATION

The findings of this research suggest that the value of the HIPCs can contribute to the mixed-use redevelopment of industrial areas. Also, they don't have to be pushed aside for the development, because they can become part of it. The recommendations for the built environment are:

FOR THE BUILT ENVIRONMENT

Based on this research, the main recommendation for the municipality is to rethink the current Haven-Stad development approach. This research pointed three overlooked values in the current development plan, that could harm the process due to their absence.

To include the spatial level 'District'

One of the main actions is to shift the focus to the third level mixed-use development, which turns it more into an all-inclusive development. Nevertheless, it will not stop potential relocations of the HIPCs that fail to reduce their environmental output. Because, the current high-density and mixed-use ambitions are not feasible to be realized in every part of the Haven-Stad area, without having to relocate some of the HIPCs. Therefore, this recommendation focuses on including another spatial scale in the development, which is the level of *District*. This can shift the balance how the general program is divided amongst the various parts in the Haven-Stad. This tackles in the same time the Westward movement and the growing scarcity of industrial parks in the metropolitan region of Amsterdam.

Reserve the Coen and Vlot Harbor for the district area.

The recommendation is to include the Coen and Vlot harbor in the redevelopment plan, but to have them function as location for the much bigger HIPCs. In the end, this can still lead towards the mixed-use development including the district as spatial scale. This will lead to the following benefits: First, the decision about the redevelop of the Coen and Vlot harbor hasn't been taken and could therefore uplift part of the uncertainty of the HIPCs located there. Second, the Houtrakpolder which is reserved for the growth of the port will not be used for the relocation of the companies. This means that both municipality and port can continue their growth. Third, the Coen and Vlot harbor contain five potential HIPCs that the municipality selected to be relocated, by leaving the area for them, the costs of relocation will also decline.

To cooperate with private parties.

The success of the development depends largely on the financial capacity of the municipality, which can be enhanced due to effective cooperation with private parties. This can lead towards some form of a PPP-model where both parties fill in the missing pieces of the other. Such as the municipality's incapacity to enhance the financial incentive from the book value. Also, the costs to solve the **infrastructure** is crucial, as mentioned by the HIPCs themselves. They can reduce the environmental output but are still dependent on the logistics on land.

To develop a sound relocation strategy

The relocation strategy is essential for the achievement of the success of the redevelopment. Especially, when the district level is not included in the development, which will limit some options of the HIPCs and causing more relocations. Therefore, the less vague the relocation strategy becomes the more clarity it can provide to the HIPCs.

Too large or too environmental polluted.

Relocation of large HIPCs or HIPCs that failed to reduce their environmental output, might still occur with the current spatial scales of the Haven-Stad development plan. There are several things that can be done with the respect of retaining the value of the HIPC within the municipality's border. **First,** increasing the spatial scales with the district-scale in the development, can enhance the opportunities for specifically these category HIPCs. **Second**, is ***TO PROPOSE A COMPANY SPLIT***, where the plant of the company is been relocated, while the office and management part remains in the area. This results in a partial relocation, which is more favorable compared to a complete relocation, due to the scarcity of industrial sites. **Third,** to offer a ***FINANCIAL INCENTIVE CONFORM MARKET***. This advice rests mostly on the cooperation with the private parties, as they can enhance the financial capabilities within the development.

DISCUSSION

The Haven-Stad development is a one of kind mixed-use urban redevelopment project. The fundamental problem is a scenario that has been mentioned by Hoppenbrouwer & Louw (2005), which is the clash between the municipality and the port in their growth. Essentially this research is about the value of the heavy industrial port company and how that can play a role in overcoming regulatory barriers, for them to become part of the development. Therefore, the insights gained in this research are expected to be useful for other industrial redevelopment projects. The scale of the Haven-Stad development might be unique for European standards, but the essence is not. This kind of development might occur more often due to the scarcity of available land. This in turn is a sign for urban planners to adjust the city expansion strategy to the new inner-city development challenges.

1 INTRODUCTION

The topic of this research will be introduced in this chapter. As well as the problem statement, the objectives, the questions, the scope, the deliverance and finally the relevance of this research.

1.1 INTRO: RESEARCH TOPIC

Amsterdam has always been a port-city, but the same port is being pushed aside due to redevelopment plans of industrial areas within the city (Stadszaken.nl, 2019). The municipality is trying to increase the housing supply with 5.000 dwellings, in order to keep up with the average inhabitant growth of 11.000 people every year (Municipality of Amsterdam, 2016). This is part of the municipality's density-strategy, the core of it is to redevelop inner-city areas using a high-density program. These inner-city areas are often business park that consist of *former* industrial area, such as Buiksloterham, Cruquius, Zeeburgereiland, NDSM and the Houthavens. Causing the HIPCs to be pushed out of their place and the decrease of available industrial areas in Amsterdam (De Kort & Beekmans, 2018). The Port of Amsterdam had to intensify their land use, in order to deal with the challenge of land scarcity (Amsterdam, 2009).

The Haven-Stad development plan is an example of the challenge that comes land scarcity between the port and the municipality. The plan is developed for vital port lands. The same port which is currently the fourth largest transshipment port of Europe (Port of Amsterdam, 2015). The development plan is designed according to principles of mixed-use development, where work is combined with living functions (Municipality of Amsterdam, 2017). For the harbor companies it meant that they could remain in the area, if they don't exceed the 3.1 environmental class regarding noise nuisance and 2.0 regarding the remaining environmental aspects, such as smell, danger substance, safety etc. (Municipality of Amsterdam, 2017). *These companies are in this research referred to as the heavy industrial port company or HIPC.* This limitation will push the HIPCs out of their own habitat, which in turn will raise the conflict in the relationship with the port. This conflict is mentioned in the port-city interface theory and is caused by the lack of the ability to integrate the port and city functions (Wiegmans and Louw, 2011; Hoyle, 2000).

After the announcement of the introduction of the New Environment and Planning Act (NEPA) in 2021 (Rijksoverheid, 2017), the following question became more important: "how can you redevelop an industrial area with the existence of the heavy industrial companies post development as a starting point?". The implementation of the new act will turn stakeholder participation into one of the main pillars of the development process. Hence, what kind of strategies are possible that involves the HIPCs?

1.2 PROBLEM DEFINITION

In the vision of the development plan of the Haven-Stad, the heavy industrial port companies are being excluded. This is also the case for the planning process of the plan. They weren't asked for their input while designing the plans, due to them being classified with a high environmental class. This makes them difficult to be placed next to vulnerable functions, due to the legal context. In the past, the heavy industry has always been avoided by the municipality when it came to be mixing with vulnerable functions. This stems from the period that HIPCs were very polluting and needed to be separated from residential areas to lower the risk of health issues. This does not include the improvement of companies, to become environmental neutral in their handling, but that will change with the implementation of the NEPA in 2021 (Rijksoverheid, 2017). Causing them to be involved from the start, which generally will be quite new for the municipalities, because the heavy industry's involvement in redevelopment projects is more often limited to negotiations about their relocation and or the financial incentive that comes along with it. This will change towards what the HIPC could contribute to the development and how that can be accomplished. This touches another important matter, which is the lack of experience of the municipality in industrial redevelopment projects in cooperation with the HIPCs. Especially when it comes to such a large-scale project as Haven-Stad, combined with the fact that waterfront

redevelopment projects are the most complicated ones in the urban area development (Daamen, 2007). It is a transformation of an active and vital area of the port of Amsterdam. According to Van Den Berghe (2018) it is expected that the chance of the area turning back to its original function after transformation is zero. This will reduce the port in size and increase the pressure on the land intensification, as well as a reduction of vital port areas in the city. A lot of HIPCs and entrepreneurial organization such as ORAM complained about the development plan, because of the vital area that it is targeting. In some way, the complaining might be interpreted as a halt towards the ongoing 'Westward movement' of the port (Daamen, 2007). The movement is based on the municipality's inability to integrate the port and city, causing the core of the port, the heavy industry to be pushed out of their area. The inability could be turned over by moving the focus from the environmental label, to the main values of the mixed-use development, these are the environmental, economic and social value (Grant, 2002). The HIPCs contribute to these values, but this matter is neglected by the municipality due to their environmental class. Focusing only on the environmental output of a company, diminishes the interpretation of them to be able to improve and innovate their own work process and or their facility.

The companies contribute to the *local* economy and employability. Excluding them and pushing them from the area would affect that negatively (Leigh & Hoelzel, 2012). Resulting in the loss of value that they represent or contribute to. Many researchers explained that the companies should also be included from the planning process, due to their economic interest in the area (Cotter 2012; Leigh & Hoelzel, 2012; Loures & Burley, 2012). But their involvement is more often limited to negotiations about their relocation. Be it a financial incentive to move or another plot being offered. Instead of what they might contribute to the development and how. This also has a downside, as some of the companies are turning against the development plans. This is worse, because the redevelopment of industrial area is known to be complex, expensive and time consuming (Korthals Altes & Tambach, 2008). This means that the HIPCs can cause an increase in the resources needed for the development and can happen due to two things. The fight against the development plan, which causes delay and the additional costs needed to expropriate them, that in turn is also a complex process. During the NDSM redevelopment in northern Amsterdam, the HIPCs disagreed and fought against the plan, eventually it was 'resolved' in the Covenant Agreement back in 2009 between the municipality of Amsterdam and the heavy industry. This indicates that the current relationship between the two parties is somewhat considered to be damaged, and work against the municipality in the case of the Haven-Stad.

In the Haven-Stad development process, the municipality has currently entered the phase where they cannot construct any development in the parts that belong to the 2nd, 3rd and 4th phase (Municipality of Amsterdam, 2017). The 2nd and 3rd phase start in 2029 and the 4th in 2040 and are linked to the Haven-Stad development plan (Municipality of Amsterdam, 2017). But they can use the moment for further research and plan development. Ideally for constructing an organic approach, where economic activities are allured that benefit the port companies as well as the municipality. Therefore, this research aims to provide more understanding of the values of the heavy industrial port companies and how these can be translated into mixed-use redevelopment strategies for the municipality. This will be answered by the following main research question:

To what extent can the value of the HIPC enhance their mixability in mixed-use redevelopment projects of industrial harbor areas? Case Haven-Stad.

1.3 SCOPE

The focus of this research is on the industrial redevelopment project of the Haven-Stad. The development plan consists of four phases of which the execution of the first started back in 2018 and is ongoing. The project area is 650 hectares large, in this research the focus will be on three parts of that area: the Coen- and Vlot harbor, the Minerva harbor and the Cornelis Douwes parks. This is because of the amount of HIPCs located there. The HIPCs will be analyzed based on their spatial mixability and the following values: economic, social and environmental. The essence of this research is not about financial considerations. Therefore, it does not contain the

quantification of the values, but rather the understanding of how the use of them in an abstract manner in the development of mixed-use redevelopment strategies. This could be used in redevelopment projects such as Haven-Stad.

1.4 DELIVERABLES

Aim of the research is to **understand how to retain the HIPC value in mixed-use redevelopment projects.**

The goal is achieved by conducting a literature study, a document study and interviews. The literature study is meant to provide more understanding of the main concepts: mixed-use, relocation & value. The document study is meant to provide the full understanding of the case. The interviews are meant to verify if the theoretical concepts are related to the practice, the extent of this and why it might be different. The advice will be based on the literature of mixed-use, relocation and value. This advice might lead towards alternative options for the HIPC to coexist in the area and thus the retainment of their value, as well as finding the most important company demands regarding the incentive to relocate. And overall to change the HIPCs from potential bottlenecks into valuable partners. The main deliverables are:

- Advise to the municipality for involving HIPC values in the mixed-use development
- Advise to the municipality for involving HIPC values in the relocation strategy

These advises are translated into a value based mixed-use strategy.

1.5 RELEVANCE

The relevance of this research can be divided into two different aspects, the societal and scientific relevance.

Societal

For the urban planners and developers who will face future projects regarding transformation of industrial harbor areas, dealing with the HIPCs will play a larger role than before due to land scarcity and density. The current development strategy is based on the Plaberum-approach and will be explained in the empirical chapter. Previous industrial transformations where focused on a transforming old and abandoned areas. Nowadays it considers areas that are vital and growing part of the Port of Amsterdam. Up to 30% of the existing companies are expected not to mix well with vulnerable functions (Pen, 2018). The push for this development is fed by the ongoing housing shortage and the development plan is in a scale that has never happened before. Therefore, a lot of the port companies were shocked after hearing the announcement of the development plan, due to their lack of involvement in the planning process of the Haven-Stad (Van Weezel, 2017). With the implementation of the NEPA, this form of 'collaboration' will be officially outdated. This is crucial for understanding why in this research the focus has been set on understanding the values of the HIPCs and how these values could be implemented in mixed-use strategies, reducing the risk of losing these beneficial values for the development, municipality and port. This can lead towards an alternative decision in the transformation process. Resulting in a more inclusive industrial harbor transformation process. This could benefit the development of the Haven-Stad and other industrial transformation projects.

Scientific

Within the literature, a large part of it is mainly focused on just one element of the port-city interface. This is the "geographical [...] area of transition between port land uses and urban land uses', also known as the 'waterfront' (Hoyle, 1989, p. 429). And according to Louw (2004) there is still much to be gained in the research about the industrial areas. Especially, with future city plans that are focused on density and redevelopment plans of such areas. With this research a scientific contribution can be made to the understanding of how HIPCs values could be implemented in mixed-use strategies, which in turn contribute to the mixed-use redevelopment of industrial harbor areas.

2 THEORY

This research aims to create more understanding how to increase the value retainment of the HIPC in industrial redevelopment projects. Usually in urban redevelopment projects, companies are being targeted on their environmental impact, which is a legally and logic-based approach. Because there are certain quality standards that need to be there in neighborhoods, in order to make it livable. Therefore, this chapter will dive into the core aspects of the meaning of a mixed-use development, what it takes to create a valid relocation strategy and how value plays a role in all of it. The findings will be used as tools that will be used to perform the analyzing part in the empirical study.

In appendix I-IV, more general information is given on the port-city interface, the development of industrial harbor areas, the NEPA 2021 and the collaboration forms in urban area development, to increase the understanding of the arena in which this matter occurs. This chapter will start by describing the theory of Mixed-Use, then Value, the Relocation and will end with the summary in which the main aspects of the theories are mentioned as well as how they relate to one another. An overview of the concepts is given in table 1

TABLE 1 KEY CONCEPTS

Concept	Definition
Mixed-use (MU) development	A coherent plan that inhibits three or more physically and functionally integrated revenue-producing uses (ULI, 1987).
MU Spatial dimensions	According to Hoppenbrouwer & Louw (2005) there are four different mixed-use spatial dimensions: Shared premises, Horizontal, Vertical & Time dimension.
MU values	The mixed-use development values are as follow: Economic vitality, Environmental quality & Social equity (Grant, 2002; Coupland, 1997).
Relocation strategy	A *coping* strategy for any firm to the changes that occur in the market, the behavior of the consumer *preferences*, law and regulations especially environmentally related ones, institutional approaches (Pellenbargh, van Wissen & van Dijk, 2002).
Relocation process	According to Louw (1996), the relocation process contains of three different phases: the orientation, the selection and the negotiation phase.
Relocation decision-making process	RDM-Process consists of 2 stages. First the decision to move, followed by the decision to relocate from A to B (Pellenbargh et al., 2002).
(urban) Value	The narrow financial and economical definition is not enough. But when you look at an urban area, the total value of it includes always some qualitative based value. They argue that a problem is that "the popularity of an urban area is rarely fully expressed in the price paid for an object in that area" (Daamen, Franzen & Van der Vegt, 2002).

2.1 MIXED-USE DEVELOPMENT

Definition

According to the Urban Land Institute (1987), mixed-use can be described as a coherent plan that inhibits three or more physically and functionally integrated revenue-producing uses. Four main functions were advocated by CIAM: **housing, employment, recreation** and **transport** (Mumford, 2002). A mix of **two** or more of these functions was then defined as mixed land use, meant as the opposite of CIAM town planning. However, many more functions are discerned in the mixed-use literature. Grant (2002) for instance also includes in her definition of mixed-use a mixture of private and social housing and a mixture of housing types. In contrast to the latter, the Netherlands does not consider this mixture as part of mixed-use. Also, the differences in the scale of mixed-use can be noted; Jacobs (1961) for instance refers to mixed-use at a neighborhood level, while Coupland (1997) considers the scale of a building-complex and Grant (2002) regards the local scale.

Origin

In the Netherlands, mixed-use became very popular in the growing trend of compact city development, which started a few decades ago (Dieleman et al, 1999). Large cities such as Amsterdam and Rotterdam implemented such developments by mixing housing and employment, partly meant as a reaction on the mono-functionalism that evolved from earlier urban renewal programs that were primarily focused on housing. According to Grant (2002), these mixed-use developments can be realized in three various conceptual levels. Table 2 shows a brief description of these levels. What they reveal is the ambiguity of mixed-use; various contexts are referred to such as: design, environmental, social, institutional.

TABLE 2 CONCEPTUAL LEVELS OF MIXED USE BASED ON GRANT (2002)

Conceptual level	Description	Example
Level 1	Increase of **intensity** of land use	Encouraging mix of housing forms and tenures (mainly popular in North America)
Level 2	Increase of **diversity** of use	Encouraging a compatible mix (often office or commercial uses together with residential is believed to create synergy effects)
Level 3	Integration of **segregated** uses	Overcoming regulatory barriers (mostly environmental impacts, noise, traffic)

The first level of conceptual mixed-use: intensifying land-use, does not necessarily stand for mixed-use and may consider monofunctional use, whilst multiplicity can imply both. From analytical perspective there is a discrepancy between the diversity and density of land uses (Harts et al., 2003). A comprehensive definition for multiple land use is given by Priemus et al. (2000): "**the fulfilment of multiple functions within a certain space and a certain time**". This definition could as well be applicable for mixed land use. The difference between them basically lies in the context; *mixed land use is often used in an urban context, while multiple land use is both used in a rural and urban context*. Therefore, it is said that the concept of mixed land use has shifted from the original, as in the compact city and the urban development.

Following Grant's (2002) second conceptual level (table 2), encouraging a compatible mix could generate synergies, while not creating conflict. Jacobs (1961), describes this synergy in a much smaller spatial scale. She mentioned that successful and lively neighborhoods can be achieved through fine grain mixing of various sorts of uses (Jacobs, 1961). Also, economists define mixed land use in terms of the synergy and agglomeration effects that are generated between different, yet complementary activities (Nijkamp et al., 2003). Moreover, mixed land use tends to increase both **physical**, **social** as **visual**, combinations and interactions, supporting **urban quality** and **vitality**. Quality is then measured in terms of increased land valuation based on an adequate mix of spatial functions (Lagendijk, 2001). Concluding, when putting focus on functions of employment and housing, it can be understood that these functions can be mixed in time and space in multiple ways and at various spatial scales.

Challenge

The mixed-use of residential and industrial activities can be challenging because of the activities do not allow to be mixed, **environmental constraints**, **high acquisition costs** of **land** and of **relocation** of industrial companies (Korthals Altes & Tambach, 2008). Moreover, Lynch (2000, p. 192), emphasizes that a lot of variety in functions may lead to an enhanced supply, that in turn increases the urban stress. Therefore, it is said that a variety of functions and mixed-use are both fascinating, but it only can be measured or identified when it is known **how people experience the differences** (Lynch, 2000, p. 192).

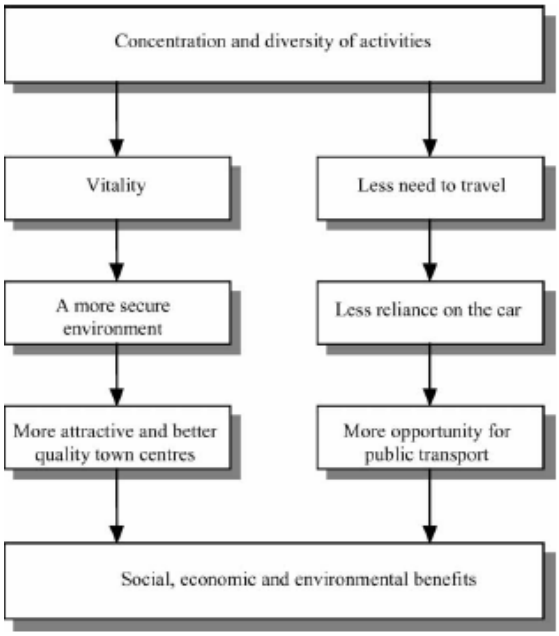
Benefits

According to Grant (2002), the promises of mixed-use are **economic vitality**, **environmental quality** and **social equity**, however he critically notes that the latter cannot be delivered in contexts where economic and cultural forces promote the separation of land uses, see figure 2. The real estate sector can be regarded as one of such forces. According to Coupland (1997) often the developers are the ones that don't want to carry on with investing in risky mixed-use developments as they rather prefer safe and good investments that yield stable

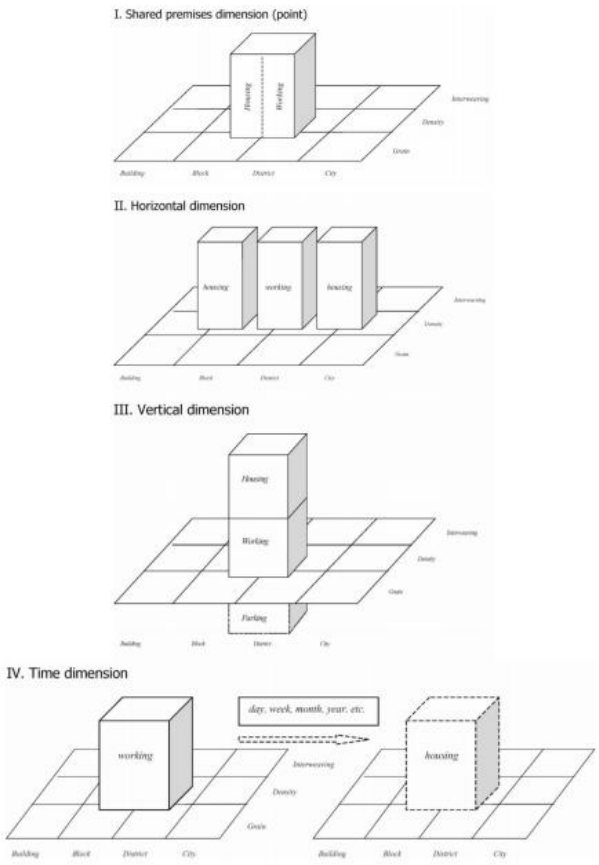
returns over lengthy periods of time. Nevertheless, activities like housing *do prefer* a distance towards industry (Angotti & Hanhardt, 2001).

Spatial model

There are many models mentioned in the theory that explain the mechanisms behind mixed-use in a spatial dimension. Rowley (1996) established a comprehensive conceptual model that mixes **land use** and **development**, primarily based on the **internal structure of the settlement**. This model integrated few aspects of mixed land use model. Then there is the Hoppenbrouwer and Louw model (2005), which is based on the Rowley model and can be considered to be hybrid land-use type meant for housing and work functions (which can be easily expanded with other functions) and consists of scale, urban texture and size, see figure 3. These models are built upon three key features: grain, density and permeability. These are described as follow:



[2] BENEFITS OF MIXED-USE DEVELOPMENT (COUPLAND, 1997).



[3] HOPPENBROUWER AND LOUW'S MIXED-USE MODEL [I-IV] (HOPPENBROUWER, 2005).

The **granularity** of settlements is the way in which the various elements of a given settlement are mixed in space. Roberts and Lloyd-Jones (1997, p. 159) define **grain** as **"**the size of the urban block and the subdivision of the block**"**. Fine or close grain refers to a kind of sedimentation in which similar elements are widely distributed between different elements, and the grains are coarser when a larger area of one element is separated from a larger area of another element. Moreover, the sudden transition from clusters of similar elements to dissimilar elements points to sharp grain and gradually transitions to blurred grain.

The **density** is inseparable from mixed-use and grain. The intensity of the activity depends on the **number of users** and the **mix of uses**. According to Jacobs (1961), maintaining urban vitality requires medium to high residential densities, ranging from 100 to 200 residential units, in net hectares.

The **Permeability** means that good urban development can enable a "democracy" of choice in the pedestrian movement through the layout of roads, streets and paths.

The Hoppenbrouwer and Louw model allows a better insight compared to Rowley's model, into the various mixed-use concepts and establishes important features, that can be for analyzing the mixed-use of an urban development. It includes a **spatial perspective** represented in **four dimensions**, see table 3. They symbolize the mixed use of a specific point, flat surface, vertically gathered and arranged in order. This is followed closely by the **size** of the city, divided into **buildings**, **blocks**, **districts** and **cities**. This subdivision is quite broad, but the increase in scale is obvious and various mixed-use developments can adapt to one of these types. In addition, it also includes urban texture, with grain, density and functional interweaving as the main components (permeability).

TABLE 3 COMPONENTS OF MIXED LAND USE: DIMENSIONS VERSUS SCALE (HOPPENBROUWER & LOUW, 2005)

	Building	Block	District	City
Shared premises dimension	√			
Horizontal dimension		√	√	√
Vertical dimension	√	√		
Time dimension	√	√		

TABLE 4 COMPONENTS OF MIXED LAND USE: DIMENSIONS VERSUS URBAN TEXTURE (HOPPENBROUWER & LOUW, 2005)

	Grain	Density	Interweaving
Shared premises dimension		√	
Horizontal dimension	√	√	√
Vertical dimension	√	√	
Time dimension	√	√	

In Tables 3 and 4, the most probable relationships between the scales and dimensions and urban texture are given. When the dimensions are combined with urban scale (Table 3), it becomes clear that *mixed land use in the horizontal dimension occurs more at the **higher scales***. Compared to specific points is achieved through vertical clustering. The combination between the dimensions and the texture of the city shows that the *shared premise dimension* is only related to **density**, while all three components are related to the horizontal dimension (Table 4). For shared premises, vertical and time dimensions, the interweaving of functions is irrelevant, as it is related to the number of separate territories within the bounded area. Nevertheless, attention to alternative design features will help with conceptual development of mixed land uses. Furthermore, mixed-use development is not enough for urban design alone. It also includes many non-design features such as nature of use, urban experience, private and public definitions, security and conflict.

2.2 VALUE

According to Daamen, Franzen and Van der Vegt (2012), the narrow financial and economical definition of an urban area is not enough. That perspective is easily measurable, but when you look at an urban area, the total value of it includes always some qualitative based value. They argue that "**the popularity of an urban area is rarely fully expressed in the price paid for an object in that area**" (Daamen et al., 2012, p.9). For that reason, they emphasize the need for a combination of quantitative and qualitative research.

Value has in the built environment many interpretations and is described by many researchers. Some of the most important values mentioned in the literature are the material values such as the *Economic and Ecological Value (Roos, 2007). And the immaterial values such as the Cultural & Cultural historical, User, Emotional, Aesthetical and Social Value (Roos, 2007)*. All stakeholders involved, will have their own perspective on these kinds of values. This makes it a very hard to define these values. therefore, a more abstract manner to tackle this is to reduce it to the public and private value. Whereas public is more linked towards the social aspect and the private to the economic interest. A practical example of this approach is the valuation study of business parks done by the STEC Group in 2007 for the Chamber of Commerce. This approach will be described further in chapters method and empirical study. Just recently, another study on the future value of business parks was

done, regarding major trends of the new economy (De Kort & Beekmans, 2018). The focus in the latter was the economic value.

Public or Social Value

According to De Zeeuw, the main task of the municipality is to invest in a better and greater public domain / value. These values are often backed by **rational** and **emotional** arguments. Nevertheless, these investments are often characterized as unprofitable, which are in line with the split-incentive principle. The '**split-incentive'** principle means that if 'A' invests in a certain case, that the one who benefits would be 'B' (De Zeeuw, 2018). But in defense of this behavior, de Zeeuw emphasizes that in the field of public values it is always a matter which is **more important than money**. The social and public benefits are often **very difficult to calculate**. And attempts on calculating these investments in so-called 'new revenue models' are creating only more vagueness and confusion instead of clarity (de Zeeuw, 2018).

Public value in relation to land policy

Some municipalities tried to mix public value with the land policy, one of them is the municipality of Eindhoven. The municipality made sure that the proclaimed core elements of public value were integrated with the policy back in 2017. The core elements consisted of four aspects: **innovation – sustainability – economy – social inclusiveness**. In practice it would mean that the results of the financial business case would be weighed against the aimed effects on the public values. This is also a matter of customization for each specific area.

Economic Value

Value is described as "**the magnitude of the meaning of something as a possession, by content, as a means to an end, by relation or by a combination of these or some of these factors**" (Van Dale, 1999). Because it is used as a universal means of exchange in the economy, all subjects in the economy can form the concept of the meaning of monetary value, for example, comparing it with other uses of money.

Not fully objective

Expressing value in money gives the impression of an objectively measurable concept (Gruis, 2000). However, this is not the case for at least two reasons:

[1] The value of a good also follows from *the needs of the person* for whom the value of the good is determined (the subject), [2] and the value of a good follows in part from the *insights* of the appraiser.

1. *"I have my girlfriend's copper ring, so I don't sell it for gold"*

2.3 (RE)-LOCATION

Definition

Location is defined as "**the process of making location decision (choosing the type of investment and its site) and the result if that process, which is the location of a given business activity that is tied to a given site**" (Stryjakiewicz, 1988). Whereas **relocation** *strategy* is mentioned as **a coping strategy for any firm to the changes that occur in the market, the behavior of the consumer preferences, law and regulations especially environmentally related ones, institutional approaches** (Pellenbargh, van Wissen & van Dijk, 2002). The relocation decision is often **part** of a much **larger process**, such as a firm merger or splitting, a closing down etc., because of that they often consider the **present as well as the future needs**. This in turn makes the decision much more dynamic (Rymarzak et al., 2012).

Location vs Relocation

There are important differences between firm location and relocation theory. The location theory is focused on what could be *the best location choice*, which is linked to the **pull factors** of a location. While the relocation theory is more related to the '**push'** movement from the primary location (Risselada et al., 2013; Pellenbargh et

al. 2002). Tables 5 and 7 show the most dominant push and pull factors over three decades. The **lack of space for growth** is the main push factor for companies. While aesthetics, image and accessibility are becoming more important as main pull factors.

TABLE 5 COMPARISON OF TOP 5 PUSH FACTORS 1977-1988-1999. (PELLENBARGH, 2005)

Push Factors		
Source: Pellenbargh (1977)	**Source: Besselink et al. (1988)**	**Source: Kok et al. (1999)**
Lack of space for growth	Lack of space for growth	Lack of space for **growth**
Organizational considerations	Organizational considerations	Not a representative building
Presence of housing	Difficult local traffic situation	Bad state of firm housing
Expropriation / rent termination	Optimistic perspective	Organizational considerations
Not a representative area	Bad state of firm housing	Bad accessibility

Growth

As shown in table 5, lack of space for growth has been the most important push factor for companies. The growth of any company is directly or indirectly linked to **the ability to access available resources**, or in the ability to generate or to mobilize them. In general, the most important resources are ***capital***, ***knowledge*** and ***networks***, see table 6. These are fundamental for the creation of opportunities, profit and in general the company's success (Geenhuizen & Nijkamp, 2009). These three elements come together in the form of investments in research and development. These R&D-investments have shown to increase the level of employment rates and productivity (Di Cintio et al., 2017; Castellani et al., 2016; Kancs & Siliverstovs, 2015). A side notice is the fact that multinationality has been identified as a major reason for the increase in incentives in the investment of R&D **(Castellani et al, 2016).** The impact is around **twice** as big on productivity compared to non-R&D-investments (Lopez-Rodriguez & Martinez-Lopez, 2017). According to Kancs & Siliverstov (2015) the R&D investment are part of the knowledge-based economy. Therefore, it is a **long-term objective** and it should be part of a **long-term strategy**. Another aspect that plays a role in an increase use of R&D investment, is the multinationality of a company. With multinationality the firm increases its access to different knowledge sources. In fact, mulitinationality is defined as "the extent to which firms extend networks of activities across borders" Kancs & Siliverstovs (2015). Multinationality has also been linked to the increase in incentives to invest in R&D. This supports the link between mulitinationality and knowledge access even more.

TABLE 6 RECOMMENDATIONS FOR ASPECTS TO BE USED IN FUTURE RESEARCH, (PELLENBARGH, 2005)

Main aspect	Sub aspects	Interpretation
Growth: accessibility to available resources	Capital	Turnover & employees
	Knowledge	Innovation: product & services
	Networks	Stam (2003) did research on the networking activity of entrepreneurs and how this is linked to the firm's success. The rule was that the more the entrepreneur was involved in local and regional activities, the more he was linked to the location and the higher the chance of this becoming a success factor for the firm.

TABLE 7 COMPARISON OF TOP 5 PULL FACTORS 1977-1988-1999. (PELLENBARGH, 2005)

Pull Factors		
Source: Pellenbargh (1977)	**Source: Besselink et al. (1988)**	**Source: Kok et al. (1999)**
Possible expansion	Beneficial transport location	Representative housing
Organizational considerations	Possible expansion	Accessibility of suppliers / customers
Presence of housing	Beneficial local traffic situation	Possible expansion
Beneficial transport location	Price of new location / premises	Beneficial transport location
Beneficial local traffic situation	Representative housing	Presence of housing

Decision-making

Within **relocation** it is a certainty that *one place is going to be replaced by another*. The decision-making process behind that is affected by many aspects, such as the company's **history**. The decision outcome is described as the conditional one (Pellenbargh et al., 2002). He mentioned that the nature of this effect matters in the company's relocation. Therefore, the relocation procedure should be divided into **two parts**. First, *the decision to move*. Second, *the decision to relocate from location A to location B*. Some authors have dissected the second part even further, starting with the *search for an alternative location, the evaluation of the locations, the making of the choice and the testing of the implementation of the choice* (Pellenbargh et al., 2002).

The decision-making process around relocation is one that is known by its complexity, due to a lot of factors being involved. The average decision-making process duration is around **two years** (Pen, 1999; 2000). According to Rymarzak & Sieminska (2012) different factors affect the decision-making of the location and this varies per type of real estate. They separated factors between the macroenvironment and microenvironment. The macroenvironment provides the most opportunities for the **business functioning and development** (Rymarzak & Sieminska, 2012). For the company remains one option, the acceptance of the conditions. Regarding the microenvironment, this is mostly affected by the **sort business** and **real estate**. The real estate supply and demand factors are expected to say the most about the **value** of the **alternative locations** (Tusselman, 1999).

Relocation stages

Many researchers have divided the relocation stages in at least 2 or more (Lloyd & Dicken, 1977; Hayter 1978; Hayter 1997). Townroe (1972;1973), divided the decision-making process into five stages, as follow: the stimulus, the problem definition, the search, the formulation and comparison of alternatives, the choice and action. Later, these steps were compressed into **three** by Wiegmans & Louw (2011). First stage is the *orientation* stage followed by the *selection* stage and then the *negotiation* stage. This corresponds to the 3rd, 4th and 5th stage of Townroe. In every stage another set of variables might turn out to be the most important (Pellenbargh et al., 2002). In the orientation phase most companies are focused on the location factors, yet in the negotiation phase the financial factors become more important.

Footloose

"The search for the best location starts at the firm that is looking for a new location not at the location" (Pellenbargh, 2005, p. 21). This quote indicates that one must know with whom they are dealing with. The initiator of the development, in the case of an urban development project that is often the municipality, should try to get to know the involved parties, especially those who are being cast out. Besides that, the quote steers on trying to know how the parties think, it can also be interpreted to understand the meaning of the value of that the to be relocated party can have for the project initiator. In the last case, the level of footloose and place-bound of the to be relocated party becomes more important.

The definition of footloose is that "**when on the long run the profitability of a firm stays the same for any other location** (Klaassen, 1967). Risselada, Schutjes & van Oort (2013) describe that the heavy industry tends to be quite place-bound, due to large investment costs at site. Some of the factors related to footloose & place-bound are mentioned by these are mentioned in table 8. A much broader list is available in the appendix V, the difference between the tables is that most little aspects are merged in table 8. One specific factor, which is not mentioned in the table but does play a role, is the level of multinationality of a firm. There are two main relocation drivers of multinationals, which are: the degree of internationalization and the decrease of attractiveness of the home base country (Baaij et al., 2012).

TABLE 8 SETTLEMENT FACTORS RELATED TO THE FOOTLOOSE AND PLACE-BOUNDNESS OF A COMPANY (MERGED (RISSELADA, SCHUTJES & VAN OORT, 2013; LLOYD & DICKEN, 1977; PELLENBARGH, 2005: 2002; HAYTER, 1997).

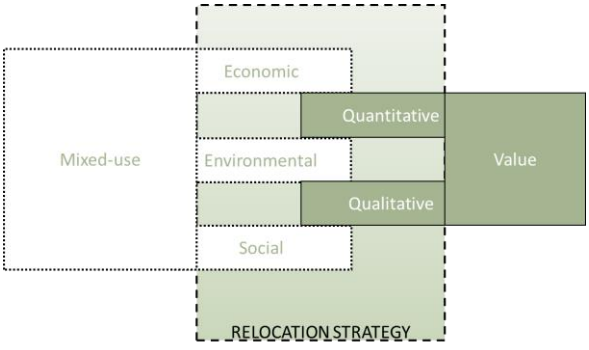
Category	Aspects	Explanation
Firm internal factors	Economic sector	Industrial sector has a lower probability of moving compared to service sector. Service sector has a higher cost when the movement is over a longer distance. Retail and catering industry often don't move from their place, due to their high dependency on the local market. Firms in the last category are often clustered.
	Firm size	#employees; smaller firms can move more easily than larger ones. Growth is the most import factor regarding relocation. And is higher for the smaller firms. Larger firms seem to have more *negotiation* power compared to smaller ones.
	Previous migration behavior	If a migration happened before, then the company will have a much lower intention to move again. Yet, rapid growing firms tend to move more often.
	Firm characteristics	Do play an important role in the relocation process.
Location factors*	Site & Situation	This includes the characteristics of the present location. As such that firms located in the city border area, are more likely to relocate. And the firms located in the industrial site, showed hardly any movement (costs + capital intensive + lack of alternative locations). Another important point is the location stress, which can result into a hypothetical change of location. Location stress is induced by growth of total employees, criminality, government policy, accessibility, investment premiums and rent levels from other locations.
	Property ownership	Relevant for relocation in general and intra-municipal relocation. This factor is also related to a lower probability of firm relocation. Yet, the conditioning role of ownership might turn out to be a hindrance towards the firm growth. Offices are more often rented compared to industrial buildings, due to high investment costs.
	Property flexibility	Considers flexibility in different scales, such as spatial & legal
Firm external factors	Government policy	The policy can function as a push and pull. Push, for example when the environmental law is implementing more restrictions. Pull, for example when the government is developing newly and sometimes subsides locations for firms.
	Market Demand	Enables security for future growth. It has a bigger impact on smaller firms than larger ones, as their volatility is much higher.

Understanding the relocation approach

According to Pellenbargh (2002), there are three sorts of schools that explain the relocation process more in detail. First, the *Neo-classical approach*, here the focus lies on cost-minimizing or the opposite which is profit-maximizing theory. These are linked to the use of locational pull as well as push factors. Second, the *Behavioral approach*, which is more focused on the actual behavior of the involved decision makers. It contains four key elements; limited information and its role; the intelligence to use the information; mental maps and perception; and uncertainty. In this approach the locational pull factors as well as soft factors play an important role. Third, the *Institutional approach*, this approach is like the behavioral but takes the cultural and social context into account. Approaches that have fallen in the third category have dominated since the nineties.

2.4 SUMMARY

This research determines the relationship between the mixed-use, relocation and value theory, see figure 4. In the mixed-use theory it is mentioned that the main benefits, that can be understood as the main values, are the social, environmental and economic value (Grant, 2002; Lagendijk, 2001; Coupland, 1997). This



[4] CONCEPTUAL MODEL OF THE LINKS BETWEEN THE THEORIES. OWN ILLUSTRATION.

interpretation is in line with the **value approach** suggested by Daamen et al., (2012).

According to them, understanding value of an urban area should include the *qualitative* as well as the *quantitative* part of it. Not to forget, the value perspective is also linked to the need of the person valuing it. This is why the Chamber of commerce looked at the public and economic value of the remaining business parks in the Metropolitan Region of Amsterdam (Bruil et al., 2007). Not to understand their, the economic, value of it, but also that of the municipality, which is realizing public value.

The mixed-use has a spatial dimension, in which the mixed functions are meant to generally increase both *physical*, *social* as well as the *quality* of the area (Lagendijk, 2001). This in turn is the embodiment of the term **synergy** and why such developments are described by that terminology (Nijkamp et al., 2003; Grant, 2002). The level of synergy is then directly linked to the *spatial mix* of the functions. It is expected that the mix will lead towards a higher end value, compared to when the functions are placed separately (Lagendijk, 2001). If the mix does not create *any form of conflict*. This is why municipalities tend to favor the heavy industry not to be mixed with vulnerable functions, as they used to be known to clash with one another. Due to the heavy industry long history of having the image of being a main cause of pollution.

The mixed-use development can be realized in three levels, starting with the increase of the intensity, followed by the increase of the uses and finally the integration of segregated uses (Grant, 2002). An example of the latter is a development that includes a mix between industrial and residential functions. How the various uses are combined, is usually based on ambitions behind the development plan followed by a company selection according to their environmental class. This is based on the sector and business type (VNG, 2009). The classification level determines the distance that certain companies, such as the HIPC, can have towards vulnerable functions. These matters are included in the relocation strategy of the HIPC by the municipality. This is why the government policy is described as a push factor, due to its ability of putting pressure on the companies that do not fit (Lloyed & Dicken, 1977).

The government has developed laws and environmental restrictions for all sorts of functions, in order to create healthy mixed-use areas. They function as configuration buttons that can be adjusted until the most plausible mix has been created. The policy they implement can function as both the push and pull factor. The companies that are not mixed will eventually move, the process behind it is known to be very complex and is well described in the relocation theory (Dicken & Lloyd, 1977; Hayter 1997:1978). From the company's perspective, the relocation is described as a coping strategy to the changes that occur in the market, the behavior of the consumer preferences, law and regulations especially environmentally related ones (Pellenbargh et al., 2002). The complex relocation decision-making process of the company is mostly part of a much larger process and will include their *current as well as future needs* (Rymarzak et al., 2012). This is why the theory suggests not to start looking for alternative locations, but with understanding the company's (need).

The relocation decision-making is built upon two stages. First, the decision to relocate and second, the decision to move from its location to the new one (Pellenbargh et al., 2002). The first stage can be triggered by city expansion plans, such as the development plan of the Haven-Stad. This can be explained through the spatial dimensions of the mixed-use development. There are four different spatial dimensions in which various functions can be put together (Hoppenbrouwer & Louw, 2011). These dimensions indicate that a mixed-use development could be on the level of a building block, the street, neighborhood or even in a district. It also includes the possibility that a function may replace one another over time. In spatial term it means that mixed-use can vary depending on the scale that you're looking at. In case of a large area, it is possible to find parts of the area that will only consist of housing, while others are more mixed. Some area parts will be more convenient to be mixed on the level of a building, while others can be mixed more on a block level. In the latter it will be possible to mix the functions horizontally as well as vertically. The highest value of the area will be achieved when the mix has reached the level where segregated functions area been integrated on the same plot or

building block, on a synergistic level. In that case, the value represented by the company will remain and the value of the plot will be much higher, due to other functions that come with their own value.

The second stage of the relocation process is where the company has decided to move and started to look for alternative locations. Louw (1996) divided this stage into three phases: the orientation, the selection and the negotiation phases. In this period, the search for an alternative location becomes important, but Pellenbargh (2005) stresses the fact that it is even more important to understand the firm instead of the location. This is why understanding the company is an important key to the success of the relocation. Table 9 shows the important aspect affecting the relocation process based on the value, mixed-use and relocation theory.

TABLE 9 OVERVIEW OF THE CONCEPTS AND THE THEORETICAL EXPLANATION. OWN ILL.

Concepts	Explanation
Stakeholder involvement	*Most of the development will occur after implementation of the NEPA. This will impact all the contracts signed after that moment. With the new act, the stakeholder involvement becomes a prerequisite for any development plans (VNG, 2016; Rijksoverheid.nl, n.d.).*
Gov. Policy	*The policy can function as a push and pull. Push, for example when the environmental law is implementing more restrictions. Pull, for example when the government is developing newly and sometimes subsides locations for firms. Mentioned by Lloyd & Dicken (1977) as one of the important external factors that can affect a business regarding relocation. Similar understanding is given by (Pellenbargh, 2005)*
Compensation / Incentive	*Part of the government policy is the use of incentive (Pellenbargh, 2005). The challenge remains in how to develop a more suitable incentive for the company, without offering more than necessary from the municipality's perspective. The opposite of this specific approach is the more social oriented incentive, the split incentive (de Zeeuw, 2018). With this incentive the benefits will mostly go to, for example the companies, while most effort is done by the municipality.*
Economic Sector	*Industrial sector has a lower probability of moving compared to service sector. Service sector has a higher cost when the movement is over a longer distance. Retail and catering industry often don't move from their place, due to their high dependency on the local market. Firms in the last category are often clustered. (Lloyd &Dicken, 1977)*
(Size) Jobs / Employment	*Employees: smaller firms can move more easily than larger ones. Growth is the most import factor regarding relocation. And is higher for the smaller firms. (Lloyd &Dicken, 1977)*
Growth	*According to (Geenhuizen and Nijkamp, 2009), growth can be understood as the ability to access the available resources. The most important resources are 'capital, knowledge and networks. Capital can be measured in turnover and employees. Knowledge is also related to innovation and the variety of products and services. Networks is more linked to the company's involvement in local and regional activities. The higher this is the greater chance it becomes a success factor for the business (Stam, 2003)* *(Pellenbargh, 2005) lack of space of growth is one of the main push factors for companies for many decades.*
Innovation	*Knowledge is also related to innovation and the variety of products and services. (Stam, 2003)*
Market	*Soft location factor (business climate) is crucial for the company. The market is directly linked to the companies type of business and potential growth (Kinkel, 2004, p.43). As Growth is stimulated by three core elements: knowledge, network and capital. Different segments of the market are better accessible when the core elements are improved. Here the existence of the market is essential for the business and growth of it.*
Public or Social Value	*Value can be interpreted in many ways. Especially when it matters the qualitative aspect. In this research, the main actors are the HIPCs and the municipality of Amsterdam. From the perspective of the municipality, achieving public or social value is the basic task (de Zeeuw, 2018). Therefore, this specific value is included in the research.*
Environmental Class	*Hard location factor (after Grabow; Kinkel, 2004, p.43)* *The environmental class and the use of it in development plans, falls under the concept of Government policy. But can also be understood as part of the quality (as value) of the area.*
Settlement factors – building &	*This includes the characteristics of the present location. As such that firms located in the city border area, are more likely to relocate. And the firms located in the industrial site, showed hardly any movement (costs + capital intensive + lack of alternative locations).*

Location (site & situation)	*Another important point is the location stress, which can result into a hypothetical change of location. Location stress is induced by growth of total employees, criminality, government policy, accessibility, investment premiums and rent levels from other locations. Hard and soft locational factors (Kinkel, 2004)*
Footloose	*Operation not location bound (Geenhuizen & Nijkamp, 2009). It is understood that a company is considered footloose when they're operation is not bound to their location.* *In another way it can be interpreted as the profitability that is not changing for any other location (Klaassen, 1967).*

The **criteria** that need to be used to evaluate the HIPC are focused on the development of a mixed-use area. The conducted study has led to three criteria, which are the following:

CONTRIBUTION TO MIXED-USE VALUES

This criterion is meant to distinguish the companies that can contribute to the development of a mixed-use area, from the value perspective of it. In the sense that they're able to add value to the **economic vitality, environmental quality** and **social equity** of the area.

REPRESENT A PHYSICAL AND FUNCTIONAL REVENUE-PRODUCING USE

This criterion is vital for achieving the second level of mixed-use areas, which is the **increase of diversity of uses**. This is why the focus will lie on understanding the ability of the company to be *a physical and functional revenue producing entity*.

PLACEMENT IN SPATIAL DIMENSION ACCORDING TO THE DEVELOPMENT

This criterion is crucial in understanding the spatial role of the HIPC in the to be developed mixed-use area. For the aimed number of new dwellings, it is needed that the HIPCs make a shift from the placement in the district level to that of the block or building.

The definition for the **relocation strategy** based on this research, is that it can be considered as a tool to achieve the aimed level of a mixed-use development. Here, the development of the incentive plays an important role, but more importantly is the understanding of the involved HIPCs.

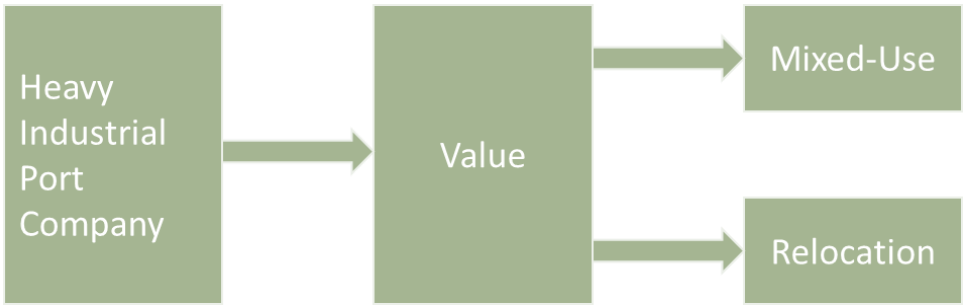
3 METHOD

3.1 INTRODUCTION

This chapter describes the strategy that will be used to research the relocation decision-making of the HIPC, the relocation strategy development of the municipality and on exposing the HIPCs values that are included and excluded from the process. Due to the redevelopment plans of their location. This will be translated into a strategic advice for the urban planners and HIPCs.

3.2 RESEARCH OBJECTIVES

The aim of this research is to understand the current approach of HIPC in industrial harbor redevelopment projects and how the translation of the values of the heavy industrial port companies into mixed-use redevelopment strategies for the municipality, this is visualized in figure 5 the conceptual model. In the extension of this aim, the objectives are: Enhancing the role of the HIPCs in industrial redevelopment projects and providing an advice for the stakeholders in industrial redevelopment projects.



[5] CONCEPTUAL MODEL, OWN ILL.

3.3 RESEARCH SUB-QUESTIONS

MRQ: TO WHAT EXTENT CAN THE HIPC VALUES ENHANCE THE HIPC'S MIXABILITY IN MIXED-USE REDEVELOPMENT PROJECTS OF INDUSTRIAL HARBOR AREAS? CASE HAVEN-STAD.

The main research question will be answered in by the following sub questions shown in table 10. These are based on the objectives mentioned earlier. The table describes the purpose, method of data collection and potential outcome will be given behind every sub question.

TABLE 10 OVERVIEW OF THE SUB QUESTIONS, DATA COLLECTION METHOD & POTENTIAL OUTCOME, OWN ILLUSTRATION.

SQ1 What is a mixed-use industrial redevelopment project?	
Purpose	This question will help to understand what types of company are fall under the banner of 'heavy industrial port company'. Including insights in relevant laws and legislation that are linked to these companies. This provides more understanding in the way these companies think and act.
Method of data collection	The data can be obtained through literature study on HIPC and document study of the development plan and relevant law and legislation of emplacement.
Potential outcomes	Understanding the key values of a mixed-use development. Insight in the variety of companies, laws and legislation that is linked to them
SQ2 What are the considerations of the HIPCs and the municipality about the Haven-Stad development plan?	
Purpose	The answer of this question will provide insight in the values between the different stakeholders, their current (dis)-agreements and future challenges.

Method of data collection	Through explorative and semi-structured interviews with the stakeholders. As well as a document study of formal reports developed for the development plans of the Haven-Stad.
Potential outcomes	• Overview of the consideration from each stakeholder and the conflict points
SQ3 What factors affect the relocation strategy and how can the HIPC-value interfere?	
Purpose	To find out which factors have an impact on the relocation strategy development and what the overlooked values of the HIPC are.
Method of data collection	Through literature study on settlement factors & relocation development process. Followed by a document study of the development plan of Haven-Stad and semi-structured interviews.
Potential outcomes	• Overview of the factors
SQ4 What are the overlooked value(s) and how can they be implemented in the relocation strategy to enhance the masterplan?	
Purpose	This question provides insight in the possible missed opportunities of the HIPC regarding the development of the HS and how it can be implemented.
Method of data collection	The overall value of the HIPCs can be gained through semi-structured interviews with the companies, and document study of their online information.
Potential outcomes	• Overview of the overlooked values of the HIPC. • Overview of the actions needed to implement the overlooked values. • An advice for an approach where the values that aren't included in the current way of redevelopment are implemented.

3.4 RESEARCH DESIGN

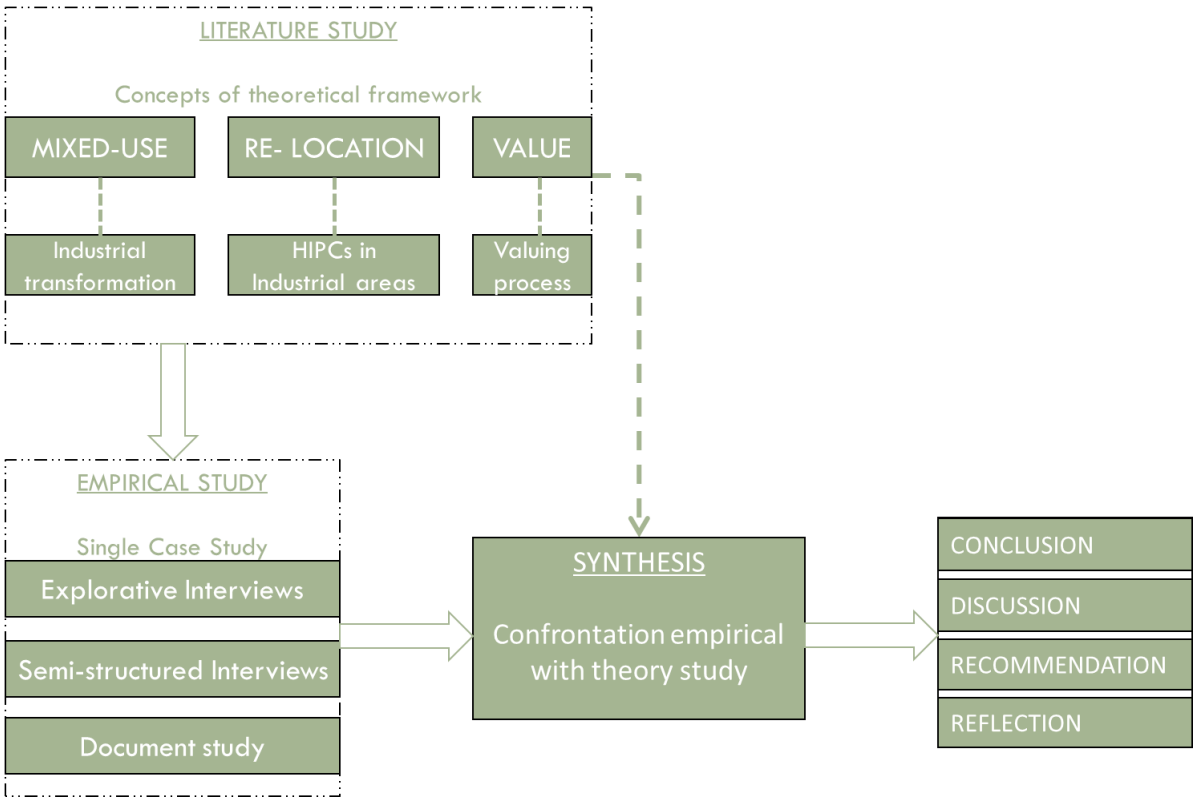
Bryman (2012, p. 35) mentions that the research strategy is something of "a broad orientation to social research". This includes the options of either qualitative or quantitative. As for this research, it can be said that it leans more towards the qualitative research. Due to its focus on the decision-making process of different companies and the involvement of the municipality and port company in it.

The findings in the literature review will be tested during interviews. The aim is to generate *some* additional perspectives or scientific knowledge to this field of transformation process of industrial areas. According to Bryman (2012), it leans more towards the inductive approach.

Figure 6 shows the research design of this study. The purpose behind a research design is to have a well-defined structure for the collection and analysis of the data, this is visualized by a framework. The specific research design reflects the authors decision on prioritizing different aspects of the research process (Bryman, 2012). This study is an example of a single case study research. In which the case of the development of the Haven-Stad, is analyzed in detail. With the focused set on the mixed-use development aspect of it and the relocation decision-making aspect of the existing companies that face relocation soon, due to the development plans.

The research starts with the introduction of the topic and the problem statement. The literature study is built upon three main topics: the mixed-use, relocation and value theory. These concepts are then used for the explorative and semi-structured interviews, that are part of the empirical study. Besides the interviews, a document study of the development plans will be conducted.

The main findings of the literature study and the empirical study will be synthesized. From there the conclusion, discussion and reflection will be formed. From this research, the new insights will be used in the development of the recommendations that can be used in future transformations of industrial *harbor* areas. The research design used in this research is shown in figure below.



[6] RESEARCH DESIGN, OWN ILLUSTRATION

3.5 STRATEGY EMPIRICAL RESEARCH

The data collecting techniques used in this research are literature study, document study and a series of semi-structured and unstructured interviews (Bryman, 2012). The implementation of the various methods results in the triangulation. The triangulation stands for the use of various viewpoints on the same phenomenon that causes less amount of biases. The purpose of each technique is explained further below.

Literature review

To gain understanding in the specific part of the research, which consist of the meaning of Value in transformation of industrial areas, Re-Location and Mixed-Use theory. All necessary to identify what is known from what is still unknown in the corresponding fields. But also, in the general theory behind port-city interface, industrial harbor areas and new developments such as the NEPA 2021. The output of the review will be translated into the basis of the theoretical framework. The framework is built on the specific part of the review as mentioned before. All of them play an important role in the urban area transformation theory. This will provide a better understanding of how the HIPCs currently are approached, and the value(s) that are included in the redevelopment process.

Document study Haven-Stad

A thorough analysis of the documents is conducted regarding the development of the Haven-Stad in Amsterdam. This includes the analysis of the development strategy and vision of the process. Most documents are policy documents, visions, strategy, covenants and regulations.

- Transformation strategy Haven-Stad 2013 (Transformatiestrategie Haven-Stad 2013)
- Development strategy Haven-Stad 2017 (Ontwikkelstrategie Haven-Stad 2017)
- Formal answers to the stakeholders' view 2017 (Nota van beantwoording 2017)
- Environmental impact report 2017 (Milieu Effecten Rapportage 2017)
    - Noise report (Achtergrondrapport Geluid [max 3.1])

- Smell & Substance report (Achtergrondrapport Geur & Stof [max 2])

Analyzing the planning documents will provide more insight in the current approach and the values from the municipality's perspective. The findings will function as an indicator of how the HIPCs values could be of use for the development.

Criteria HIPC-selection

The criteria for the HIPC is based on the environmental class, the company's location in the area (both sub-area as well as the type of environmental zone). According to the development plan it is expected that the most important environmental aspects are '**noise'** - '**smell'** and '**substance'**, which will be included. More information about the relevant HIPCs in relation to these environmental aspects can be found in appendices VII-IX. The corresponding limit for the environmental class for each of the aspects are as follow: **3.1 noise, 2.0 smell & substance**. The location of the HIPCs is included, due to three sub area's containing most of the HIPCs. These are the **Coen and Vlot harbor, Minerva harbor** and the **Cornelis Douwes parks**. These areas contain two main differences towards the other Haven-Stad areas. First, the planning process for these areas end at 2029. Second, most companies targeted for relocation are in these areas. The HIPCs located in 'Zone C' are placed there due to the legal system. These companies cannot be replaced elsewhere without ensuring the same environmental zone, due to their type of business. Companies located in zone B, have in some cases the same rights as those in C, depending on the nature of their business (Louw et al., 2004).

Interviews

The type of interview chosen for this research are the *explorative and semi-structured interview*. The explorative is used due to its effectiveness to gain more deep knowledge about the specific case (Bryman, 2012). The *semi-structured interview* is used due to the qualitative part of the research (Bryman, 2012). The theoretical framework will be the basis for the questions. The goal of the interview is to find the values of the HIPC that are included in the development of the HS and the ones that aren't. And possible links to new mixed-use and relocation strategy.

- Explorative interviews: Port of Amsterdam, Municipality of Amsterdam, ORAM.
- Semi-structured interviews: Selected port companies

The goal of the interviews is obtaining insight in the overall value of the company. The companies will be asked about the different values and if they're included in the redevelopment process. After obtaining a clear overview of the values that are and aren't included a crossmatch with the redevelopment project ambition will be made. With that last step, it will become clear if the not included company values are of importance for the development or not.

Interview protocol + STEC-method

An interview protocol has been developed, see appendix X. It is based on the theoretical framework combined with the STEC-Group method mentioned in their research (Bruil et al., 2007). The reason why in this research the method has been used is because of its relation to the redevelopment of business (including industrial) parks. The Chamber of Commerce noticed that a lot of business parks are been targeted for redevelopment, which directly impact the business climate. Therefore, they tried to understand the impact not only from economic value side, but also from the public value. Therefore, the STEC-model resonates well with the perspective of this research. This model will therefore play a role in the empirical study of this research, where it will help to understand the core elements of the theoretical framework. The method includes four key elements, consisting of both qualitative and quantitative values. These are: **employment**, **financial**, **social** and **quality** (Bruil et al., 2007). Two of them overlap with the values of mixed-use development, which are the economic and social. The employment and financial aspect are fused together in the economic part. The third

value, **environment** is been added as well as the **planning process** of the development. This gives a total of the following five aspects:

- Development process; some questions are asked about the stakeholder involvement, the impact of the development on the company and how the firms opinion on the actual book value as financial incentive in the relocation strategy of the municipality (Lloyed and Dicken, 1977; Pellenbargh, 2002).
- Economic; some questions were asked about the number of jobs, the company's size and vision (Bruil et al., 2007; De Kort & Beekmans, 2018; Risselada et al., 2013). Also, about their business chain (ORAM, 2019)
- Social; some questions were asked about the background of the employees and the relationship the company has with the municipality of Amsterdam (De Bruil et al., 2007).
- Environment: Some questions were asked about the current work processes and how innovation is positioned within the company (De Bruil et al., 2007).
- Quality: some questions were asked about the settlement factors of the company (Lloyed and Dicken, 1977; De Bruil et al., 2007). But also, about the level of footloose (Geenhuizen & Nijkamp, 2009; De Bruil et al., 2007).

The challenge of the STEC Method

This approach was set up to value an entire business park. In practice, the way the questions were set up need to be narrowed down in scale. Scaling down from an area perspective to that of a single company. Besides narrowing down, it will also need two elements considering the topic of this research. First is measuring the extent of a *company's mixed-use ability, and the spatial dimension of it*. Second, to find out what the important settlement factors of the HIPC is. The settlement factors at the current moment don't have to be the same as the ones in 10 years. These depends on many variables, especially their growth perspective, vision, innovation. The settlement factors and the growth ambitions of the company will provide a better understanding of the relocation behavior of the HIPC.

Output

The answers on the questions will be used on an abstract level combined with the theoretical framework, to answer the research questions as well as to develop and construct a proper advise or strategy, which is more in line with the NEPA, meant for the municipality as the main initiator of the project. The benefits of understanding the HIPCs in a way that can lead towards improved incentives for mixed-use and relocation purposes will be emphasized in the advice. By explaining what the HIPCs overlooked values are in the current approach and what possible strategy could lead towards a higher retainment of that value for the development.

3.6 RELIABILITY, REPLICABILITY AND VALIDITY

Validity deals with the integrity of conclusions made in the research (Bryman, 2012, p.47). Herein one can distinguish between external and internal validity. The first one concerns the generalizability of a study beyond the context in which the research was conducted, whereas internal validity concerns the causality between two or more variables within a finding (Bryman, 2012).

Internal Validity

The aim of this research was to find relationships between values of stakeholders and how they relate to mixed-use and Re-location in industrial area transformations. Furthermore, relationship between company role in the transformation process and overlooked values is being studied. The results of this research are mainly based on a specific case study and may therefore not be applicable for other cases. Yet, there might be lessons drawn from it that can be used generally in other cases.

External Validity

So far, not all the HIPCs were willing to be involved in the research, 10 companies have been studied and this might give an idea but is not a full representation of all the HIPCs in the Haven-Stad. Nevertheless, the results will be generalized as far as it is possible to do so. The aim is to extend this further, in order to find out if there is a link between the role of the company in the process and overlooked values regarding transformation of industrial areas. The moment that a significant portion of the port companies had been analyzed and interviewed, it was possible to write a valid advice suitable for area managers of the Amsterdam municipality. Hence, the conditions at which the applicable lessons were drawn can be tested. However, the advice is not binding as it has been specifically written for the development of Haven-Stad. But since industrial areas all over Netherlands are been targeted for potential city expansion areas. There might be some lessons learned from Haven-Stad that could be of use soon.

4 EMPIRICAL STUDY

PART 1 CASE HAVEN-STAD

The empirical study is divided amongst two parts. The first part will elaborate more on the case of Haven-Stad based on a document study. The Haven-Stad development plan will be analyzed based on the theories described in the theoretical framework; Mixed-use, value and relocation theory. The second part will discuss the results that are collected based on explorative and semi-structured interviews. The interviews were conducted with the municipality of Amsterdam, the port company Amsterdam, ORAM and various heavy industrial port companies.

4.1 INTRODUCTION

4.1.1 WHY THE HAVEN-STAD

After establishing the *Structural Vision Amsterdam 2040* in 2011, the municipality of Amsterdam adopted the motion of the council to redevelop the Haven-Stad area. The municipality demanded more information on the development program, the financial and economic feasibility and the possibility to retain the port companies in the same region. The development started with a small number of dwellings, back in 2013 (Municipality of Amsterdam, 2013). Reason for this cautiousness was the recent crisis. However, after a while, it became clear that the area had a lot more potential than expected by using the mixed-use principles (Municipality of Amsterdam, 2017). The increase in the number of new dwellings was also backed up by the immense housing shortage of the municipality.

The development strategy is not very specific in mentioning the profiles needed in the area. However, they can be understood by reading in between the given guidelines. Such as the transformation into a mixed-use area, where people can work and live together. The municipality mentioned that they want to keep as much jobs as possible (Municipality of Amsterdam, 2017). This is also confirmed by the additional task that they gave the Harbor Company in the Coalition agreement 2014-2018:they must keep the amount of jobs as it is or increase it. Yet, a strict condition for the development is that existing companies do not exceed the environmental output regarding different environmental aspects. This include the relocation of the HIPCs. This can be understood from the mixed-use theory, as the success of the aimed mixed-use level depends on the synergy of the compatible mix of functions put together in the area (Grant, 2002). The success of this aim depends also on the quality of the relocation strategy, which will be described later.

4.1.2 AIM OF THE DEVELOPMENT

The aim of the development is to transform the Haven-Stad area into a high density mixed-use urban area and with that to expand the urban environment around the inner city of Amsterdam (Municipality of Amsterdam, 2017; 2013). The work-living mix combined with other recreation functions mentioned in the development plan, are in line with the definition of a mixed-use development (ULI, 1987). Yet, the mix excludes the heavy industrial port companies, which can be understood as a second degree of mixed-use development (Grant, 2002).

4.1.3 DEVELOPMENT PROGRAM

The Haven-Stad contains around 28.000 jobs and at least 30.000 will be added to that (Municipality of Amsterdam, 2017). As well as the addition of 45.000 to 70.000 new dwellings, by transforming 650 acres of industrial area into a mixed-use urban area (Municipality of Amsterdam, 2017). The full program of the development is shown in the **table 11**.

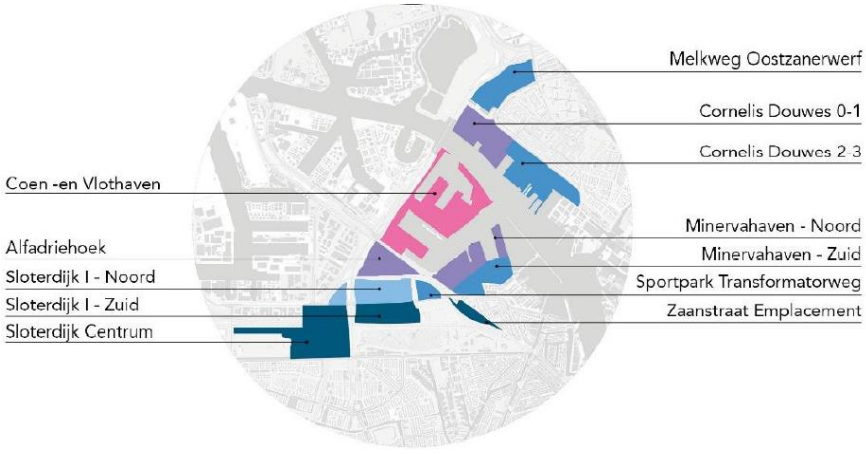
The program will be cut in various stages, see figure 7 and table 12. The five different phases are the result of the following factors:

- The covenant Houthavens/NDSM; Just phase '1a' lies outside of the covenant area where the ruling of 'pas-op-de-plaats' is applied.
- Location in relation to the nearest residential function.
- Relocation possibilities of the HIPCs
- The absorption capability of the residential market.

TABLE 11 OVERVIEW OF THE PROJECT DETAILS. SOURCE: (MUNICIPALITY OF AMSTERDAM, 2017).

Project	Haven-Stad 2017
Size	650 acres
Sub-areas	12; see figure 21
Phases [timeframe]	4 [2018-2040+]
Dwellings	40.000-70.000*
Jobs	58.000
Execution period	2018-2040+
Program Mixed-Use	80% Dwellings | 20% Workplaces
Housing Program	40% Social | 40% Mid Income | 20% High Income
Plinth	8-10 meters

***The bandwidth is linked to the FSI of 2.0. The average size of a dwelling is 80 m2 gross floor area.**



[7] PHASE MAP OF THE DEVELOPMENT OF THE HAVEN-STAD (MER, 2017).

TABLE 12 OVERVIEW OF THE PHASES AND THE PROGRAM (MER, 2017)

Phase	Period	Dwellings [FSI 2.0]	Current #jobs	Future #jobs	Sub areas
1a	>2018	14.825	16.000	20.450	Sloterdijk Centrum, Sloterdijk I-Zuid, Zaanstraat Emplacement
1b	>2018	6.275	3.650	4.175	Sloterdijk I-Noord
2	>2029	18.200	5.800	11.300	Sportpark Transformatorweg, Minerva harbor-Zuid, Cornelis Douwes 2-3, Melkweg Oostzanerwerf
3	>2029	18.600	6.900	12.400	Alfadriehoek, Minerva harbor-Noord, Cornelis Douwes 0-1
4	>2040	15.400	875	10.275	Coen and Vlot harbor
Total	>23yrs	73.325	33.225	58.650	Haven-Stad 650 acres

The program developed for the phases are based on an average FSI number of 2.0 and a mix capacity of 80% residential and 20% work functions, see table 12. Most of that will be realized in three main parts of the Haven-Stad. Respectively the Coen- and Vlot Harbor, the Cornelis Douwes parks and the Minerva Harbor. These parts contain the most HIPCs and are studied more into detail in table 13

4.1.4 DEVELOPMENT PLAN IMPACT AND CHALLENGES

In the Haven-Stad transformation strategy the effects of a large-scale transformation are described to have a massive impact on the Port and the port companies (Projectgroep Haven-Stad, 2013). *The 'Coen and Vlot-harbor'* is currently the most profitable part of the harbor. It is intensely used, and the investment costs are low. The transformation will reduce the Port Company's revenue stream as its profitability. The risk lies in the possibility that companies who will have to relocate either choose to stay in Amsterdam/region or move out of it. If the companies choose to stay in the city/region, the Port Company Amsterdam will have to find another suitable spot around the North Sea Canal Area, as if this falls outside their management area it would lead to loss of revenue. Moreover, this will hamper the ports growth in general. The whole development puts pressure on the port companies that fall in the higher environmental classes (Municipality of Amsterdam, 2017). In other words, it will make them think twice about their expansion/growth. This also includes the risk that newly released plots will be more difficult to rent out.

The Coen and Vlothaven

The municipality has yet to decide in 2025 to proceed with the intention of redeveloping the Coen- and Vlothaven. The decision depends on the pressure in the housing market, co-financing of the state/the province and the city region as well as *a clear future perspective for the of the port companies* (Municipality of Amsterdam, 2017). The latter is currently lacking in the development plan.

Scale & Complexity

The scale of the project is unique in the sense that the municipality of Amsterdam had never dealt with such a project. The project area contains up to 1400 companies and a few of them own the plots (shown in figure 8. Most of them have a leasehold or rent contract with the Harbor Company Amsterdam (EI-2, 2019). According to the port authority (EI-1, 2019), some of these contracts will end years after 2040. This gives those companies quite some foothold. Even though, the municipality has the power to expropriate these companies, they also know that expropriating companies is quite a complex and long process. This could lead to an expensive development, due to high acquisition cost of land and relocation (Korthals Altes & Tambach, 2008).

[8] LEASEHOLD MAP OF WESTPOORT AREA. GREEN: LEASEHOLD CONTRACT | RED: RENT CONTRACT (PORT COMPANY AMSTERDAM, ND)

The Port Companies

The port companies that fall in the lower scales of the environmental class, such as the light industrial companies, can become part of the work-living aspect of the Haven-Stad redevelopment. Likewise will the creative industry, offices, schools, hotels and city-caring companies. *Other companies will find it more suitable to be placed in pure business park environments*, due to heavy transportation. For these companies a suitable location should be found. The main thumb rule is that for the **non-water bound companies** (light industrial), plenty of alternative locations can be found within the city borders as well as in the region. The big problem is merely related to the companies that fall under the **environmental category of the higher segments, above 3.1**. Such companies are mainly located in the **Coen and Vlot harbor**. Few examples are ICL, Cargill, Eggerding, IGMA, and the industrial businesses around it, like Shiprepair, Renewi* and MEBIN. These companies are only allowed to be placed on zoned business-parks, the so-called '**C-zone**'. It is estimated that for the **wet-harbor-**

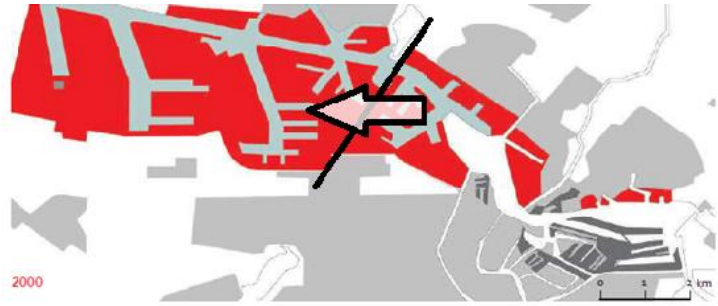
companies (or the water bound companies**)** around 45 acres is needed, as a space requirement. In the Haven-Stad there are 2 large environmental zoned areas.

- Westpoort: Coen and Vlot harbor and the Alfadriehoek.
- Cornelis Douwes: 0-1 & 2-3

***Renewi is a *non-water bound* company but falls under the heavy industrial classification. During the interview they mentioned that they do need a quay in order to realize their vision.**

The Westward movement

In addition, the heavy industry has always been pushed aside and thus has never been included in the development due to environmental restrictions. This is described as the '**westward movement of the port'** by Daamen (2007). The dark grey parts in the figure 9 are former port areas that have been redeveloped. In that process, the heavy industry was pushed westward. This again is caused by the exclusion of port companies that fall in a high environmental category (Municipality of Amsterdam, 2017; 2013). The development plan follows the westward movement of the port, which is previously described in the theory section. This can be seen in the timeline of the municipality of Amsterdam. The red parts indicate the location of the port and over time, it increases in size, as does the city, and is being pushed towards the west, see figure 9.



[9] MOVEMENT OF THE PORT IN AMSTERDAM (MUNICIPALITY OF AMSTERDAM, 2017)

This is in direct contrast to the integral development mentioned in the vision of the platform NZKG*: "the integral task for the area is not to leave the functions that require space with their backs to each other, but to **intertwine** them. The city searches for the port, the port partly integrates into the city " (Vision NZKG 2040). The formulation of this vision is in line with the third level of mixed-use development, which is the integration of the segregated uses, by for example overcoming regulatory barriers (Grant, 2002). Therefore, the westward movement is the direct opposite of the third level mixed-use development.

***The NZKG is a platform where seniors from the municipalities and companies located in the North Sea Canal Area meet and discuss the matters related to living, working and nature in the port. This platform falls under the direction of the Province.**

Scarcity of Industrial Areas

The port of Amsterdam area contains 23% of the total amount of employment located in the North Sea Canal Area and 7% of the total employment of Amsterdam (Transformatiestrategie, 2013). The economic added value that the area Haven-Stad contributes to the North Sea Canal Area and the municipality of Amsterdam is like the previous employment percentages of 23% and 7%. The various areas in the Haven-Stad have developed very fast. A **huge densification** has evolved in the Cornelis Douwes parks, due to the **settlement** of the companies that had to relocate due to the redevelopment of 'The Bongerd and the Buiksloterham' areas in Amsterdam North. The former wood storage in the Minerva harbor has transformed into a hub of creative companies, the same change happened for Sloterdijk-I area.

The future growth

Relocation of the port companies demands the expansion of the harbor area in the Houtrakpolder, but this will cut the growth of the port (Projectgroep Haven-Stad, 2013). This is because the same area is currently assigned as buffer zone for future growth, which is estimated to be needed in 2026. This is slightly after the municipality's decision in 2025 on the redevelopment of the Coen and Vlot harbor. If that area is going to be established as the relocation area, the port will have less land to grow further. One issue regarding the Houtrakpolder is that this location is not within the municipality's border, which might be a problem for businesses who like to be affiliated with Amsterdam. As mentioned in the theory, growth depends largely on the accessibility of capital, which in this specific case are the plots of land (Pellenbargh, 2005). The growth will be damaged by cutting these plots off from the port, which in turn will affect the 20-25% employment of the municipality that is linked to the port. Causing in less revenue coming from the Port Company Amsterdam, as well as potential job losses within the municipality. Another issue is that the first estimation of the cost of relocating the HIPCs was around 900 million euros (Municipality of Amsterdam, 2013).

Alternative locations are essential for the success of the relocation strategy. A deeper understanding of the current situation around the business parks in the metropolitan region of Amsterdam is mentioned in the study done by STEC Group. The focus of the study was on the restructuring task of the business parks in the metropolitan region of Amsterdam (De Kort and Beekmans, 2018). The study contained 51 business parks all over the metropolitan region, including the areas located in the Haven-Stad. The essence of the research was to criticize the redevelopment trend of business parks from a spatial and economic perspective (De Kort and Beekmans, 2018). The reason why this research was held was due to the business parks being more often targeted for urban redevelopment, where they end up as new residential areas (De Kort and Beekmans, 2018). The main findings of this study are the following:

- The business parks in the MRA are in very good condition, this included an astonishing 98.5% of the total. Therefore, maintaining them is very low cost.
- Most business parks in the MRA are fully occupied, considering relocation of the HIPC is problematic, as other factors such as the environmental restrictions play an important role.
- It is estimated, that between 20-25% of the total amount of jobs in the municipality of Amsterdam is directly linked to the companies located at the business parks.
- It is not possible to create a circular region without HIPCs that process waste streams.
- A city needs a variety of hubs that should be built close to the urban fabric, that can ensure the last mile logistic. (Demand for clean logistics in inner city).
- Construction companies are crucial in solving the huge housing demand.
- Due to shortage of locations, the growth of business parks needs to be found in the existing areas.

It is not surprising that the findings of this study support the vision of the NZKG, as they prefer more integration of the port within the urban fabric, because of the increasing shortages of industrial sights.

Previous migration

A lot of the companies that are currently located in the Haven-Stad came from the Eastern Docklands area back in 1985-1990. Most of them were given a leasehold contract of 50 years, till 2035-2040 (Pliakis, 2019). This again happened later in the industrial parks located in the Bongerd and the Buiksloterham, where a lot of companies moved to the current Cornelis Douwes parks (Transformatiestrategie, 2013). Interestingly, the first negotiations between the municipality and the port companies on relocation from Haven-Stad area to the newly developed Afrikahaven have failed, due to the HIPCs demanding new facility's that should be constructed on behalf of the municipality. This is also affected by the previous migration, as it lowers the chance of a new move drastically (Lloyd & Dicken, 1977).

The Relationship

With the development plan of the Haven-Stad, the relationship between the port companies, the port authority and the municipality has been put on an edge. This is because the development cuts an important piece of the management area of the Port Company, who currently has grown to the 4th largest port of Europe (Port Company Amsterdam, 2019). The appointed area where the HIPCs might be relocated to, is needed by the port to hold on to their growth and being able to provide the right services towards the existing port companies (Port Company Amsterdam, 2017).

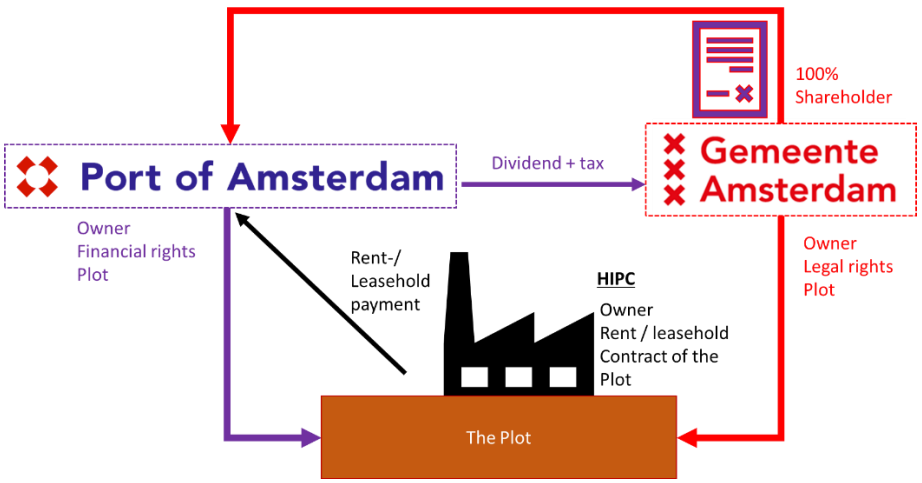
Challenges

The matters mentioned previously lead towards the challenges that come with the Haven-Stad development plan. The lack of alternative locations causes the question to arise if the westward movement will remain in the future. The retainment of the value of the HIPCs within the municipality, might turn out to be more difficult due to land scarcity. These challenges are dealt in beneficial way for both the port as well as the municipality in a third level mixed-use development. This is characterized by overcoming the regulatory barriers (Korthals Altes & Tambach, 2008). These challenges and impacts are in fact what the t4 of the spatial model of Wiegmans and Louw (2011) is about.

4.1.5 ACTORS

There are many stakeholders involved in the development process of the Haven-Stad. From the government perspective there are four different levels: supra-national, national, regional and the local governments. They are represented by the National government, the Province of North Holland, the Metropolitan Region Members consisting of Metropolitan Region Amsterdam (MRA), North Sea Canal Area (NZKG) and the municipality of Amsterdam (Adams & Tiesdell, 2013). The last is the initiator and most dominant one, which is why, from a government perspective, the focus has been set on the municipality of Amsterdam. There are also public, private and non-profit organizations that are in the project area and or will be affected in some way by the development plans. These are the Port Company Amsterdam, the port users, the company association ORAM and a broad group of investors and real estate developers.

The aim of this research is to understand the current approach of HIPCs in industrial harbor redevelopment projects and how their values can become part of the mixed-use redevelopment strategy. Therefore, three stakeholders will be described here, which are: the municipality of Amsterdam, the Port Company Amsterdam and the heavy industrial port companies. The relationship between them is visualized in figure 10.

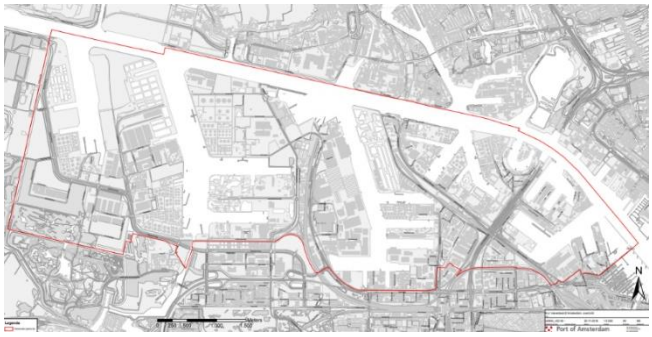


[10] STAKEHOLDER RELATIONSHIP, OWN ILLUSTRATION.

MUNICIPALITY OF AMSTERDAM

The municipality is responsible for the initiating and steering of the development plans. From the perspective of ownership, the area is divided into two parts. The municipality has **full ownership** of the plots located in the Cornelis Douwes parks. For the remaining plots, the ownership is divided between them and the Port Company Amsterdam. With the municipality holding **the legal rights** and the Port Company Amsterdam **the financial rights**.

PORT COMPANY AMSTERDAM



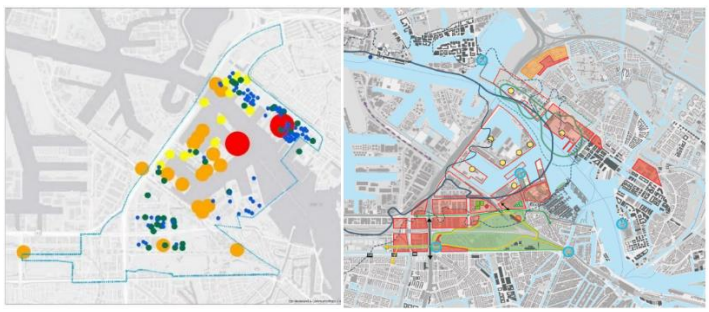
The Port Company Amsterdam is established back in 2013 and possess **the financial ownership** of the industrial areas located in Westpoort, Amsterdam, see figure 11. Nonetheless, the municipality of Amsterdam owns 100% of the shares of Port Company Amsterdam.

[11] MANAGEMENT-AREA OF THE PORT COMPANY AMSTRDAM, SOURCE (PORT COMPANY AMSTERDAM, N.D.)

The development of the 'Haven-Stad' is a major risk for the port's long-term goals (Port of Amsterdam, 2017). The development plan has three important negative effects on the port. First, there is the reduction of area that is needed to exploit and generate revenue. This revenue is mainly generated through rent and leasehold contracts with the port companies. Second, there is the suggestion to use the Houtrakpolder as an alternative location for the relocation of the port companies. That area is currently been held by the Port Company Amsterdam for their growth (Port of Amsterdam, 2015). As land is a key element in attraction, settlement and growth of current and future port companies, especially the ones active in the biobased, circular and yacht building industry (Port Company Amsterdam, n.d.). Third, the redevelopment of the industrial areas cannot happen without cleaning the soil first. As they are the financial owner of the plots, most cleaning will fall under their cost. This is also included in the annual figure of the company, where they had to reduce the profit with €22.5M due to cleaning costs (Port Company Amsterdam, 2019). To be more precisely, this was only to bring the soil quality level back to 'industry'.

HEAVY INDUSTRIAL PORT COMPANY HIPC

The current project area contains up to 1400 companies, offering an astonishing amount of 34.000 jobs (Projectgroep Haven-Stad, 2013). These companies include multinationals such as Cargill and Saatchi & Saatchi, offices and all sorts of sectors; this diversity is essential in the development of mixed-use areas (Grant, 2002). Not all of them own the plots, and most having signed a leasehold agreement with the Harbor Company Amsterdam (EI-2, 2019).



[12] LEFT: THE HIPCS AND THEIR LOCATION OVER THE WHOLE PROJECT AREA (MER, 2017). INCREASE OF SIZE FOLLOWS INCREASE IN ENVIRONMENTAL CATEGORY, STARTING WITH 3.1 FOLLOWED BY 3.2, 4.1, 4.2, 5.1.

[13] RIGHT: THE YELLOW DOTS INDICATE THE POSITION OF THE 'TO BE RELOCATED HIPC' (MUNICIPALITY OF AMSTERDAM, 2013)

Figure 12 shows all the companies with a score >3.1 on the environment output scale. Figure 12 shows the companies that do not match with the redevelopment plans, according to the environmental classification (MER, 2013). The yellow, orange & red companies can be further divided into different groups. The municipality has identified eight HIPCs, of whom the relocation will have a major impact on the environmental zone of the area. These are marked by the yellow dots in figure 13. In general, most of the HIPCs are in mainly three parts of the Haven-Stad area, which are: Cornelis Douwes parks, Coen and Vlot harbor and Minerva harbor. Because of that, a more detailed description of these areas will be given in paragraph 4.5.

COVENANT HOUTHAVEN/NDSM-WERF 22-01-2009

The transformation strategy that was published back in 2013, was the first announcement of the municipality in which they explained that the targeted area for redevelopment was located inside the highway ring A10. Until now there have been 4 major appointments made between the government and the companies. These are the Harbor agreement of April 1st 2013, the transformation agreement of April 1st 2013, the Covenant Houthaven / NDSM-werf of January 22nd 2009 and the Coalition agreement 2014-2018. The most important one is the Covenant, which has major implications on the current Haven-Stad development plan (Municipality of Amsterdam, 2017). This will be explained below, as for the other agreements, they can be found in appendix VI.

The "Covenant Houthaven/NDSM-Werf" is the deal made between different districts of Amsterdam, the 'Centrale Stad', the Province of North Holland and the 3 companies located in the Coen and Vlot harbor: Eggerding B.V., Cargill B.V. and ICL Fertilizers Europe C.V. (Municipality of Amsterdam, 2017a). These companies were firmly resisting the development plans for the NDSM-Houtwerf area of the municipality. Both settled for a ceasefire, if the municipality does not develop any new plans that would put pressure on their legal nuisance zone. It contained the decision that the housing plans that were proposed besides the ones for Houthavens and NDSM-Houtwerf will fall under the "pas op de plaats" rule. What means that these plans will be put into process for the first 15 years (until January 2024) and could only be realized after 20 years (January 2029) (Municipality of Amsterdam, 2017a). Therefore, the municipality treats this Covenant as a major bottleneck in the Haven-Stad development plan (EI-2, 2019).

The companies included in the Covenant 2009 are all located in the Port Company's management area. This agreement included a financial compensation for the improvement of the reduction of environmental nuisance. The municipality reserved €9 million for that and covered the legal costs Cargill made in the past 20 years, which was €225.000. This deal made it possible to turn the zoning plan of the Houthavens irrevocable on April 13th 2010 (Pliakis, 2019). Interestingly, after signing this deal, the municipality extended the leasehold contract of ICL Fertilizers with 25 years which ends in 2034 instead of the usual 50 years. Not to mention that ICL has been a stable part of the Coen and Vlot harbor for more than 100 years (Municipality of Amsterdam, 2013). With this move the municipality keeps the upper hand in the decision-making and causing the firm to have more investment risks.

[14] THE 'PAS OP DE PLAATS' AREA IN THE HAVEN-STAD (MUNICIPALITY OF AMSTERDAM, 2017)

THE HIPC ROLE IN THE *MAKING OF* THE DEVELOPMENT PLAN

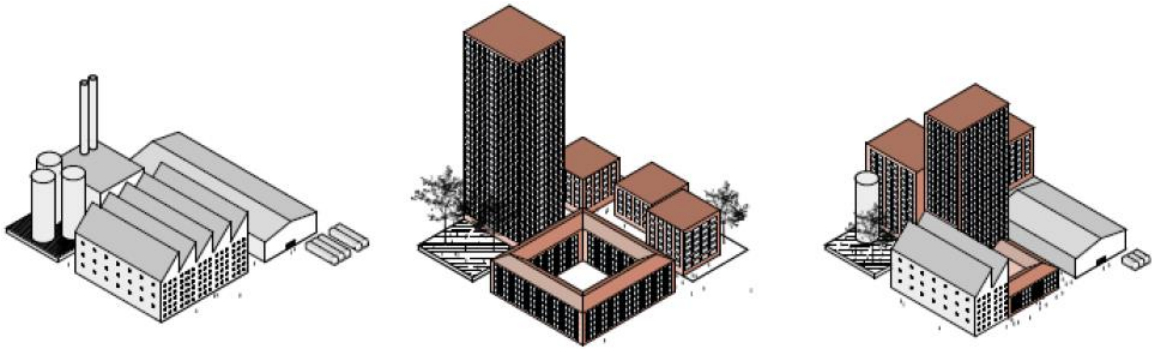
The Haven-Stad redevelopment plan follows the municipality's planning procedure known as the Plaberum. The role of the HIPCs in this process is quite minimal, as they are not involved in the development of the plan from the start. They were asked about their opinion at after the announcement of the development strategy, which were then collected in the formal document called "Nota van beantwoording". Here the municipality provided the answers to the asked questions in the opinions of the HIPCs.

4.2 MIXED-USE

The general aim is to realize four different kinds of areas in the Haven-Stad (Municipality of Amsterdam, 2017). Three of them are a typical work-living area; the Creative Neighborhood, Productive Neighborhood and the City-Streets. The fourth one, the Multi Modal Node, is an ideal office area. the various types are explained below.

Creative Neighborhood | Basically the creative part will be an extension of the inner-city environment: a residential area with small scale businesses ranging from 100 to 5.000 m2. This will be used by different office concepts coming from the creative knowledge and innovation economy. Here, the spatial mix will be on the building and block level according to the vertical and horizontal dimension. In this case, the shared premise and time dimension might also function very well (Hoppenbrouwer and Louw, 2005).

Productive Neighborhood | The goal of this neighborhood is to stimulate new 'economic DNA'. The average space per employee is much larger, around 30 to 50 m2 and will mostly be situated on ground level. Examples are craft, small scale productive services and town attendant services. Most important feature of these companies is that they will not exceed the environmental category of 3.1. Figure 15 shows how this spatially could look like. Some of the functions, such as the light industry, are quite specific in their spatial demand, causing the time and shared premise dimension to be less feasible for it. Therefore, this is more accustomed for block level of the horizontal dimension (Hoppenbrouwer and Louw, 2005).

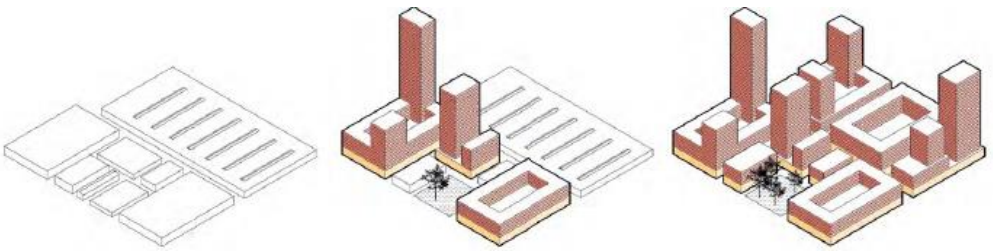


[15] THE REALIZATION OF MIXED-USE IN THE HORIZONTAL DIMENSION (MER, 2017)

Figure 15 shows on the left the current situation in the Haven-Stad area, where different sorts of *industrial* companies are located. The core of the development strategy is to mix the dwellings as they are known in the city, the middle picture in the figure, with some of the existing companies. The concession between the city and port companies is seen in the last part of the figure.

City-Streets | This area is a combination of a heavy traffic area with a lot of economic activities. Such as shops, companies, offices, catering industry and hotels. These areas are important for the social and economic value of the area. This is where various functions come together in one plot and more focused on the permeability of the area. Basically, this affects all three spatial levels: the building, the block and the district of the various dimensions, see figure 16.

Multi Modal Node | This type of area is characterized by their accessibility by all sorts of transportation. Turning them as an ideal location for offices. This area is meant to attract all sorts of office related companies. Therefore, it is ideal for the shared premise as well as the vertical dimension. As it has a high impact on the building level of the area (Hoppenbrouwer and Louw, 2005).



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[16] THE TRANSFORMATION FROM INDUSTRIAL AREA TO A HIGH-DENSITY MIXED-USE AREA IN THE VERTICAL DIMENSION (MUNICIPALITY OF AMSTERDAM, 2017).

As shown in figure above, the current spatial development in the HS region consist mostly of large warehouses. Eventually whole of HS is aimed for to be redeveloped into a highly work-living area. where the city is basically built further upon the existing industrial lots (Municipality of Amsterdam, 2017).

4.3 VALUE

4.3.1 WHAT ARE THE AIMED VALUES?

The Haven-Stad development plan aims to achieve various values that can be categorized according to the mixed-use values, which are social, economy and environmental (Grant, 2002).

SOCIAL

I-Mobility shift

Within a compact city it is of utmost importance that the inhabitants can move efficiently through the area. This asks for fine-grained bicycle and pedestrian roads, as well as enough alternative choices in public transport (Municipality of Amsterdam, 2017).

II-Image

The area of the Haven-Stad has the potential to be an authentic part of the city, due to its location surrounded by the IJ-canal and the industrial history. When you combine this with the aim of 70.000 dwellings, it is imaginable that you'll end up with rough, tough building typology.

III-Livability of the plinth

The height of the *plinth has been set between 8 and 10 meters*. This is in order to increase the livability of the building plinth, and with respect to maintaining as much as possible of the currently seated companies (Municipality of Amsterdam, 2017). It also helps increase the visibility, access and loading & unloading. The production companies, schools, shops, cafés, restaurants are usually located on the ground floor level

IV-Green in the Haven-Stad

Within Haven-Stad, the green areas will become more important, especially the expansion of the Westerpark and the current Noorder IJ-plas (Municipality of Amsterdam, 2017). But also, creative *green* ideas such as soccer fields on the rooftops of parking facilities will be implemented in the area.

ECONOMY

I-High urban density

The development of the Haven-Stad will happen according to the compact city approach, where 70.000 dwellings and 58.000 jobs will be realized in the current area of 650 acres. The mixed-use principles are the key factors behind this development. This is characterized by a broad and diverse sort of functions and services and the retainment of as many jobs/companies as possible (Municipality of Amsterdam, 2017).

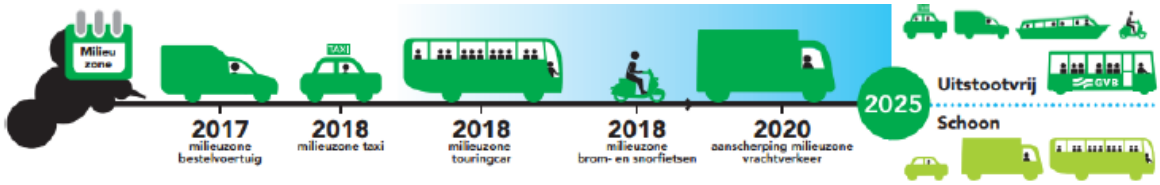
II-Diversity of Business

The goal is set to attract a diversity of business, with the focus on small scale enterprises, 100-5000m^2 (Municipality of Amsterdam, 2017). The goal is to increase the amount of enterprises working in the creative, knowledge and innovation sector. Also *small-scale productive services, urban care services and craft businesses*. In Haven-Stad there will be room for the existing and new production companies that fit within this profile. Some of the businesses are depended on the supply and removal of goods, and others less. In this way a mix of space-extensive and space-intensive employment is created in HS (Municipality of Amsterdam, 2017).

ENVIRONMENTAL

I-Sustainability

The development of Haven-Stad must deal with different challenges regarding sustainability. Such as *the water management*. But also the *use of sustainable energy*, which for example is produced by the Waste Energy Company of Amsterdam and others, as well as the Heat-and-Cold storage within the river IJ. For the development of the open spaces and the construction, the goal is to make use of at least *50% of the construction elements* (Municipality of Amsterdam, 2016).



[17] MOVING TOWARDS AN EMISSION-FREE CITY. THE CITY'S AMBITION TO REDUCE THE ENVIRONMENTAL ZONE (MUNICIPALITY OF AMSTERDAM, 2016)

- 75% CO_2 reduction compared to 2016, see figure 17.
- Mobility should be emission-free by 2029*
- Construction elements made 50% of reused materials
- 65% separation of domestic waste
- Improved water management in the areas.

II-Environmental

Because of the current industrial function of the area, ***noise and smell*** are expected to have the biggest impact on the development plans (Municipality of Amsterdam, 2016). For that reason, car usage in the Haven-Stad is supposed to be minimal and industrial noise is taken care of at the source of it. If necessary, the company involved will be moved. For residential construction, the focus will be on (urban) architectural measures, such as deaf facades and closed building blocks. But also the use of innovative legislation. This means that higher noise standards are possible, but only if there are compensatory measures.

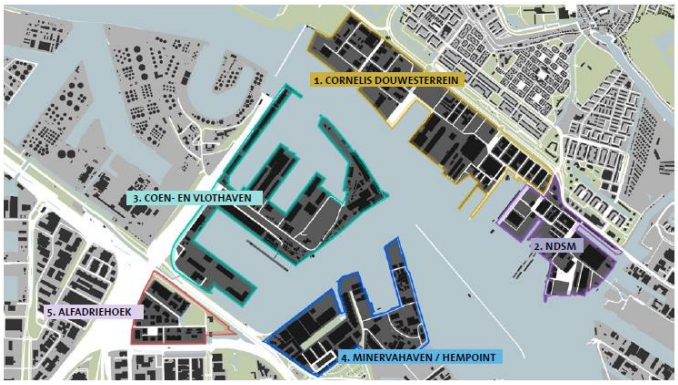
4.4 RELOCATION

Missing relocation strategy

The Haven-Stad development does not mention an explicit strategy that explains how the HICPs will be relocated. However, two things are mentioned. Firstly there is a possible alternative location just outside the municipality's border, the Houtrakpolder (Municipality of Amsterdam, 2017; 2013). It is located around 8.5km towards the west. Secondly, there is a lack of the municipality's financial ability to cover the estimated amount of money needed to relocate the HIPCs, which is around €900M (Municipality of Amsterdam, 2013). The development strategy also identified 8 HIPCs that if relocated, will have a huge impact on the environmental wall of the area (Municipality of Amsterdam, 2017). One of the eight appointed HIPCs made a calculation of the possible rebuild costs, which lies somewhere between €80-100M (Pliakis, 2019).

4.5 SUB-AREAS

Analysis of the three main areas



[18] OVERVIEW OF THE PARTS IN THE HAVEN-STAD THAT FALL UNDER THE 'PAS OP DE PLAATS' RULE (DECISIO & URHAHN, 2015)

Table 13 and 14 shows the analysis of the three sub-areas: Coen- and Vlothaven, Minerva harbor/Hempoint & Cornelis Douwes parks are given (figure 18). The analysis is focused on various aspects linked to the mixed-use values, such as the spatial quality, environment, socio-economic aspects. But also factors that can affect the relocation strategy in a negative way.

TABLE 13 ANALYSIS OF THREE HAVEN-STAD AREAS, BASED ON (DE KORT & BEEKMANS, 2018; DECISION & URHAHN, 2015; MUNICIPALITY OF AMSTERDAM, 2013; STEC GROUP, 2007) OWN ILLUSTRATION.

Subpart	Coen and Vlot harbor	Minerva harbor / Hempoint	C. Douwes parks 0-1 & 2-3
DEVELOPMENT STRATEGY			
Leasehold under management of PORT COMPANY AMSTERDAM / MUNICIPALITY OF AMSTERDAM	Port Company Amsterdam	Port Company Amsterdam	Municipality of Amsterdam
Phase	4	2 MH-North | 3 MH-South	3 CD 0-1 | 2 CD 2-3
'Pas-op-de-plaats' active?	Yes	Yes	Yes
Leasehold vs rent	+/- 50% | 50%	~100% Leasehold	Area is not part of the management area of the Port Company Amsterdam.
QUALITY [*SPATIAL*]			
Character	Harbor and industry	Urban work area	Business park + Wharf
Dominant spatial character Warehouse/ business space vs office space	90% warehouse/business space 10% office space	90% warehouse/business space 10% office space	60% warehouse/business space 40% office space
ENVIRONMENT			
Area Main function	Harbor and industry	Urban Work area	Business park
E-Cat >3.1	90%	45%	75%
E-Cat according to zoning plan	5.1	4.2	5.2
Main Sector	(Food) industry	Creative industry	Maritime Maintenance
	Wet Logistics	Construction companies	Logistics
	Cruise		Trade (import/export)
			Industry
SOCIO-ECONOMY			
Total jobs (2014)	1200	2500	4100
Job/acre	12	12 (Minerva harbor) | 60 (Hempoint)	20
Jobs Harbor related | not harbor related	69% | 31%	5% | 95%	7% | 93%
Added value (€) per Area per year	€120M	€120M Minerva harbor | €240M Hempoint	€130M
Added value (€) per job per year	€112.500	€112.500 Minerva harbor | €75.000 Hempoint	€70.000
Life phase of the area* [Future Value]	Phase I	Phase II begin	Phase I
NE potential**	Basic	Basic	Basic

FACTORS AFFECTING THE RELOCATION STRATEGY			
To be relocated HIPC with large impact on the development process.	Yes, five of them: ICL – Eggerding – Bunge – IGMA - BIC	Yes, one: RENEWI	Yes, two: Damen Shiprepair B.V. & MEBIN
Relocation / Rebuild cost	ICL: €80-100M		
Financial feasibility 2013	Exclusive Coen and Vlot harbor vary from -€254 M to +€22 M euros Inclusive Coen and Vlot harbor vary from -€1.444 M to -€294 M euros		
Previous relocation & General Info	• Some huge multinationals are in the area, such as Cargill. • In general, the area contains a lot of HIPCs.	• Minerva harbor has been attracted to many companies active in the creative industry.	• A lot of companies that were in the business parks the Bongerd and the Buiksloterham mover to this part. • In general, a lot of HIPCs are located here.

***Explanation of Life phase of the business park**

TABLE 14 EXPLANATION OF THE LIFE PHASES OF THE BUSINESS PARKS, OWN ILLUSTRATION.

Phase	Explanation
Phase I	High (economic) value. | No / hardly any aging. | Only minor interventions such as face lift and (sustainable) management.
Phase II	Aging noticeable. Interventions range from revitalization to major revitalizations. NE potential can be used for prioritization.
Phase III	Heavily outdated. Very serious interventions (re-profiling) needed to maintain function. Function change and transformation are for some locations realistic.

**** NE potential: is not a judgement on the quality nor the economic interest of an area. Many business parks in the MRA are of basic level in terms of NE potential. These areas are very essential as a driver of the regional economy and are expected to continue to be so in the future (possibly with restructuring measures). Not all sites need circular to become a high-tech manufacturing industry or to accommodate companies in higher environmental categories. The NE potential should therefore be seen primarily as a supplement to the analysis of aging and restructuring. The analysis shows which areas are the most interesting to take steps towards the next economy (De Kort and Beekmans, 2018).**

The three main areas have some differences and commonalities. For example, the area that lies in the northern part of the IJ-river falls directly under the management of the municipality, compared to the areas south of the IJ-river. Those are under the management of the Port Company Amsterdam. From the spatial perspective, the norther part is where most businesses are located. All the three locations consist of a mix between warehouses, business space and some office spaces. But the northern part has the unique sight of the Damen Shiprepair B.V. wharf, which is quite impressive, a real eye catcher and a boost for the image of the area. From the environmental perspective, less than half of the Minerva harbor is occupied by the HIPCs. While 75% of the northern part and 90% of the Coen- and Vlothaven are occupied by HIPCs. Looking at the socio-economic aspect of these parts, all three of them are functioning very well. It becomes clear that the harbor related jobs have a much higher added value compared to the office related jobs. The difference is that the amount of harbor jobs is much lower.

Impact on development and relocation strategy Considering the factors that have a big impact on the development and the relocation strategy. All eight of the *to be relocated* marked HIPCs by the municipality area are in the three sub-areas. With the Coen and Vlothaven containing most of them, five in total. Amongst them resides also a large multinational. A lot of HIPCs are in the Cornelis Douwes parks that previously migrated from other redeveloped harbor areas such as the Bongerd and Buiksloterham. These aspects have the potential to work against the development as *previous migration* is known to lower the chance of movement of a firm (Lloyd & Dickens, 1977) and the multinationality increases the chance of relocating totally elsewhere, across the border. This is due to the two main relocation drivers of multinationals, which are the degree of

internationalization and the decrease of attractiveness of the home base country. With the development and the lack of a proper relocation strategy, the attractiveness of the location, which is not the home base country but still has the same effect on the company, will be negatively affected (Baaij et al, 2012). Causing an increased chance of the multinational to relocate totally elsewhere, with a huge loss of value for the municipality. Especially when it becomes clear that multinationals have a positive impact in the increase in incentives in the investment of R&D (Castellani et al., 2016). As well as the attraction of smaller innovative companies, which is supportive to the municipality's ambition to increase the knowledge economy (Municipality of Amsterdam, 2017).

4.6 CONCLUSION

The Haven-Stad development plan aims for a **mixed-use redevelopment plan**, with the potential retainment of the port companies up to **level 3.1 environmental class**. The HIPCs are excluded due to environmental barriers, therefore, the development is more suitable to be classified as a second level mixed-use development (Grant, 2002). The problem of this development plan are twofold. First, there is the absence of a proper relocation strategy, which is essential in achieving the aimed level of mixed-use as well as the ambition behind the development plan. Second, there is the lack of alternative locations within the border of the municipality, causing the municipality to risk the growth of the port over their own growth. This is the conflict scenario around the availability of land and if such urban development projects should even take place, which is represented by the t_4 in the spatial model of Wiegmans and Louw (2011). Certain matters and their impact on the relocation decision-making of the HIPCs are not included, such as the **previous migration** of HIPCs in the Cornelis Douwes parks, or the **multinationality** of some HIPCs. These are more likely to work against the development in the first case but would increase the chance of relocating totally elsewhere in the latter. Their relocation will move their value with them as well as it will cause a negative impact on the socio-economic situation of the municipality.

Therefore, the suggestion is to aim for a third level of mixed-use development, where the regulatory barriers are tried to overcome. In this case, by focusing on the *actual* environmental output of the HIPC. Or to develop a sound relocation strategy for the HIPCs.

PART 2 RESULTS

This part describes the findings of the empirical results more in detail. The results come from the conducted **explorative** and **semi-structured** interviews. The main aspects that are described are related to the theoretical framework in the **conclusion** part of this chapter.

4.7 EXPLORATIVE INTERVIEW

Three stakeholders are approached to be interviewed in an explorative way, these are: the municipality of Amsterdam, the Port Company Amsterdam and ORAM. The municipality functions as the initiator of the development plan. The Port Company Amsterdam functions as a bridge between the port companies and the municipality. The last mentioned is a network association for all the port companies. The purpose of these conducted interviews was to enhance the understanding of the process behind the Haven-Stad development plan and the impact it had on the HIPCs. The specific individuals within the three organizations that were approached are listed in table 15.

TABLE 15 LIST OF (EXPLORATIVE) INTERVIEWEES. OWN ILLUSTRATION.

#	Organization	Name	Function	Source in text
1	The Port Company Amsterdam	[redacted]	The current Haven-Stad project manager	(EI-1, 2019)
2	The municipality of Amsterdam	[redacted]	The current Haven-Stad project manager	(EI-2, 2019)
3	ORAM	[redacted]	Spatial Advisor	(EI-3, 2019)

THE PORT COMPANY AMSTERDAM (EI-1, 2019)

Process development plan

The Port Company Amsterdam was involved with the Haven-Stad development plan from the start. During the interview, they emphasized two things (EI-1, 2019) . Firstly, the HIPCs located in the Coen and Vlothaven are considered as the main challenge in the Haven-Stad development plan. The Coen and Vlothaven is also the location where all the Covenant 2009 companies are located. The area size is around 75 acres. Secondly, the level of power that the current HIPCs hold due to their leasehold contracts, is much higher than anticipated. This is something that should not be underestimated, as some contracts end up in late 2050.

Suggestion research delimitation

The Port Company Amsterdam suggested to narrow the focus on the Agribulk related HIPCs that are residing in the Coen and Vlothaven, due to the immense size of the area and the specific location (the Coen and Vlothaven) of the main challenge (EI-1, 2019).

THE MUNICIPALITY OF AMSTERDAM (EI-2, 2019)

Process development plan

Back in 2013 the Council established the Haven-Stad development plan containing 9.000 dwellings, this was according to a non-mixed-use spatial program. After working on it, they found out that using the mixed-use principle, the number of dwellings could be much larger (EI-2, 2019). Their main motive to increase the number of dwellings was because of the current arched housing market. Also this could happen with retainment of the port companies that didn't have an environmental class higher than 3.1.

According to the municipality, the number of HIPCs that really need to be located directly at the water is quite small, which for example are the four big HIPCs: ICL, Eggerding, Gunge and Cargill. It is estimated that between

25 and 60 acres is available for the relocation of these HIPCs, which is in the Houtrakpolder and the Amerikahaven. But not all of that has a quay. These locations were under investigation for the possibilities. Nevertheless, the conclusion regarding the financial feasibility on the relocation of the HIPCs was that it is not feasible.

Covenant 2009

The main bottleneck in the execution abilities of the municipality is the Covenant 2009, which has set up a solid deadline stating that the development may only occur post 2029.

Negotiations

The first negotiations were started after the municipality shared their plan about building a bridge over the IJ. Because of this, the Passenger Terminal had to be relocated, which leads towards the Coen and Vlothaven to be appointed as a high potential location for relocation. Therefore, the HIPCs had to be relocated, which started the negotiations. These negotiations were attended by the representatives of the HIPCs and the project managers of the Port Company and the Municipality.

The past negotiations on the relocation of the HIPCs located at the Coen- and Vlothaven have failed. This was due to the high demands of the HIPCs. They desired new facilities to be built without them having to contribute financially to it. This is a totally different calculation compared to the actual book value of the company. Main reason for the municipality for not being able to finance this, is due to the planned metro line extension. This is necessary to establish the Haven-Stad development, but also the continuation of the new North-South metro line to the Airport, that is meant to relieve the western part of the train-network within the municipality of Amsterdam.

Shareholder complex

As the sole shareholder of the Port Company Amsterdam, it sometimes turns out to be quite a dilemma to work with the Port Company Amsterdam. At first, the company needs its freedom to operate as they wish while being facilitated by the municipality. Because, they are in fact a revenue stream of the municipality. But as the sole shareholder, the municipality also tries to steer the Port Company Amsterdam towards their own goals. Such as steering towards the relocation of the HIPCs in the Haven-Stad.

ORAM (EI-3, 2019)

Process development plan

The process is based on the Plaberum planning process, which is the traditional way of developing urban areas for the municipality of Amsterdam. This does not contain an approach for how to deal with the HIPCs, which is for example why some of the HIPCs were not involved in the Covenant 2009. Even when their existence did impact the project areas, they were still left aside.

Business chain

The HIPCs are currently approached as if they are a solo entity that can be easily replaced without enduring any damage during the relocation process. This proved the lack of understanding of the HIPCs that the municipality has. But in fact, the HIPCs have an entire ecosystem behind them, also known as the business chain (EI-3, 2019). Therefore, to think that a company is a sole player is incorrect. Trying to understand the HIPC, it is crucial to understand the business chain that they are part of and it is fundamentally needed in order to build the necessary trust for the upcoming negotiations. As it seems, that most HIPCs indicate that they are not trusting the municipality, due to them feeling to be pushed out of the area.

4.8 SEMI-STRUCTURED INTERVIEWS

This paragraph will describe the findings of the conducted semi-structured interviews, all the involved HIPCs are currently located in the Haven-Stad area. The process prior to the interviews, like the selection criteria for the HIPCs and the development of the interview protocol are all described in the method chapter, in the strategy paragraph.

Selection process

Tables 16 & 17 show the companies that are included in the research. During the interview with the Port Company Amsterdam, the suggestion was made to focus only on the HIPCs in the Agribulk-sector that are in the Coen and Vlothaven. This suggestion was a good start and would lead towards a better focus on a specific part of the area without altering the perspective of the research. In practice, it turned out to be more difficult than anticipated. Some companies would not respond and if they did, they would not cooperate, because of the sensitivity of this research. This led the focus to broaden on more areas and be more open towards other sectors within the HIPC. In the end, three main areas within Haven-Stad were included: Coen- and Vlothaven, Minerva harbor and Cornelis Douwes parks. These three areas were selected based on the area analysis of Haven-Stad, the leading factor was the huge amount of HIPCs located there.

Process

The first companies were contacted immediately after the development of the interview protocol. The first contact went through email, where the companies were informed about the research and asked if they were willing to take part in it. Most of them did not respond. The second round went by calling them by phone and asking them to participate.

During the days that the interviews were conducted, some of the neighborhood companies were visited and asked to participate in the research. In total 41 companies were contacted, resulting in 7 interviews plus three companies that answered questions by email. Resulting in a response rate of 24,4%, the overview of the companies is given in table 16. The selection of these HIPCs is based on the criteria mentioned earlier. The profile of the HIPCs is divided amongst the following two tables.

TABLE 16 OVERVIEW OF THE SELECTED COMPANIES, OWN ILLUSTRATION.

Source in text	HIPC's	Interview Executed	Questions answered	E-Class	Zone type	Project area*	Project Phase	RDM phase
(SI-1, 2019)	[redacted]	Yes	yes	4.2	C	MH	3 [>2029]	2
(SI-2, 2019)	[redacted]	Yes	Yes	4.2	C	CV	4 [>2040]	3
(SI-3, 2019)	[redacted]	Yes	Yes	4.2	C	CV	4 [>2040]	1 / 2
(SI-4, 2019)	[redacted]	Yes	Yes	5.3	C	CV	4 [>2040]	1
(SI-5, 2019)	[redacted]	Yes	Yes	>3.2	-	CV	4 [>2040]	1
(SI-6, 2019)	[redacted]	Yes	Yes	3.2	B	CD 2-3	2 [>2029]	1
(SI-7, 2019)	[redacted]	Yes	Yes	5.1	C	CD 2-3	2 [>2029]	1 / 2
(A-1, 2019)	[redacted]	No	Yes	5.3	B	CD 0-1	3 [>2029]	1
(A-2, 2019)	[redacted]	No	Yes	3.1	B	CD 0-1	3 [>2029]	1
(A-3, 2019)	[redacted]	No	Yes	-	-	CV	4 [>2040]	1

*explanation of the abbreviations: MH Mercurius harbor | CV Coen and Vlot harbor | CD Cornelis Douwes parks

TABLE 17 OVERVIEW OF THE HIPCS AND THEIR SECTOR, OWN ILLUSTRATION.

Source in text	HIPC's	Business info	Sector
(SI-1, 2019)	[redacted]	Waste recycling> waste to product company	Recycling
(SI-2, 2019)	[redacted]	Collecting and handling of Shipping waste	Recycling
(SI-3, 2019)	[redacted]	Concrete production, sustainable demolishment, soil cleaning & recycling	Construction
(SI-4, 2019)	[redacted]	Trans-shipment and storage of cargo; dry bulk, Agribulk & Ore	Trans-shipment
(SI-5, 2019)	[redacted]	Construction logistics	Logistics
(SI-6, 2019)	[redacted]	Production of food sauce	Production / Food
(SI-7, 2019)	[redacted]	Shipyard and repair of vessels	Ship Repair
(A-1, 2019)	[redacted]	Construction infrastructure and real estate. Site preparation. Preparation for housing. Logistics	Construction
(A-2, 2019)	[redacted]	Bakery of typical Northern American goods	Food
(A-3, 2019)	[redacted]	Creative production Company. Stage builders for festivals etc.	Construction

OUTPUT

PROCESS DEVELOPMENT PLAN

TABLE 18 RESPONSES REGARDING IMPACT & INVOLVEMENT, OWN ILLUSTRATION.

Question - Impact & Involvement	Response HIPCs
Not involved nor affected	1
Not involved but affected	7
Involved but not affected	1
Potential opportunities for the business in the involvement	3
Impact limits the investment capabilities	4
Want to be involved in the execution phase	4

Table 18 shows the responses to the questions that asked about the impact of the development plan and the involvement of the HIPC during the planning process. One of the HIPCs developed their own design of the specific area where they were located, without altering the designated program for the same area, see figure 19. More importantly, it included the coexistence of the HIPC (SI-7, 2019). They raised another issue, which was related to the distribution of the infrastructure. According to them, the challenge of the coexistence of the HIPCs in the area was linked to how the infrastructure was solved (SI-7, 2019).

They mentioned that they need the full 10m. height of their warehouse, and that they could have another function above it (SI-7, 2019). This could lead towards a mixed-use in the vertical dimension. **Four HIPCs** mentioned that they would consider to be part of the development of the Haven-Stad, during the execution phase. Due to their active role in the construction / recycling industry and their activities regarding circular economy.

[19] THE VISION FOR THE CORNELIS DOUWES PARKS 2-3 ACCORDING TO DAMEN SHIPREPAIR B.V. (SI-7, 2019)

TABLE 19 RESPONSES REGARDING FINANCIAL INCENTIVE, OWN ILLUSTRATION.

Question – Financial incentive	Response HIPCs
***Refusing** the actual book value*	All of them
Received an offer from private parties	1 HIPCs
• *The offer was more than the actual book value*	Yes
• *The offer included alternative location*	No
• *The offer(s) accepted*	None
• *The amount of offer(s) refused*	3
Willing to relocate	Only if must.

Table 19 shows the responses to the questions asked regarding the financial incentive. The HIPCs mentioned many reasons why they refused the actual book value. The relocation of the HIPCs will increase their operational costs, which is not included in the financial incentive when it is solely the actual book value. Such as the annual ground lease price, due to the new contract after relocation. Nor does it include the market value, the rebuild value or the relocation costs of the movement. A side notice, some of the HIPCs will increase their daily emission output, due to longer distances to current market. Alternative suggestion was made for the actual book value, such as the discount for the rent or annual ground lease of the new location.

One of the HIPCs received an offer from a private party, who made three different offerings. This included two different sale-and-lease back options and a much higher sum of money compared to the actual book value. The HIPC mentioned that the offers were much higher than the current book value. Still, they had to refuse the offers due to the absence of an alternative location. As the involved HIPC needs a location with direct access to water (the IJ). This is also an indication that the companies are more likely to be in the orientation phase of the relocation decision-making (Wiegmans and Louw, 2011). What's more, most HIPCs indicated that they do not see the need to relocate, or do not want to. As they are content with their current location. This is a sign that not only are they orientating, but they have not even decided that they will move out of the area, which is the first stage in the relocation (Pellenbargh et al., 2002). But if they are forced to move, then they would not have any choice, but do except a fair price in return. As for the locations mentioned as possible alternative location; the port will lose its flexibility to grow further when the HIPCs are going to be relocated to the Houtrakpolder and Amerikahaven (SI-4, 2019).

ECONOMY

TABLE 20 RESPONSES REGARDING EMPLOYMENT, OWN ILLUSTRATION.

Question - Employment	Response HIPCs
Micro size company [<10 employees]	3
Categorized as Small Company [<50 employees]	5
Categorized as an SMB Company [<250 employees]	1
Large company	1
Company part of a concern	1
Multinationality	1
Business chain	10
Market position	2

Table 20 shows the responses to the questions asked regarding the employment. All the HIPCs mentioned that they consist of a business chain, this varied from a few up to 250 companies. The companies within these chains are mostly located in the metropolitan region of Amsterdam, with a number in the municipality. One of the companies mentioned to be part of a large concern and another one that they are an international player. One of the HIPCs stated to be a mid-size company but was still generating a couple of million euros each year. The

three micro-size companies had another thing in common, which was their innovation and flexibility. These HIPCs represent a variety of sectors such as: recycling, construction, transshipment, logistics food and wharf (ship repair), which is essential for the development of mixed-use areas (Grant, 2002). The amount of people employed by them varied from a few up to 750. Most of the employees were male and the bulk of them was between 35-55 years old.

TABLE 21 RESPONSES REGARDING GROWTH, OWN ILLUSTRATION.

Question - Growth	Response HIPCs
Growth opportunities	9
• *At current location*	7
• *With the aid of the municipality*	6
• *Through lack of interference of the municipality*	3
Relocation caused by growth	1

Table 21 shows the responses to the questions asked regarding the growth. Most HIPCs mention to have enough reasons to grow their business in the coming years at the current location. From growth perspective, it would mean that they will not have to relocate, which will affect their relocation decision to remain in the area (Pellenbargh, 2005). Some HIPCs mentioned that the municipality could be of help in their process of growing further. Some mentioned that the law is prohibiting to exceed a certain percentage of recycled concrete in the development of concrete. Therefore, it is impossible for example to develop 100% recycled concrete. Others mentioned that improving the infrastructure would already increase the business. Others suggested to invest in specific education, for example maritime technique. The other 3 said the that the municipality will not be of help. One company mentioned that the municipality is functioning like an obstacle, when it comes to growth, due to all the restrictions. Basically, all these measures have one thing in common and that is that they are all related to the policy of the municipality. This shows that the policy as an instrument has the potential not only to push but also to pull the companies into the region. One of the HIPCs did mention that they **will move out of the area**, due to the absence of space to increase their business. This is in line with not being able to grow, as being the most important push factor for companies (Pellenbargh, 2005). They had 2.000m2 and are moving out to another with 7.000m2. They signed the contract to leave the area. The main reason was that the current location was too small to be useful for their growth ambitions.

SOCIAL

TABLE 22 RESPONSES REGARDING SOCIAL ASPECTS, OWN ILLUSTRATION.

Question – Social: Background employees	Response
Employs lower educated people	8
Supporting social initiatives	3
Acknowledge learning facility	3

Table 22 shows the responses to the questions asked regarding the social aspects. It appears that the HIPCs are a significant employer for people from the lower social class and the ones that had a low education. That does not necessarily mean that they do not also employ the higher educated, but it is more that the majority falls in the first category. The second question was related to the social initiatives that are being supported by the HIPCs, some of them were associated with JINC which is an organization that connects children from the lower social class to the various sorts of sectors. Other HIPCs mentioned to support and invest in startup initiatives. Others were helping primary schools with lunch meals. Three of the HIPCs were an acknowledged learning facility for students. These aspects indicate that the HIPCs contain socio-economic value, that is in line with mixed-use values (Coupland, 1997).

ENVIRONMENT

TABLE 23 RESPONSES REGARDING INNOVATION, OWN ILLUSTRATION.

Question - Innovation	Response
Invest in the company	9
• *Zero emission*	50%
• *Increase efficiency*	10%
• *Confidence and knowledge to decrease Environmental class to 3.1*	2
Factors affecting investment	Return period | Government legislation

Table 23 shows the responses to the questions asked regarding innovation. One of the HIPCs did not answer the first question, which is why there are only 9 responses. Overall, the companies must continue to invest in their daily operations to remain active and fit in order to achieve their ambitions, this goes for all the HIPCs. Most of these investments were pushed by government policy, as environmental restrictions. This led towards investments focused on zero emissions and improving the company's efficiency. Surprisingly, two HIPCs mentioned that they do possess the knowledge and are confident in being able to reduce their environmental class to the level where they could easily **coexist** with vulnerable functions nearby. This is essential in overcoming regulatory barriers and thus developing a third level mixed-use area (Grant, 2002). But most of them demanded a certain **return period** for that investment, which in turn means that the government must extend their rent or leasehold contract. The HIPCs established two main factors that have a huge effect on their investment strategy: the **return period** and **governmental policy**. These legislations were sometimes coming from the European government or a scale higher, the global market.

TABLE 24 RESPONSES REGARDING SPATIAL ASPECTS, OWN ILLUSTRATION.

Question – Spatial awareness & environmental permit	Response HIPCs
Represents a revenue producing use	10
Mixing with residential functions	2
• *Possible on shared dimension*	2
• *Possible on vertical dimension*	4
• *Possible in horizontal dimension*	10
• *Possible in time dimension*	0
Environmental output of actual work exceeds permit	0

Table 24 shows the responses to the questions asked regarding the spatial aspects. All the HIPCs are well functioning and revenue producing uses, which is essential for the mixed-use development (Grant, 2002). These companies were then asked how they see themselves in the current situation being mixed. Most of the HIPCs are aware that their business is quite a challenge to be mixed with residential function on a building level. Still, two HIPCs mentioned that they could share the same building with residential function, these were mostly the food related companies. Some of the industrial companies mentioned that they could share the building, but the functions should be placed on top of each other. This was because they believed that their actual environmental output, was much lower compared to their environmental permit. This is an indication of the potential vertical mix of the segregated functions, in the same building (Grant, 2002).The most mixed-use possibilities are still located in the horizontal dimension, were the higher scale of the area becomes more favorable for these companies, such as the block and district level.

The environmental permit is applied for before the settlement of the company, which is why one of the interviewed HIPCs had a much higher (5.3) class compared to their actual work. This was because the HIPC intended at first to step into the waste collection market, but never ended up in there. Another interesting fact, some of the HIPCs have their environmental class regulated by law, as their specific sector is determined by the

zoning plan. One of the HIPCs managed to construct one of their facilities conform the latest technology, which resulted in an environmental class of 3.1. But still they wondered if people want to live next to a company where trucks are continuously moving in and out. Another HIPC mentioned that the challenge of co-existence lies in how the **infrastructure** is being solved. This issue seems to be the main challenge after breaking the regulatory barriers of integrating segregated uses.

QUALITY

TABLE 25 RESPONSES REGARDING SETTLEMENT FACTORS, OWN ILLUSTRATION.

Question – Settlement factors	**Response HIPCs**
Property	
• *Regular building*	6
• *Specialized building*	1
• *Specific features*	1; air extraction installation
Location	
• *Accessibility*	9
• *Infrastructure*	9
• *Quay*	7
• *Nearby inner city*	3

Table 25 shows the responses to the questions asked regarding the settlement factors. Interestingly, most of the HIPCs were content with a regular building. From their perspective it is quite understandable, as they value the space for the machinery more than the aesthetics of the plot. For some sectors though, a specialized building is needed. In this case, it considered one of the food related companies, that was using a special lay-out of their building and high-tech air-extraction installation systems. This eliminates the mixed-use dimension of time and puts quite a limitation on the shared premise dimension. The HIPCs sounded quite alike when they were asked about the location. Most of them had the accessibility and infrastructure of the location as top priority. This did not stop on land, as 7 of the HIPCs mentioned that they want to remain accessible over water as well. Three of them mentioned that they want to remain in the harbor and near the city. Some of them also mentioned other locational factors, such as the availability of a waterway and one of them emphasized that they do not want to lose their right to produce noise.

TABLE 26 RESPONSES REGARDING FOOTLOOSE, OWN ILLUSTRATION.

Question - Footloose	**Response HIPCs**
Dependent on specific location for the business	4
Dependent on the municipality of Amsterdam	3

Table 26 shows the responses to the questions asked regarding footloose. The difference between the two questions is whether the municipality of Amsterdam is considered part of the market of the HIPC or not. In this case, seven of the HIPCs mentioned that this is not the case for them. The dependency on the specific location was explained by the companies as the preference to be in the middle of the North Sea Canal Area. This is their working area. The dependency is not always linked to the location or closeness to the inner city, in one case, the HIPC mentioned to be dependent on some of the large HIPCs located in the Haven-Stad area. They are more like a service provider towards the top HIPCs in the location. One of the HIPCs is an international player, for them the specific location was clearly linked to the image, marketing and recognizability of the municipality of Amsterdam. It is just another of their facilities that could be placed easily in another big city.

4.9 SUMMARY RESULTS

Description of the general approach

The current HIPC approach in the Haven-Stad development process has led **to failed negotiations** between the municipality and the HIPCs. The essential aspect of the failings of the negotiations is caused by the **mismatch** between the **demands of the HIPCs** and the **supply of the municipality**. This supply is caused by the **lack of alternative locations** and **financial capabilities** of the municipality. They offered the HIPCs the actual book value which has been refused. This is because the HIPCs are focused on the **available square meters** and **alternative locations** instead of the financial offers. That is why the HIPCs are more likely to be in the orientation phase of the relocation decision-making process (Wiegmans and Louw, 2011). For them the characteristics and available size of the plots are more important than financial incentives, as the latter is more linked to the third stage of the relocation decision-making process. One of the HIPCs mentioned that for relocation they really want a similar plot in size, with a quay, due to their future strategy. The same goes for the other financial offers made by private parties, those have also been refused. The issue with the *actual* book value is its incomparability to the actual relocation costs, the rebuild costs, the market value costs, nor does it include the much higher operational costs of the company.

The identification of the HIPCs by the municipality is according to their **environmental permit**. The permit is established prior to the settlement of the company. Some of the sectors involved are put in environmental classes that are determined by law, which does not necessarily consider evolved ways of working. Therefore, the environmental class can **vary** from the **actual environmental output** of the company. There are two reasons. First, the company could have implemented new ways of working using high-end technology. Second, the company could have had the intention to start a business in a high environmental category, but never ended up doing so. Both scenarios were found amongst the interviewed HIPCs.

What has stirred the first negotiations?

Surprisingly, the first **window of opportunity** for the negotiations between the municipality and the HIPCs was not caused by the reveal of the development plan but started after the municipality proposed to build a bridge over the IJ (EI-2, 2019). They chose the location where the current **the Passenger Terminal** resides for the bridge, the Passenger Terminal had to be relocated. This was supposedly going to be in the Coen and Vlothaven, but in order to realize that the HIPCs had to relocate. This started the negotiations. Therefore, the window of opportunity can be caused by an initiative outside the HS-development plan.

How is mixed-use implemented?

The mixed-use principles are mainly used by the municipality to increase the **number of dwellings**, the relocation of the HIPCs should make this more achievable. But the current development plan is **missing** a solid **relocation strategy**. The main driver for the mixed-use Haven-Stad development plan is the current arched housing market of the municipality of Amsterdam.

What relocation strategy is implemented?

Two things are key in the relocation strategy: the availability of alternative locations and the financial capability to buy out or to provide an incentive to the HIPCs. **Both are currently lacking**. The municipality did mention the Houtrakpolder in their development plan and the Amerikahaven during the interviews, as potential destinations for the HICPs. But these areas are still under investigations, due to their role as buffer zone for the growth of the Port of Amsterdam. Meaning, a definitive location for the relocation of the HIPCs is missing. Assigning these port parts does a couple of things. First it literally cuts down the size of the port, which reduces the possibility to attract new companies and reduces the growth option of the port. The Port Company estimated that they will need the Houtrakpolder by 2026 if they are maintaining the current growth pace. Second, it increases the

density of the port, which puts extra pressure on the infrastructure of the port. Third, it removes part of the great port image of the municipality. Fourth, it maintains the westward movement of the port, which puts more stress on the current port-city relationship.

The municipality of Amsterdam lacks the financial capability to fully cover the relocation costs of the HIPCs, due to other priorities. As the municipality must improve the public transport network in order to develop such a huge project, which is why they do not want to offer the HIPCs a higher financial incentive than the actual book value prior to the relocation.

What values are incorporated?

As described by Gruis (2002), the value of a good follows from the need of a person for whom the value of the good is determined. The value implemented in the current Haven-Stad development plan can be understood from the needs of the municipality of Amsterdam. The main value is to tackle the current **arched housing market**. This can be translated into the adding of many new dwellings. This is translated into sub-values such as:

- High urban density; 58.000 jobs and 70.000 dwellings inhabiting 150.000 people.
- Diversity of businesses; companies with a maximum of environmental category 3.1 are allowed.
- Sustainable; emission free mobility, construction elements of 50% reused materials, 75% CO_2 reduction compared to 2016, 65% separation of domestic waste, improved water management.
- Environmental; noise and smell measurements included in the urban area and architectural design.

5 SYNTHESIS

Comparison of literature and practice.

This chapter describes the comparison between the theory and practice, by answering the four sub-questions. Each of the following paragraphs is dedicated to answering one of the sub-questions. Starting with describing the municipality's current relocation approach. Followed by the considerations of the stakeholders, then an overview of the challenges the HIPCs endure in the redevelopment process. Lastly, the effect of a value-based approach towards HIPCs in mixed-use redevelopment projects.

SQ1

WHAT IS A MIXED-USE INDUSTRIAL REDEVELOPMENT PROJECT?

The Haven-Stad development plan will be explained using the concepts of mixed-use development and the corresponding challenge.

Development

The development of a mixed-use plan is defined as a coherent plan that inhibits three or more physically and functionally integrated revenue-producing users (ULI, 1987). There are four main different uses known, these are: housing, employment, recreation and transport (Mumford, 2002). Grant (2002) mentions the following three main benefits that such development can lead to:

- An *increased intensity* of use due to a mix of housing forms and tenures.
- An *increased diversity* resulted from establishing a compatible mix such as combining offices and commercial functions with housing.
- An *increased integration of segregated uses*, mainly due to overcoming the legal barriers.

In practice, the work-living areas focus mainly on two of the four functions, which are **housing** and **employment**. This is translated into the program where the total volume of the functions is divided between employment that consists of 20% and housing for the remaining 80%. There is also mentioning of other public as well as recreation related functions in the development plan (Municipality of Amsterdam, 2017). These functions come together in a high density and work-living area. While the theory did not mention the **desired ratio** between various functions in mixed-use. Nevertheless, it does seem that the balance of the development plan of the Haven-Stad is leaning more towards housing. This is due to the immense housing scale and the relatively small work-portion. This may suggest that the municipality pays more value to dwellings than to jobs. As Gruis (2002) explains that the value of a good follows *from the need of a person* for whom the value of the good is determined. Looking at the possible benefits of the development plan and the exclusion of all companies with an environment class above 3.1, these will mostly be in the first two levels of the mixed-use development, which are the intensity and diversity of uses. Overcoming the regulatory barriers needed for the third level is been evaded, due to setting up environmental limitation that decrease the integration of segregated uses (Municipality of Amsterdam, 2017; EI-1, 2019).

Spatial dimension

The mixed-use development comes with its dimension in space. In literature, the model of Hoppenbrouwer and Louw (2005) divides this in four dimensions with four different levels in spatial scale. In practice, the HIPC's are treated from the perspective that they're only mixable in the horizontal dimension on the district and city scales, due to their environmental output (Municipality of Amsterdam, 2017). In contrast to their ambition to realize a high-density area more focused on the vertical and the block scale of the horizontal dimension (Municipality of Amsterdam, 2017). This has led towards the exclusion of the HIPCs in the current development plan, where they're excluded from the future vision of the area.

Challenge

This research focuses on the main challenge of the development of the Haven-Stad, which is the **retainment of the HIPC-value** within the borders of the municipality of Amsterdam. A crucial tool in the process of retaining the value is the development of the relocation strategy. The relocation strategy can be considered as an important tool in the urban area development in order to achieve the desired level of mixed-use within the development. Therefore, two essential things are needed; an alternative location for the companies to be relocated at and the necessary money to cover the costs; In some cases, a financial incentive or a buyout is needed to have the HIPCs moved out of the area. The factors that have an impact on the relocation strategy are described in the second sub-question.

SQ2

WHAT ARE THE CONSIDERATIONS OF THE HIPCS AND THE MUNICIPALITY ABOUT THE HAVEN-STAD DEVELOPMENT PLAN?

The following answer will describe the considerations of the municipality of Amsterdam and the HIPCs regarding the Haven-Stad development plan. This contains what the stakeholders have taken into account and will be followed by describing the conflict points between the two parties.

Considerations of the municipality

The immense housing shortage in the municipality of Amsterdam has pushed the municipality to develop as many dwellings as possible within the Haven-Stad development plan. The plan will be constructed according to two guidelines: *High density approach & Mixed-use development*. It will mostly focus on the vertical and horizontal dimensions, especially on the spatial level of the building and block. The development will occur on the industrial port sites that are enclosed by the high-way A10. This area, which is a highly active part of the port of Amsterdam is therefore used for the growth of the municipality.

The municipality has set *environmental restrictions* that limits the coexistence with the port companies, due to the immense scale of housing. For the companies that don't fit those restrictions, the municipality has given them the possibility to *remain in the area until 2040*, if their leasehold or rent contract is allowing that. This goes for all the HIPCs located in the Haven-Stad region. Also, for the location that where the municipality still must decide if they're going to include it in the redevelopment or not, which is the Coen and Vlot harbor.

Lastly, the municipality is pushing the development forward even after making an estimation of the relocation cost, which ended up not to be feasible. There is also no solid relocation strategy developed for the companies that do not fit in the vision of the municipality's plan. Only one potential location has been mentioned in the development plan, which is the Houtrakpolder, but this is still under investigation.

Considerations of the HIPCs

Some of the HIPCs are willing to invest in lowering the environmental output but need a certain period in which they can amortize the investment. Especially, for the HIPCs that have a leasehold contract ending before 2040, because the current approach is not necessarily promising an extension of their leasehold contract. Nevertheless, the HIPCs see enough growth opportunities and are content with their current location. Therefore, the chance that these HIPCs will relocate is considerably lower, the same goes for the companies that have settled in the area after the redevelopment projects in the Bongerd and Buiksloterham in north of Amsterdam. A relocation has a lot of impact on the HIPCs, they will have to rebuild the whole facility elsewhere and must hope that they don't lose any of the employees in the relocation process. In addition, a new location will increase their operational costs, which are all aspects that the HIPCs try to prevent. Nevertheless, some of the HIPCs are willing to relocate if they must but expect to be compensated fairly in an alternative location meeting their settlement factors or financially.

Houtrakpolder

Pellenbargh (2002) mentioned that the second part in the relocation decision-making process, is the decision to relocate from A to B. Basically, there aren't that many alternative locations available in the whole metropolitan region of Amsterdam (De Kort and Beekmans, 2008). Nevertheless, the municipality did suggest for a relocation area, the Houtrakpolder (Gemeente Amsterdam, 2017). But there are many issues related to this area. First, it is the current growth buffer zone for the port, which is estimated to be needed by 2026 if the port continues their current pace of growth. This will turn out to be a problem, especially when the municipality makes the decision in 2025 to include the Coen and Vlot harbor in the redevelopment. This is because it will add at least five huge HIPCs that need to be relocated. Second, moving towards the costs of the relocation process, the first estimation made by the municipality has indicated that it is not financially feasible for them to have the HIPCs relocated (Gemeente Amsterdam, 2013). Third, these business parks are well functioning and possess a lot of value and are very difficult to replace due to current and future scarcity of business parks in the region (De Kort & Beekmans, 2018).

Understanding the HIPCs

The current approach of the municipality does not offer the opportunity to grasp a better understanding of the HIPCs. This is because they clearly limited the possible mix with the HIPCs. Therefore, the input of the HIPC for the development process remains unused, such as: the area design of Cornelis Douwes parks made by the HIPC Damen Shiprepair B.V. Without altering the original program of 18.100 dwellings and 11.266 jobs and without pushing the HIPCs aside. The municipality should be aware of certain aspects that have a negative effect on the relocation of the companies, which are the previous migration and the opportunities for growth (Pellenbargh, 2002). Both aspects are features amongst the current HIPCs and should be considered during the negotiations.

- **Failed Negotiations**

Louw (1996) mentioned that the relocation consists of three different stages, the orientation, selection and negotiation. Each one has its own main aspect(s) (Louw, 1996). In the first stage, the orientation phase, the available square meters are the most important aspect. For the last stage, the negotiation phase, the financial aspect is considered the most important. Going back to the municipality's approach, there they immediately moved towards the negotiation phase due to lack of alternative locations (De Kort & Beekmans, 2018; EI-2, 2019). While from the perspective of the HIPCs, they are still in the orientation phase and are more focused on the available square meters, the accessibility, the infrastructure and for some HIPCs the availability of a quay in alternative locations. The imbalance of the situation could explain why most of the negotiations have failed (EI-2019), and why one of the companies refused all the financial incentives offered by the municipality as well as from private parties (SI-1, 2019). Because they want clarity a new location.

- **Environmental classification**

It turns out that the official registered environmental class of the HIPC is linked to their **environmental permit** that they've applied for before settlement. For some sectors it is legally established what environmental output is allowed, also in what type of environmental zone they *should be* placed (Louw et al., 2004). Some of the HIPC turn out to have a much lower environmental output. This is caused by either implementing new innovations in the work process or by doing different work than anticipated at the beginning. After lowering the environmental output of the HIPC another issue arises that needs to be solved. This is the **infrastructural** problem, which is caused by the logistics on land for the companies and the future inhabitants of the area and is one of the challenges that comes with the integration of the segregated functions within the area (Grant, 2002). However, these investments come at a high price and need a long return period.

Missing Sound Relocation Strategy

The continuation of the development plan demands two things, alternative plots and the financial capabilities to cover the relocation costs of the port companies (Korthals Altes & Tambach, 2008). Both are essential ingredients for developing a solid relocation strategy, which in turn is crucial for the realization of the second level mixed-use development. But, the problem is that both of them are lacking behind in the Haven-Stad development plan. Besides, some of the HIPCs are confident that they don't need the current location specifically for their business, which makes them more **footloose**. This combined with the absence of a sound relocation strategy for the HIPCs, will push some of the HIPC to move out of the municipality of Amsterdam (EI-1, 2019). Causing more potential loss of their socioeconomic added value towards the municipality.

SQ3

WHAT FACTORS AFFECT THE RELOCATION STRATEGY AND HOW CAN THE HIPC-VALUE INTERFERE?

Basically, there are three main factors that have an impact on the relocation strategy. These are: **the availability of alternative locations, the financial capability of the municipality and the factors that impact the relocation decision-making of the port companies**. The relocation strategy is developed by the municipality of Amsterdam for the port companies, but will only succeed if they match with the demands of the port companies. Therefore, an understanding of the relocation decision-making process of the port companies will be crucial for the development of the relocation strategy. These factors will be described below.

[1] The **availability of alternative locations**

Only *one alternative location* has been mentioned in the Haven-Stad development plan, which is the Houtrakpolder (Municipality of Amsterdam, 2017). This area currently remains as a polder landscape that is identified as the port growth buffer zone (Port of Amsterdam, 2017). During the interviews, some alternative locations were mentioned, but these were all located within the metropolitan region but outside the municipality's border of Amsterdam (EI-2, 2019). On the other hand, most HIPC's mentioned to be content with their location and not wanting to move out of the municipality resulting in a mismatch.

[2] The **lack of financial capability of the municipality**

Early calculations indicated that around 80 hectares is needed in order *to relocate all the HIPCs* with a total rebuild cost of €650 million (Municipality of Amsterdam, 2009). This estimation is without the acquisitions, the demolition and the compensation costs needed for the termination of the leasehold and the rental contracts (Municipality of Amsterdam, 2009). This is not financially feasible for the municipality, especially when they must improve the public transportation by connecting the metro line to the area in order to make it inhabitable for 150.000 people. This is basically the financial limitation of the municipality, which also affects their ability to offer an adequate ***financial incentive***. To some of the HIPCs, the municipality offered the actual book value as the financial incentive for if they would relocate (EI-2, 2019; SI-1, 2019). This has been rejected by the HIPCs due to many reasons. The main motive behind it was the lack of covering the **increased operational costs** after relocation, such as: enhanced canon price, the enhanced operational costs due to larger distances, the rebuild costs and the market value. The municipality's response on why the actual book value was being offered and nothing else, was because it is too expensive to offer more and the construction of a new plant for the HIPC on behalf of the municipality is not an option (EI-2, 2019).

[3] Factors that affect **the relocation decision-making** of the HIPC

Lack of understanding of why a company would relocate and how the relocation process is built, will increase chances for mistakes in the *relocation strategy* development and failed *negotiations*. Relocation is described by Pellenbargh et al. (2002) as a coping strategy for any firm to the changes that occur in the market, the behavior of the consumer preferences, **law and regulations especially environmentally related ones**, institutional

approaches. For most of the HIPCs, nothing of these matters have changed besides the announcement of the Haven-Stad development plan and its environmental limitation towards future companies. The HIPC can choose to start the relocation process or try to prevent it by improving their environmental output. Both options are quite complex, as the decision-making process behind the relocation is divided into two phases; The decision to move followed by the relocation from A to B (Pellenbargh et al., 2002).

The first phase is where internal and external push factors play a big role (Risselada et al., 2013). In the case of the Haven-Stad, these happen to be the company's (*physical)* **growth, the previous migration** (from the Bongerd and Buiksloterham*)* and the **government policy** *(external)*.

In the second phase, the company's **settlement factors** as well as their level of **footloose** come into play. The settlement *factors* play an important role in choosing where the next settlement will be and includes their current and future vision related aspects. In the case of the Haven-Stad, most HIPCs valued the **accessibility** and **infrastructure** of the location as most important. The most important aspect of the property was the **spaciousness** of it, it should house the necessary machinery and equipment needed without any issue. Interestingly, some of them mentioned that for the future they need a *quay* to enhance their activities over water. Because of the emission-free policy. The HIPC's also mentioned, that they're more footloose than anticipated. Most of them are not depended on the local (Amsterdam) market, but value the locational aspects such as accessibility, image and would prefer to remain in the municipality of Amsterdam. This feature is more favorable for the relocation, as the HIPCs can settle elsewhere. The issue is that their socio-economic value and contribution to that of the municipality of Amsterdam depends on their settlement within the borders.

Based on the empirical study, some of the HIPC are able and want to improve their environmental output if that leads to their existence post Haven-Stad development. However, the HIPC will demand **certainty** to remain in the area due to the **return period** needed for the **investments**. Also, the second phase of the relocation decision-making is divided into three stages according to Louw (1996). Each stage is characterized by an important aspect:

- In the first stage "the orientation" the **available square meters** seem to be most important.
- In the second stage "the selection" the **possible alternative locations** are most important.
- In the last stage "the negotiation" the asked **price** is most important; it is also in this stage where the **financial incentive** offered by the municipality will play an important role.

The relocation decision-making process and the corresponding stages make it clearer, that offering the actual book value to a HIPC is already **a lost cause**. Because, this is a financial incentive meant to be proposed during the negotiation stage, while the HIPC generally possess a long leasehold contract and have enough growth opportunities at the current location, do not seem to be in that phase, but more likely in the orientation phase. This results in a mismatch between the two parties, that can lead towards failure of the negotiations.

How can the value of the HIPC interfere?

The HIPC value can interfere through the development of the relocation strategy of the municipality as well as the relocation decision-making process of the company. Both are linked to the understanding of the value that the HIPC represent.

Understanding the HIPCs value and what it means to the city and the development specifically can alter the way they're approached. *It puts more focus on the value that is potentially lost or overlooked and the aspects needed to realize an area where the HIPCs can coexists with other vulnerable functions*. As Grant (2002) mentioned that mixed-use development enhances the social, economic and environmental benefits of an area. This combined with the spatial aspect of mixed-use development led to the following criteria to identify the HIPC value:

- **Contribution to mixed-use values: economic vitality, environmental quality and social equity.**

- **Represent a physical and functional revenue producing function.**
- **Placement in spatial dimension according to the development.**

The HIPCs play an important role in the **socio-economy** of the area and are not easy to replace. As they're an important employer when it comes to employment of low educated, middle aged men and people from the lower social class. Also, their unique harbor image, which has an architectural and aesthetical value for the municipality of Amsterdam. The HIPCs generally contain a large business chain, which is mainly located in the metropolitan region of Amsterdam. This creates a *synergetic value* between the actors that are part of the same business chain, which is not something that can be created in another location with certainty.

Essentially, they all **represent another type of use or function**, which is essential for the development of *a mixed-use area*. The way the HIPCs currently are placed in the spatial dimension depends largely on their business activities, placing them in the building up to district level. There is a clear link between the placement in the spatial dimension and the environmental quality of the HIPCs. The HIPCs with the highest environmental output are placed in the higher scales of the horizontal dimension. Also, the fact that the placement should be based on the actual environmental output instead of the environmental permit. Because of the differences that are found between the permit and the actual work, which in some cases can lead to a whole difference in environmental class. This emphasizes their need to enhance their **spatial value** by reducing their environmental output, which in return enhances their option of coexisting with vulnerable function.

SQ4

WHAT ARE THE OVERLOOKED VALUE(S) AND HOW CAN THEY BE IMPLEMENTED IN THE RELOCATION STRATEGY TO ENHANCE THE MASTERPLAN?

This question will be answered in two parts. First part will elaborate what the overlooked value(s) are. Second part will elaborate on the actions needed in order to implement the overlooked values in the relocation strategy and master plan.

OVERLOOKED VALUE(S)

Essentially, the value that is been overlooked is **the value of the HIPC itself**. This is more or less a **holistic** interpretation and is nested in all sorts of sub-values; such as: the high socioeconomic influence of the HIPCs on the direct region, the HIPC business chain, the willingness to improve the environmental output and the financial capabilities of the HIPCs.

The value of the HIPC has been extracted from the empirical study by using certain criteria, which are based on the theoretical concepts (described in chapter two) and the Haven-Stad development plan (described in chapter four). This led to the development of three criteria, in order to interpret the empirical data and subsequently identify the overlooked value. The criteria are:

[1] Contribution to mixed-use values

[2] Represent a physical and functional revenue-producing use

[3] Placement in spatial dimension according to the development

HOW TO IMPLEMENT THE OVERLOOKED VALUE(S)?

The implementation of the overlooked value is based on tackling the issues that are preventing it from being included in the first sense. It should be noted that there are three identified underlying issues, these will be discussed as follows and subsequently translated into sound actions to implement the value.

ISSUE 1 LACK OF UNDERSTANDING OF THE HIPCS

Most of the HIPCs seems to be quite content with their location, they mention that there are opportunities for them to grow further. This together with the previous migration some of the HIPCs have that are in the Cornelis Douwes parks, are aspect that reduces the chances of the company to decide to relocate. Also, how they're positioned in the relocation decision-making process, which is more in line with companies located in the orientation phase, compared to how they're approached by the municipality which is more in line with the negotiations phase. These aspects have all one thing in common, that is the reduction in chance that the HIPCs will choose to relocate, similar to pull factors. This information is basically overlooked, due to the lack of their involvement and could affect the development process in a negative way.

Their lack of involvement has to do with them being scattered over the higher spatial scales of the horizontal dimension, which makes them less attractive for the Haven-Stad development. Still, some of the HIPCs can reduce their environmental class in such way, that they theoretically can remain in the area. They represent a variety of sectors with all sorts of healthy and revenue producing uses, which are essential ingredients for a mixed-use development. The HIPCs have a high socio-economic value, contain on average a large business chain and appear to be quite footloose when it comes to the settlement of their business. This could lead towards the loss of that value for the municipality of Amsterdam if they choose to relocate outside the municipality.

Including the HIPCs can lead towards new perspectives that could benefit the Haven-Stad development for both stakeholders. Such as the area design made by one of the HIPCs, which was according to the municipality's program but with coexistence of the HIPCs. In general, the remaining issue is how to solve the infrastructure on land, as most of these companies are depended on logistics. The HIPCs could also play a role in tackling this issue. Therefore, this translates into the following action:

- **Third level mixed-use development**

First thing is to shift the aimed level mixed-use from the second to the third. This will shift the focus from developing many dwellings to literally the integration of segregated uses. Especially by overcoming the legal barriers set in place. This leads directly to the increased involvement of the HIPCs in the development process, that can lead towards alternative perspectives, such as the area design made by Damen Shiprepair. Nevertheless, the shift of the level in mixed-use didn't affect the municipality's need to solve the arched housing market. Therefore, the aim remains to maximize the number of dwellings in the development. This will be achieved by the following actions.

ISSUE 2 LACK OF ALTERNATIVE LOCATIONS

The ambition to develop a mixed-use area without the HIPCs does not imply a sound relocation strategy of the excluded HIPCs. This is not easy to solve due to the scarcity of **alternative locations** within the municipality and the growing scarcity in the metropolitan region of Amsterdam. Therefore, the Province is suggesting the integration of segregated uses in their general vision (NZKG, 2013). Nevertheless, the municipality acts solely on their needs, by focusing mainly on expanding the living area within their borders. Still, for the companies that need to make place for the development, the municipality should have a solid relocation strategy developed for them. This is necessary for the realization of the current development plan, as well for managing those companies to have them remain within the border, causing less loss of value. The absence of a strategy could lead to more relocations outside the municipality's border, causing loss of their value for them. The growth pace of the port will also be affected, as the available port land is been reduced. Therefore, this translates into the following action:

- **Focus on the environmental output**

The municipality should put the focus on the environmental output of the HIPC and not the environmental permit. In the current situation, various sectors have a fixed environmental permit set up in the law. This

puts them in a certain environmental class that can be much higher compared to their environmental output. This research found that there are various reasons for that difference, such as implementation of new technology. Also, conducting business activities that are different from the ones mentioned in the application for the environmental permit. Therefore, the municipality should support the reduction of the environmental output, which can be financially, technically combined with an extension of the rent/leasehold contract. Last aspect is needed as the necessary return period for the investments linked to the environmental reduction.

This will move the HIPC more towards the spatial levels: building and block in the horizontal and vertical dimension. More aligned with the Haven-Stad development plan.

ISSUE 3 LACK OF FINANCIAL CAPABILITIES

In the current situation, the municipality is easily been outbid by private developers due to their financial limitations. This is because the main financial priorities of the municipality are focused on enhancing the public transport, by developing the metro line. Therefore, the municipality couldn't provide more than the book value during the negotiations with the HIPCs. Therefore, a cooperation with private parties can enhance their financial capacity, that could cover more of the relocation costs. As well as the possibility to include the HIPCs more in the execution phase. Because, some of the opportunities can be capitalized more in a public-private form of cooperation, due to European tender regulations. Surprisingly, many HIPCs mentioned that the municipality can help them out with further growth, by uplifting some legal restrictions, such as the percentage of recycled materials used in development of concrete. This could give a boost to for example recycled concrete, which is beneficial towards achieving a greater circular development. Therefore, this translates into the following action:

- **Cooperation with private parties**

In practice it turns out that the private parties can easily make much higher financial offers to the HIPCs compared to the municipality. Therefore, the cooperation with the private parties is meant to uplift the financial capabilities of the municipality. The private parties will expect something in return, such as the development rights of the plots. But this is something that should be studied and discussed between the private parties and the municipality. With the enhanced financial capabilities, an enhanced financial support towards the HIPCs and the development in general is possible. This is necessary for some of the HIPC to support their environmental reduction output. Also, to solve the interweaving aspect (the infrastructure) of the challenge of having the HIPCs close to vulnerable functions. Not to forget, there is still financial measurements needed for the relocation of the HIPCs that decide to relocate as well as the rearrangement of the remaining companies. Not to mention that apart from all this, the development costs has increased with 15% in the past four years (CBS, 2019).

6 CONCLUSIONS

6.1 ANSWER TO THE MAIN RESEARCH QUESTION

The following main research question: **TO WHAT EXTENT CAN THE VALUE OF THE HIPC ENHANCE THEIR MIXABILITY IN MIXED-USE REDEVELOPMENT PROJECTS OF INDUSTRIAL HARBOR AREAS? CASE HAVEN-STAD.** Will be answered by first explaining the relation between the value of the HIPC and the mixed-use development. Followed by the contribution of that relationship to the redevelopment of industrial areas.

RELATIONSHIP HIPC AND MIXED-USE DEVELOPMENT

The mixed-use development can be realized according to three various levels, in which the first is the increase of density of a specific use. The second is the increase of diversity of the uses and the third is the integration of segregated uses, by overcoming regulatory barriers. From spatial perspective, the mixed-use can be realized in four various dimensions, which are the shared premise, the horizontal, the vertical and the time dimension. These dimensions have four spatial levels, starting from the building, to block, to district and finally the city.

The heavy industrial port companies represent various sorts of healthy and revenue producing functions, which are essential in the development of mixed-use areas for all the levels. In general, the HIPCs have a high socio-economic impact on the surrounding areas. Such as the large business chain, which is mostly located in the metropolitan region of Amsterdam. They are also a significant employer for the lower educated and the lower social class of the community. Not to mention the large number of indirect jobs caused by them, which makes them quite important towards other sectors, such as the service based. Also, the achievement of many sustainable ambitions depends on many of the waste-to-product or recycling companies. Overall, the lack of alternative locations and the municipality's financial capabilities in the case of the Haven-Stad, puts more emphasis on the value of the HIPCs. As the chances are much higher that it will be lost due to the much higher difficulty to develop a solid relocation strategy.

The issue with the HIPCs is their environmental class, which places them far from vulnerable functions. The classes are based on the work activities mentioned in *their environmental permit*, which is not always 100% accurate. So, in order to spare as much of their socio-economic value in the area, the mixed-use development must be pushed towards the highest level, turning it into a **third level mixed-use** development. The main environmental barrier that needs to overcome is the environmental class, which can be overcome if the focus is put on the actual **environmental output** of the company and not its environmental permit. This value of the HIPC can therefore be used as a pull factor for the municipality and the project initiators in general, to support the reduction of the environmental output. These changes make sure that the development focuses more on the integration of the segregated uses instead of many dwellings. Therefore, the HIPCs that are in the higher spatial classes will have the opportunity to improve their environmental output and continue their operations in the area.

CONTRIBUTION TO THE REDEVELOPMENT OF INDUSTRIAL AREAS.

Now that the relationship between the HIPCs and the mixed-use development has been established, it is important to understand what it means for the redevelopment of industrial areas in general. With the current scarcity of available industrial areas, the third level mixed-use development will be a perfect solution to slow this down. Because, the main principle is to integrate the various uses, resulting in less relocations of port or industrial companies. This is in some way considered to be a stop of the westward movement of the port. Causing a much higher retainment of the HIPCs in the area and a higher mixed-use value. Basically, it goes back to the sixth stage of Hoyle's model, see appendix I. This is the renewal of the port-city links, causing a synergetic growth of both city and port or industry. Therefore, more value is created from the same area, compared to when it has solely one function. Also, it changes the perspective of how industrial areas are treated. As they're

not necessarily environmental polluted zones but can turn out to be an area were industry is mixed with other work and vulnerable functions. This change in perspective, will be crucial for future industrial redevelopments due to the ongoing scarcity of these parks.

6.2 RECOMMENDATIONS

The findings of this research suggest that the value of the HIPCs can contribute to the mixed-use redevelopment of industrial areas. Also, they don't have to be pushed aside for the development, because they can become part of it. A couple of generalized recommendations on how this can be established will be described here further down below. This will be followed by the recommendations for the further research.

6.2.1 RECOMMENDATIONS FOR THE BUILT ENVIRONMENT

Based on this research, the main recommendation for the municipality is to **rethink the current Haven-Stad development plan**. Also, this research identified three main issues that prevent the value of the HIPC from being utilized within the development plan.

To include the spatial level 'District'

One of the main actions is to shift the focus to the third level mixed-use development, which turns it more into an all-inclusive development. Nevertheless, it will not stop potential relocations of the HIPCs that fail to reduce their environmental output. Because, the current high-density and mixed-use ambitions are not feasible to be realized in every part of the Haven-Stad area, without having to relocate some of the HIPCs. Therefore, this recommendation focuses on including another spatial scale in the development, which is the level of *District*. This can shift the balance how the general program is divided amongst the various parts in the Haven-Stad. Like in the design made by one of the HIPCs, where the Cornelis Douwes parks area is divided in two parts. The eastern part of the Cornelis Douwes parks is where most of the mixed-use program happens. They used a large part of their current plot for that part of the development, as they believed in their capability to enhance the current work activities, become more efficient and improve their environmental output in such a way that the development can occur next to them. The western part of the Cornelis Douwes parks is where most of the housing, companies and other functions were placed. Even though, the west part is more likely to be treated as a second level mixed-use development, it is still a third level mixed used when the area is treated. This is the essence of including the district level as a spatial level in the development, which is the opposite of the Westward movement and a potential solution to the growing scarcity of industrial parks in the metropolitan region of Amsterdam.

- This will include more HIPCs in the Haven-Stad development plan, due to the expansion in the horizontal dimension.

Reserve the Coen and Vlot Harbor for the district area.

There should be a part within the Haven-Stad area that is more suitable for the much larger HIPCs. This recommendation is to include the Coen and Vlot harbor in the redevelopment plan, but to have them function as the location for the much bigger HIPCs. This leads towards the mixed-use development including the district as spatial scale, with the following benefits: first, the decision about the redevelop of the Coen and Vlot harbor hasn't been taken and could therefore *uplift part of the uncertainty* of the HIPCs located there. Second, the Houtrakpolder which is *reserved for the growth* of the port will not be used for the relocation of the companies. This means that *both municipality and port can continue their growth*. Third, the Coen and Vlot harbor contains five potential HIPCs that the municipality selected to be relocated, by leaving the area for them, the costs of relocation will also decline.

To cooperate with private parties.

The success of the development depends largely on the financial capacity of the municipality, which can be enhanced due to effective cooperation with private parties. This can lead towards some form of a PPP-model where both parties fill in the missing pieces of the other. Such as the municipality's incapacity to enhance the financial incentive from the book value. Also, the costs to solve the **infrastructure** is crucial, as mentioned by the HIPCs themselves. They can reduce the environmental output but are still dependent on the logistics on land.

Too large or too environmental polluted.

Relocation of large HIPCs or HIPCs that failed to reduce their environmental output, might still occur with the current spatial scales of the Haven-Stad development plan. There are several things that can be done with the respect of retaining the value of the HIPC within the municipality's border. **First**, increasing the spatial scales with the district-scale in the development, can enhance the opportunities for specifically these category HIPCs. **Second**, is to propose a company split, where the plant of the company is been relocated, while the office and management part remains in the area. This results in a partial relocation, which is more favorable compared to a complete relocation, due to the scarcity of industrial sites. **Third**, to offer a financial incentive conform market. This advice rests mostly on the cooperation with the private parties, as they can enhance the financial capabilities within the development.

6.2.2 RECOMMENDATIONS FOR FURTHER RESEARCH

This research is one of the few qualitative explorations done from the perspective of the heavy industrial port companies in mixed-use industrial redevelopment projects. Further research is therefore needed to finetune on how to retain the value of the HIPCs in the mixed-use redevelopment of industrial areas.

PPP-model

One of the points raised by this research, is the need to enhance the financial capabilities of the municipality. There exist many cooperation models that can lead towards this, such as the concession model, the building rights mode and the joint-venture model. Therefore, more in depth study is needed on the role of these model when it comes to retaining the value of the HIPC in a third level mixed-use redevelopment of industrial areas.

Balance between functions

The description of the mixed-use development doesn't explain what the ratios between the various functions are. This remains quite an issue, as the municipality presented a plan where 80% of the program consisted of just one function. One can argue that this is more likely to be the first level of mixed-use development, which is the increase of intensity of use (Grant, 2002). So, further research on the balance of the functions in the three levels and more specifically in the spatial scales of the dimension, would provide more information of how to set up a balanced mixed-use program. This will be helpful in the sense that it provides more insight in what an uplift in spatial scale has on the program of the development, but also the relocation of certain companies.

Combining vision

One of the questions that arises from the cooperation between the municipality and the HIPC, is how to include a party with a much shorter planning capacity compared to the municipality. For example, some of the companies plan five year ahead, where they involve matters regarding their growth, objectives and potential relocation. On the other hand, there is the municipality who plans 30 up to 50 years ahead.

6.3 DISCUSSION

This research contributes to the knowledge on mixed-use redevelopment projects of industrial areas within the port-city interface. Decades ago, it was predicted that the city expansion would outpace the port movement to the west and absorbing it (Hoppenbrouwer & Louw, 2005; Hoyle, 2000). That prediction has come to be truth, especially with redevelopment plans of Haven-Stad. For the city of Amsterdam, the redevelopment of inner-city areas is crucial for the city growth. It is mentioned in the housing development strategy 'Koers 2025' how the remaining inner-city areas are being absorbed in the city, which is essential for the city growth. This discussion will contain three parts. First, the additions to the current literature will be mentioned. Second, the validity, reliability and limitations of the research will be described. Lastly, the generalizability of the research will be given.

6.3.1 ADDITIONS TO LITERATURE

Mixed-Use Development

Mixed-use is key in the development strategy of the Haven-Stad. Two of the three conceptual levels: the increase of the intensity of land use, the increase of diversity of uses occur in the current development plan. However, the third one: the integrating segregated uses and overcoming regulatory barriers, is the one that is arguably being evaded by the municipality (Grant, 2002). This is because of the environmental restrictions included in the development plan, causing in the exclusion of the HIPCs (Gemeente Amsterdam, 2017). This causes the continuation of the westward movement of the port (Daamen, 2007). **However, it seems that the third level mixed-use development is crucial in stopping this westward movement**. This is been achieved by having a larger part of the HIPCs been included in the development process and the shift in focus, which went from constructing large numbers of dwellings into the integration of segregated uses (Grant, 2002). The main barrier that must overcome in this process is the focus on the environmental output instead of permit. Resulting in a synergetic growth between port and city, which is essential due to the growing scarcity of industrial parks in the metropolitan region of Amsterdam (De Kort and Beekmans, 2018).

Relocation Strategy

In the theory of the Pellenbargh et al (2002) the relocation strategy is more described from the perspective of the companies, as a coping strategy for changes that occur in the market, the behavior of the consumer preferences, law and regulations, especially environmentally related ones. Other mentioned that it is part of a much larger process, such as a company merger or splitting and includes current and future needs. However, the results steer the value of the relocation strategy towards another perspective, that of an effective urban design tool for the initiators of the plan. **This tool can enhance the retainment of the value represented by the stakeholders, as well as the achievement of the desired level of mixed-use development**.

Value

Within the value theory the economic or financial aspect seems to be quite dominant and well covered by many researchers. This form of value is often used to measure the *value* of a development, but this is a simplistic manner of identifying the value of an area. Therefore Daamen, Franzen and Van der Vegt emphasized the need to determine the meaning of value in order to understand how it is created. So, when you look at an urban area, the total value of it includes always some qualitative based value (2002). They argue that a problem is that **"the popularity of an urban area is rarely fully expressed in the price paid for an object in that area**". In the results of the research, it is mentioned that the HIPCs have a huge socio-economic value, that they're essential in providing work for various service related companies, that they help and attract smaller companies, that they provide a certain image of an area. All those things suggest that value represented by the HIPCs is much larger than the amount of money needed to rebuild their facility or book value. Therefore, this research establishes the need of including the qualitative aspect of the HIPCs in urban redevelopment projects.

6.3.2 VALIDITY, RELIABILITY & LIMITATIONS

In terms of the **validity**, the theoretical concepts '**mixed-use**, **relocation** & **value**' have been implemented in the development of the interview protocol. The analysis of the interviews was done and proved the causal relationship the concepts. The research was done on a very specific case in Amsterdam, which is known to have a different logic in terms of housing development compared to the rest of the Netherlands and makes the findings therefore not easy transferable to other projects outside the municipality of Amsterdam. However, there are still some generalized findings based on the results of the study that are applicable to other mixed-use redevelopment projects of industrial areas.

In terms of the **reliability**, the perspective of the companies has been identified through interviews and transcript of them and can be considered as reliable. A small number of the heavy industrial port companies responded compared to the immense amount of companies in the Haven-Stad. Though, it is impossible to have all the heavy industrial port companies interviewed, it still became quite clear what their general position in the development process is.

In terms of **limitation**, this research was conducted around a single case study located in Amsterdam, it is assumable that the conclusions are not applicable to all mixed-use industrial redevelopments. As the city is known to have a strong spatial policy and approach towards it compared to the rest of the Netherlands not to mention other countries. This research used different concepts from the mixed-use, relocation and value theory to analyze the potential overlooked values of the heavy industrial port companies, in specifically mixed-use industrial harbor areas. Some aspects couldn't be analyzed more in depth due to the focus of this research, such as: the cooperation models of the stakeholders in urban development projects, regarding mixed-use redevelopment. The most important limitation was the major dependency on the companies for the data, which resulted in more time needed to get hold of data.

6.3.3 GENERALIZABILITY

The Haven-Stad development is a one of kind mixed-use urban redevelopment project. The fundamental problem is a scenario that has been mentioned by Hoppenbrouwer & Louw (2005), which is the clash between the municipality and the port in their growth. Essentially this research is about the value of the heavy industrial port company and how that can play a role in overcoming regulatory barriers, for them to become part of the development. Therefore, the insights gained in this research are expected to be useful for other industrial redevelopment projects. The scale of the Haven-Stad development might be unique for European standards, but the essence is not. This kind of development might occur more often due to the scarcity of available land. This in turn is a sign for urban planners to adjust the city expansion strategy to the new inner-city development challenges.

6.4 REFLECTION

This reflection contains three parts, my reflection on the chosen topic, the research relevance and the research process.

6.4.1 RESEARCH TOPIC

This research is part of the track Management in the Built Environment lab called 'Cities of the Future'. The focus is on current challenges that will shape the future city. The arena of this specific research is very complex, where it is a combination of various areas such as waterfront, brownfield, active harbor, industrial and city redevelopment. The reason for choosing this lab, is because of a long interest started back in the bachelor's in urban development management (UDM) projects. The essence of UDM-projects is connection between areas, actors, strategies and outcomes. It acts upon the management of the many stakeholders involved within urban areas (TUDelft, 2018).

This study creates more insight for the involved heavy industrial port companies, the municipality and the Port Authority in the mixed-use redevelopment projects of industrial harbor areas. The bonus side of studying this topic from the perspective of UDM, is that the current and the future situation are addressed and that it ends with an advice that can be used in order to reach the future scenario including the heavy industrial port companies. This advice is based on takeaways for the heavy industrial port companies, the municipality and the Port Authority for the mixed-use redevelopment of industrial port areas.

6.4.2 RESEARCH RELEVANCE

Societal

Valuing the heavy industrial port companies on an abstract level, showed that these companies can have a positive value with their involvement in mixed-use redevelopment projects. Also, that the current approach is indeed one that comes with the risk of losing their value.

This research showed that the heavy industrial companies represent many values and are willing to cooperate with the municipality. It also showed that the level of footloose is very high amongst these companies, which could result in having them resettle not only outside the Haven-Stad area but outside the city as well. This development happens in a moment where there are many issues affecting the urban planning, such as the scarcity of industrial parks and an arched housing market. Overall, the retainment of the value of the heavy industrial port companies does lead towards new insights and designs. Such as the essence of uplifting the level of mixed-use development, which enhances the chances of synergetic growth between the port and the municipality of Amsterdam. Also, the challenge of solving the infrastructure in a HIPC included mixed-use area. This leads towards the development of certain actions for the municipality and the heavy industrial port companies, that alter the current redevelopment strategy. Where the focus is not the environmental permit or class but the actual output of the company as well as their socio-economic value.

Unlike previous industrial transformations, where it mostly considered an old and abandoned area. The current Haven-Stad development plan considers a vital and growing part of the port of Amsterdam. The push for this development is fed by the ongoing housing shortage. This all is planned in a scale that has never happened before. It was quite a shock for the existing companies, who were not involved in the early planning phase. With the implementation of the New Environmental and Planning Act, this form of 'collaboration' will be officially outdated and replaced by one where the focus lies on participation. The result of the study shows that moving the mixed-use to the third level with the acceptance of a district level on a spatial scale, would largely enhance the retainment of the HIPCs in the area. However, this might affect the number of dwellings that can be built. For the next 10 years, the municipality is not allowed to construct any development on the 'pas-op-de-plaats' areas but allows the development of new plans. This gives the municipality the opportunity to rethink the current development approach and try to move towards a more synergetic development between them and the port.

Scientific

The specific topic of the value of HIPCs in the redevelopment of industrial harbor areas consisted of various topics in literature, such as the redevelopment of brownfield, greenfield and waterfront. Also, the settlement of companies, the relocation process and the redevelopment of business parks. The closest topic of literature was mixed-use development with light industry. In the port-city interface literature there is the mentioning of the conflict that is going to happen when the city growth will outpace that of the port, resulting in a clash with them (appendix I). Daamen (2007) mentioned this clash, which causes the Westward movement of the port. This research is focused on the exact place where the clash is happening and trying to find a way to stop the Westward movement. The main tools for that is by emphasizing the value of the HIPC, identifying the overlooked values in the current Haven-Stad development strategy and by describing the necessary actions

needed to include the overlooked values in the development strategy. This can play a role in the stoppage of the Westward movement of the port. Therefore, retaining the value of the HIPC in the area.

This study provides different starting points for further research, such as a follow up research on the type of cooperation between the private parties and the municipality for the third level mixed-use redevelopment of industrial areas. Also, a further research on how to establish a balance amongst the various functions in the mixed-use program and how this varies for each of the spatial levels and corresponding dimensions. The last suggestion is a further research on how to combine in the area development the vision of the municipality which covers 30 to 50 years and that of the companies, which often doesn't extend more than five years.

6.4.3 PROCESS

Content

The aim of the research is to understand the value of the heavy industrial port companies in mixed-use redevelopment project. The method used for this research is a literature review followed by a single case study. Reasons for choosing the single case study approach had to do with the size and the uniqueness of the development. Multiple or comparative case-study would have been more appropriate if I had narrowed the research focus much further.

Literature review

The main literature reviewed for this research consisted of the mixed-use, relocation and value theory. In addition, the port-city interface theory was added to increase the understanding of the context in which the Haven-Stad development is happening. Various concepts were extracted from these theories to analyze the Haven-Stad development plan. Some of the concepts were easier to grasp than others, such as the relocation decision-making process and the factors that have an impact on it compared to the value related concepts. These were a bit more difficult to grasp. As value in urban area development projects considers both qualitative as quantitative aspects (Daamen et al., 2012). This resulted in a very long list of values that could be looked at, which caused a derail from what really matters in this research. So, I had to rethink the way I was using the value approach in the research and went back to the essence of the development. This is in fact the realization of a mixed-use development. Therefore, based on the mixed-use principle, I ended up using specifically three sorts of values: the environmental, the economic and social value.

Document study

Compared to the theory, it was very easy to find information on the Haven-Stad development. As the municipality created for every one of its urban projects an own page on their website, with almost every published document about the development on it. This caused that I sometimes, would spend more time on analyzing the document study compared to the literature review.

Interviews

The explorative interviews were conducted to have a better grasp on the municipality's ambition, the actual situation of the execution of the development plan, the approach that they had used so far towards the heavy industrial port companies and possible values of the companies that might have been overlooked. The semi-structured interview was conducted based on the three main concepts in the literature study and the approach used by STEC Group (Bruil et al., 2007).

Surprisingly, the explorative interviews went very smooth and quick in contrast to the semi-structured interviews. It was very difficult to get in touch with the port companies and have them on board for an interview. I contacted up to 30 companies in the first week by mail. After waiting for another week without having received

any response, that made me contact the companies again and again. I even visited the area and went knocking on the doors of the companies. Eventually, this led to some very surprising results.

Results

In the end, I managed to collect information of 10 different port companies, all located in areas targeted for redevelopment after 2029. The results came with many surprises, as I was not sure what to expect. It turned out that various companies were able to reduce their environmental output, in such manner that they could fall in a 3.1 environmental class. The biggest surprise was Damen Shiprepair B.V. who developed an own version of the Haven-Stad for the Cornelis Douwes parks. This was without reducing the housing program meant for that area, but with their co-existence. Until then, I didn't realize that the HIPCs could not only co-build the area, but also co-design it. It was a third level mixed-use plan from the perspective of the Cornelis Douwes parks. Structuring the data from all the interviews and document study was quite challenging, especially in the beginning. This was because value was looked at in the broadest sense of meaning. Structuring become easier after the link was made between the value theory and the core principles of mixed-use development. This also resulted in choosing for the STEC Group-approach, which is the method used in order to determine the public and economic value of business parks. The method was developed for the Chamber of Commerce and used to look at the potential value of business parks that might be lost if they were transformed to residential functions. Using the method had eased the structuring of the data, which was then linked to the findings from the theory. This process was quite intensive, especially the going forth and back between the concrete and abstract level on the findings, made it that I sometimes would lose my grip. Nevertheless, three overlooked values have been identified and various actions have been described, in order to have the overlooked values implemented in the Haven-Stad development strategy. That would lead towards more HIPCs co-existing post Haven-Stad development. In the end, focusing on the environmental output can lead towards alternative perspectives and approaches used for the redevelopment of the Haven-Stad area. However, the issue raised by the HIPCs that managed to reduce their environmental output is that of the infrastructure, this should be tackled carefully in order to make it usable for various users.

Personal

In this research I aimed to understand the heavy industrial port companies, in the sense that I could explain in an abstract manner what their value could be in the mixed-use redevelopment projects of industrial harbor areas. In addition, how to turn that value into a strategy for industrial mixed-use redevelopment projects. The conclusion might sound quite straight forward, but this was not the case at the start of my research. I remember that when I started, the focus was on involving the port companies in a way to steer them towards the creation of a port campus. The idea was to have `` first moment I received an answer from one of the companies, even when it was a rejection, it still motivated me to continue. When I look back on the overall process since the beginning, I can say that I've learned more about myself and my research. I learned that I tend more towards the practical way of solving a problem, even when they are as complicated as in the case of the Haven-Stad. This sometimes blurred the interpretation and extraction of the meaning from the literature. Nevertheless, I had to overcome my own 'bottleneck' during the process, and I did. I believe that I can say that I am proud of having the opportunity to research a topic that is very close to my own interest and to finalize my study with it.

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7.5 LIST OF FIGURES, TABLES, ABBREVIATIONS & GLOSSARY

Figures

Tables

Abbreviations

HIPC Heavy Industrial Port Company

HS Haven-Stad

NEPA New Environmental and Planning Act (Nieuwe Omgevingswet 2021)

NSCA North Sea Canal Area

MRA Metropolitan Region of Amsterdam

NSCA North Sea Canal Area (*Noordzeekanaalgebied*)

CV Coen and Vlot harbor

MH Minerva harbor

CD 0-1 Cornelis Douwes parks(en) 0-1

CD 2-3 Cornelis Douwes parks(en) 2-3

VNG Vereniging van Nederlandse Municipality (Association of Dutch Municipalities)

Glossary

HIPC	Heavy industrial port company. A company with an environmental category level higher than 3.1 regarding Noise and 2.0 regarding the other environmental aspects.
Location	The process of making location decision (choosing the type of investment and its site) and the result if that process, which is the location of a given business activity that is tied to a given site. (Stryjakiewicz, 1988)
Letter of Reply	Nota van Beantwoording
Multiple land use	the fulfilment of multiple functions within a certain space and a certain time. Priemus et al. (2000)
Mixed-Use	Holds 3 conceptual levels: the increase of the intensity of land use, the increase of diversity of uses, integrating segregated uses and overcoming regulatory barriers (Grant, 2002)
Footloose	A firm is footloose when their profitability on the long run stays the same for any other location (Klaassen, 1967)
Multi-nationality	"the extent to which firms extend networks of activities across borders".
Value in urban area development	Some of the most important values mentioned in the literature are the material values such as the *Economic and Ecological Value (Roos, 2007). And the immaterial values such as the Cultural & Cultural historical, User, Emotional, Aesthetical and Social Value (Roos, 2007)*. The values are used as input for strategy development on an abstract level.
Plaberum	Planning and decision-making process spatial measures
Relocation	It is a two-step process; first, the decision to move. And second, the decision to relocate from location A to B (Pellenbargh et al., 2002).
Grain	The size of the urban block and the subdivision of the block
Density	The number of users as well as the mix of uses
Permeability	The democracy of choice in pedestrian movement
Zoning area	Three types of environmental zones A, B & C. C is subject to a permit, and for B that depends on the type of activity the business will perform.

8 APPENDICES

I- PORT-CITY INTERFACE

The separation of industry from housing, and the notion of planning began in the 19th century, which resulted in monofunctional industrial areas (Korthals Altes & Tambach, 2008). Industrial activities were forsaken to the fringes of the city, in order to protect the public health. The main users of industrial estates were the (manufacturing) industry and the wholesale businesses. The local governments thought that the supply of industrial land could enhance the circumstances for economic growth. This caused an immense increase of industrial waterfront development back in the '50s and '60s (Louw & Bontekoning, 2007). The preparation of the land was assigned to the municipalities. This resulted in the fact that private parties were not part or played a very small role in the development of industrial areas. Sustainability was not part of the planning procedure of these industrial areas. A decade after becoming a huge trend, people started to discuss the development of industrial areas. The discussion was stirred by the low spatial quality of these areas and became an eyesore in the eyes of the critics. In addition, the new business demands led to many redevelopments of industrial areas, that were soon to be characterized as brownfields (Louw & Bontekoning, 2007).

The terminology is first used in the work of Yehuda Hayuth (1982). He was one of the first who studied the change in the relation that happened between the port and the city. He also found out that this change happened in the ecological and spatial system and added in a later study the economic system to it (Hayuth, 1988). This has caused more difference in city-waterfront perspective, that can be considered as a renewed path between city and port (Wiegmans and Louw, 2011). In fact, the port-city interface is a synergistic economic system (Hoyle, 1989). That represents the relationship between city and port on many levels, varying from local to global. This explains why the involved policy is complex (Van den Berghe, 2018).

Li (2018) describes in the paper, that a solid understanding of the port-city interface is essential in order to understand the origin of the conflicts that happen in it. He suggests that these conflicts are still reconcilable (Li, 2018). This is also of major importance for policymakers, combined with their ability to take advantage of the window of opportunity. For them it is a strategic tool, that helps them to set the course of the economic development of the port-city on a new strategic goal (Van den Berghe, 2018).

Therefore, many researchers have dived into this topic, such as: Daamen (2007; 2010), Hoyle (1989; 2000), Hayuth (1982), Bird (1963), Wiegmans & Louw (2011) and others. They analyzed the development and found that the port and cities have grown apart, from an economically and geographically perspective (Wiegmans & Louw, 2011). This went through according to a process that many of them divided into different stages (Hoyle, 1989; Hoyle 2000; Bird, 1963). These stages are represented in various growth models, such as the model of Bird (1963), which is named 'Anyport Model' and serves as basis for the model of Hoyle (2000) and that of Wiegmans & Louw (2011). The Hoyle model divided the port and city growth process in six different stages (Li, 2018). They all had their own physical layout. What Bird (1963) noticed in his research, was that the core of the port moved out of the port area and out of the urban center, pushing the port infrastructure to move downstream (Li, 2018).

Hoyle's model (2000)

The model describes a more extended port-city interface in six stages, see figure 20. The first four stages are like the way Hayuth has described his idea on separation. The difference is in the fifth stage, where Hoyle captures the return of former urban functions back to the port center, or the redevelopment of former waterfront areas. The last stage in the model is the revitalization of the port-city links and urban change.

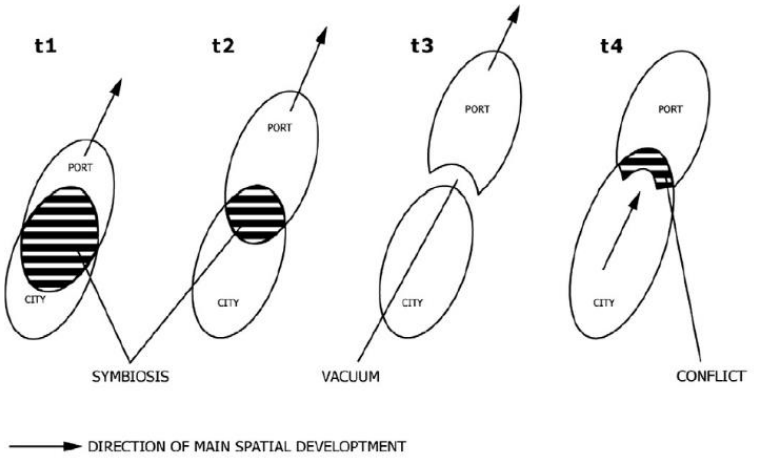
STAGE	SYMBOL ○ City ● Port	PERIOD	CHARACTERISTICS
I Primitive port/city		Ancient/medieval to 19th century	Close spatial and functional association between city and port.
II Expanding port/city		19th - early 20th century	Rapid commercial/industrial growth forces port to develop beyond city confines, with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

[20] PORT-CITY INTERFACE OF HOYLE (2000).

(Proposed) Model of Wiegmans and Louw (2011)

The proposed model of Wiegmans and Louw (2011) contains four steps, see figure 3. The fourth step, the t4, indicates the conflict due to the (rapid) city expansion that led to occupying some of the port area. It captures the problem that port authorities are facing nowadays. This is around the question *whether* the (re-)development should even take place or not, while it used to be around the *how* the development should look like (Wiegmans and Louw, 2011). A perfect example of such conflict is the Port Authority's intention to save some of the buffer lands, for their own growth or ability to provide flexibility to their renters. Nevertheless, the municipality drops comes with their growth and expansion plans, targeting those remaining buffer lands of the port and thus limiting their future growth and flexibility. This happened because the growth pace of the municipality is much greater than the port's (Wiegmans and Louw, 2011). This is visualized in figure 21.

Wiegmans and Louw (2011), emphasize that many of those existing industrial companies are searching for a spot to relocate. This can lead towards more potential growth for both the company as well as the municipality. But the problem is still the scarcity of good available land. This is very hard to find or in some cases the port just wishes for other sorts of companies (Wiegmans and Louw, 2011).



[21] PORT-CITY INTERFACE PROPOSED MODE OF WIEGMANS AND LOUW (2011).

THE MODELS HAVE INDICATED THAT THE RELATIONSHIP BETWEEN PORT AND CITY IS BECOMING MORE AND MORE COMPLEX. THIS CAN ALSO BE TRANSLATED INTO THE PLANNING PROCESS, WHICH HAS EXPERIENCED THE SAME. THEREFORE, IT SHOULD NEVER BE EXECUTED IN A SINGULAR MANNER, FOR EXAMPLE THROUGH MERGING BOTH ASPECTS AND OR SEGREGATION OF THEM (WIEGMANS & LOUW, 2011). IN THE END, PORT-CITY INTERFACE CAN ONLY HAPPEN IF BOTH ARE WILLING, FOR JUST HAVING A MEETING NOW AND THEN WOULD NOT BE SUFFICIENT (VAN DEN BERGHE, 2018).

II- THE NEW ENVIRONMENTAL AND PLANNING ACT 2021 (NEPA)

As can be seen in table 27, the NEPA will have an enhanced impact on the urban area development in the Netherlands when implemented in 2021. Merging several laws and rules into a compact body, will allow flexibility for the *local*-initiatives and custom solutions in the urban area *re*development. The replacement of the *Zoning plan* and the *Spatial Planning Act* are due to the NEPA. As a result, a more effective planning, and decision-making process will be enabled in projects. Subsequently, a fundamental benefit to the latter is the emergence of the board of *participation*, which is an obligatory prerequisite for the involved stakeholders. Through collective work on solutions in the beginning of the project, costs and time will be saved later.

Furthermore, with the NEPA every newly formed area plan (*Surrounding Vision*) will encompass the information of how companies, citizens and other interested parties have been involved. Regarding the planning and decision-making processes. The main benefit of the NEPA is creating a broader support. This is assumed to lower research expenditures costs and increase time savings (Rijksoverheid, 2017). The development of the Environmental vision is a new aspect that comes with NEPA, which can include the *Spatial (Housing)* and the *Economic Visions.* Resulting in a better integrated policy document. The *Environmental Plan* will also include the legal planning basis (VNG, 2016).

With the new act an interesting change will happen, causing less fixed plans for a specific location to be determined by it. In practice it would mean that the plan will be tested for the specific location against the defined environmental qualities. For residential purposes, which is part of the mixed-use development, it will only be possible when the surrounding companies aren't inhibited in their daily business activities. Yet, more flexibility is possible to be achieved, when the involved parties come to an agreement about the involved matters. These matters or conditions should be made clear and understandable for them (VNG, 2016).

The new act puts emphasis on the ability of local governments to solve problems. This is very relevant for the HIPCs, as there is no such thing as a universal approach for dealing with HIPCs. This has been repeatedly mentioned, by (EI-1, 2019; EI-3, 2019;SI-7, 2019) and parties involved are struggling with this fact.

TABLE 27 IMPLEMENTATION EFFECT OF THE NEPA 2021 (RIJKSOVERHEID, N.D.)

Aspect	Before implementation	After implementation
Laws	26 Laws	1 Law
Articles of law	5000	26
Ministerial Regulations	120	10
AMvB	120	4
1 Law for the whole living environment.		
Local problems can be solved locally.		
From different zoning plans to one environmental plan.		

III- INDUSTRIAL (HARBOR) AREA

The area of the Haven-Stad is currently functioning as an industrial area, which is one of the five typical forms of business parks that can be found in the Netherlands. The area is predominately occupied by the heavy industry, which is represented by many sectors such as: construction, manufacturing, wholesale business, garages, transport and distribution, trade companies but also offices. Therefore, all three sorts of environmental zones, A, B and C, are found in the area. The difference in these zones is in the permit to settle in the area, which is not necessary for zone A, in some cases it is for B and always in the case of zone C. Returning to the five types of business parks, the mixed-area is the most common one in the Netherlands (Louw et al., 2004). In general, the mixed areas provide space for companies that possess an environmental level up to 4.0. other business types are the seaport sites, the high-quality business parks and the distribution parks (Louw et al., 2004).

Influence of E-class

The environmental category is an important determinant in the decision whether a company can part of a mixed-use development with residential functions. The principle is developed by the Association of Dutch Municipalities and contains various levels, see table 28. A higher class means a larger environmental impact. The impact depends on various aspects, such as: noise, danger, smell, substance. It is expected that well designed spatial planning will include these aspects and keep the source of harmful activities far away from vulnerable functions (VNG, 2009).

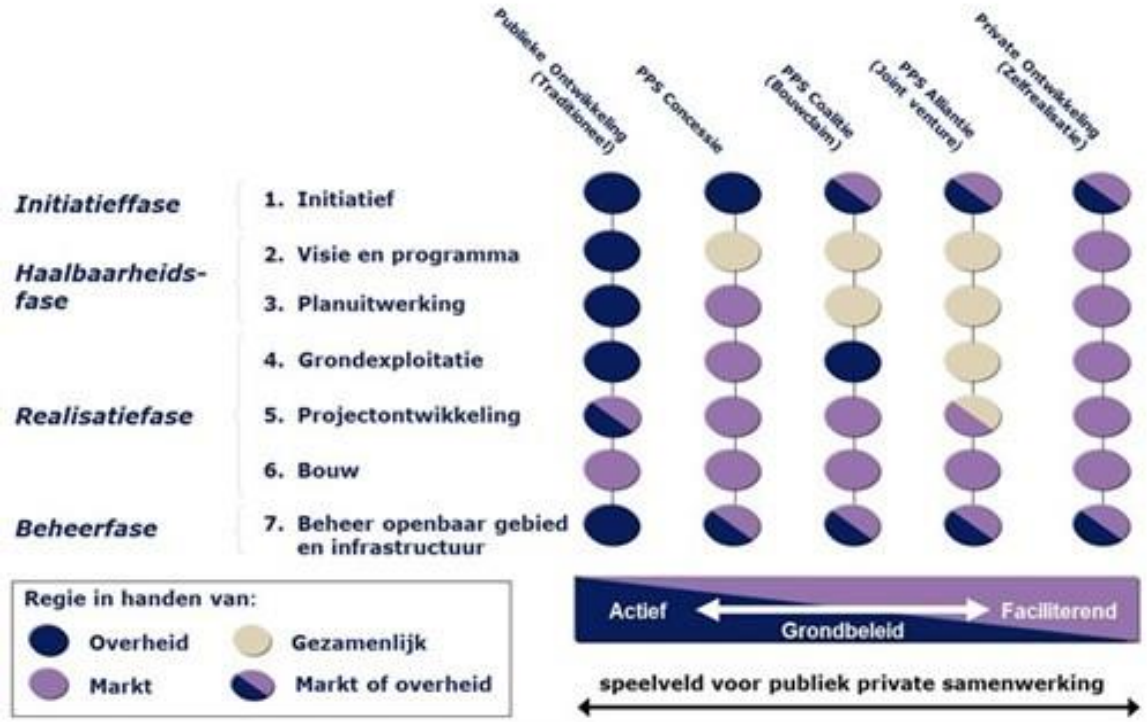
TABLE 28 ENVIRONMENTAL CATEGORIES AND MAXIMUM NUISANCE DISTANCE (VNG, 2009).

E-category level	1	2	3.1	3.2	4.1	4.2	5.1	5.2	5.3	6
Maximum nuisance distance in mixed area in meters (*for noise, substance, smell and safety*)	0	10	30	50	100	200	300	500	700	1000

Therefore, the type of business is important to consider when planning a mixed-use transformation. The companies that exceed the level 3.1, create more challenges for realization of vulnerable functions. More specifically, the performed activities of the company determine the impact the company has on vulnerable functions. This explains why most governments include this rule when transforming *industrial* areas. In addition, the municipality often takes the responsibility of the relocation of these companies, by covering the financial costs of it. Nevertheless, this does point at the potential importance and power that the industrial companies have during such developments.

IV- COLLABORATIONMODELS IN UAD

In area development, various parties, mostly public and private parties, work together on the often-large projects. The way the parties collaborate during that process can vary, in general there are five main collaboration models, see figure 22. The various cooperation models are distinguished from the land exploitation (Daamen, 2005; De Zeeuw, 2007; Wolting, 2008):



[22] COOPERATION MODEL AGAINST CONTROL IN THE VARIOUS PHASES OF AREA DEVELOPMENT (KENNISCENTRUM PPS, 2006)

The public land exploitation (classical and building claim model).

The land is owned by the municipality or in some cases handed over to the municipality, who will conduct the land exploitation and indirectly dominate the planning, feasibility and procedures. The development is carried out at the expense and risk of the market party. For years this was the dominant course in the Netherlands and became less due to the withdrawal movement of the government (De Zeeuw, 2018).

The public-private land development (joint venture model).

Management of land development takes place jointly by public and private. As well as the concept and planning and programming. The **added value** of this model lies in the **complementary knowledge** of public and private and **the risk distribution** in land development. The building development is usually done by the private party.

The private land exploitation (concession model / self-realization)

The lands are already in private hands or are being transferred by the government to the market party with a predetermined objective and preconditions. The risks of land development lie with the private party. After realization of the development, the municipality will be supplied with public areas. With self-realization, an exploitation agreement is usually concluded in advance. The choice of the cooperation model is, according to Franzen & De Zeeuw (2009), strongly tied to the local substantive and political context. It also depends on the nature of the assignment. This in turn is linked to land ownership.

V- FACTORS

Table 29 shows the relocation factors mentioned in the study of (Lloyd & Dicken, 1977) added with some of other studies. The researchers have categorized these factors in three main groups, the firm internal, the location and the firm external factors.

TABLE 29 FACTORS DIVIDED INTO THREE CATEGORIES BY (LLOYD AND DICKEN, 1977).

Group	Variables	Explanation & effect	Source
Firm internal factors - RE characteristics	Age	*Young firms show a higher relocation pattern than older firms.* *Large firms seem to have more (negotiation) power to smaller ones (Hayter, 1997)*	*(Sieminska, 2002; Cheng et al., 2005; Greenhalgh, 2005) and (Risselada et al., 2013) (pellenbargh, 2002)*
	Firm size	*Smaller firms relocate more often over shorter distances compared to large firms.*	Idem + Lloyd & Dicken (1977)
	Economic sector	*Some sectors are more location bound than others*	Idem+ Lloyd & Dicken (1977)
	Ownership	*Ownership provides again more flexibility. The time needed to sell depends largely on how specific the type of property is and the location.*	Idem-Pellenbargh 2002
	Rent or lease (duration + additional promises) *	*With rent it is expected to relocate more easier than with lease.*	Risselada et al 2013
	Flexibility	*Flexible objects offer more growth/scale opportunities and therefore lowers the relocation pattern of a firm*	Risselada et al 2013
	Type of industry	*Heavy industry shows a lower relocation pattern than other industries*	(Rymarzak & Sieminska, 2012)
	Nature of enterprise	*Some firms have in their nature to be more volatile.*	(Rymarzak & Sieminska, 2012)

	Office vs industrial building	*Office buildings are much easier to rebuild than an industrial building.*	Pellenbargh 2005
	Previous migration behavior	*Firms that migrated recently shown a much lower relocation trend.*	Lloyd & Dicken (1977)
Firm external factors	Limited accessibility	*Increases the relocation trend*	Pellenbargh 2002
	Deterioration of the building	*Increases the relocation trend*	Idem
	Environmental considerations	*The stricter the rules, the higher the investment costs. Preferably a location will be chosen where the investment cost is more balanced.*	Idem
	Limited labor supply	*Increases the relocation trend*	Idem
	High location costs	*Increases the relocation trend*	Idem
	Government policy	*The stricter the rules, the higher the relocation trend will be.*	Lloyd & Dicken (1977)
Location	Previous location characteristics	*These are often used as starting point to compare the new locations with.*	Risselada et al 2013
	Site and situation	*The better the location the lower chance of relocation.*	Pellenbargh 2002
	(Non) water bound	*Depending on the type of business, some prefer water bound over non.*	
-Identity / image	Local character	*Often appeals more towards the smaller and creative companies.*	Clodnițchi, 2017

VI- AGREEMENTS STAKEHOLDERS

HARBOR AGREEMENT OF 1 APRIL 2013 [RELATIONSHIPT MUNICIPALITY OF AMSTERDAM-PORT COMPANY AMSTERDAM]

In this agreement the municipality and the Harbor Company Amsterdam N.V., two things happened. First the privatization of the Harbor company and the splitting of the ownership (Municipality of Amsterdam, 2017a). The municipality kept the legal ownership of the harbor areas and the Harbor Company the Economic ownership. This would give the Harbor Company the main leasehold rights, and by law they're allowed to give the areas out as sub-leasehold contracts or in rents (Municipality of Amsterdam, 2017a).

TRANSFORMATION AGREEMENT OF 1 APRIL 2013

Under this agreement falls the redevelopment project of the Haven-Stad and other projects located in other parts of the harbor. The rights and duty of the Municipality of Amsterdam and Port Company Amsterdam as well as their role are herein captured. The main agreement was the transformation decision which is formulated as follow: **"A decision by the municipality that provides for the withdrawal of land issued in the Principal Right of ground lease and the delivery of such land to the Municipality for the benefit of a Transformation."** (Municipality of Amsterdam, 2017a, p.137) Where transformation is understood as the change of harbor related functions into other besides harbor related functions, such us housing, office, utilities etc.

ART. 3.5 THE DECISION-MAKING PROCESS BEFORE THE TRANSFORMATION DECISION.

This is done in close collaboration between the municipality and the harbor company. The harbor company could provide their view on the "Ontwerp-Transformatiebesluit". And the company is included in the research on the financial effects of the development on their business management. From there, more detailed and deviant decisions could be made regarding the transformation (Municipality of Amsterdam, 2017a).

ART. 3 TRANSFORMATION DECISION

The decision *is made by the municipality* more specifically the mayor and the city council members (het College). The decision includes three things. The scope of the transformation, the research and motivation for the transformation and the planning framework (Municipality of Amsterdam, 2017a).

The planning framework

If the framework is inadequate for the aimed transformation, the municipality would be allowed to determine before or at the same moment of the transformation decision what the new framework is going to be (Municipality of Amsterdam, 2017a).

ART. 4 "CONSERVATIVE EFFECT OF A TRANSFORMATION DECREE AND PLANNING FRAMEWORK"

This article describes the rights and duties of the involved parties. Art. 4.1 and 4.1 discuss the transformation period, which is the time between the decision and handing the areas over to the municipality (Municipality of Amsterdam, 2017a).

Art. 4.1

During that period the harbor company wouldn't make the transformation more difficult or act as an obstacle (Municipality of Amsterdam, 2017a).

Art. 4.3 and further

These articles discuss the period between the determination of the planning framework and the transformation decision. The goal is to make the forming of the planning framework less difficult and to prevent of loss of earning power (revenue) of the harbor company (Municipality of Amsterdam, 2017a).

Art. 10

The water plots will stay in hands of the Harbor Company if they're not handed over to the municipality for transformation, and therefore will keep their harbor functions (Municipality of Amsterdam, 2017a).

COALITION AGREEMENT 2014-2018 "AMSTERDAM IS OF EVERYONE"

Uitspraak coalitieakkoord van het College van B&W uit 2014

The harbor has the ambition to become more sustainable, flexible, and adaptable to changes in the demand of the companies. The decision on continuing the work was made, and the College of B&W decided that the companies that are located within the different parts of Haven-Stad which belong to the operation area of the harbor could stay there until 2040, which is in line with the ending of the Structural vision for that area (Municipality of Amsterdam, 2017a). These companies are the ones that were **located within the area of Haven-Stad during the decision** and **lie in the part that falls under the management of the Harbor Company Amsterdam** (Municipality of Amsterdam, 2017a), see leasehold map. With this decision the Port Company Amsterdam can extend the leasehold contracts of the seated companies located in the project area up to 2040, this without the permission of the municipality of Amsterdam. Permission of the Municipality of Amsterdam is only needed for new leasehold contracts for (temporary) establishment with a period beyond 2029, or an expansion. The coalition agreement is in line with the transformation strategy 2013. These documents didn't mention any clear saying or whatso on the term guarantees for the seated firms.

For those companies that where there the moment of decision, the Harbor Company can decide by themselves to extend the leasehold contracts until 2040 without permission of the municipality. They do need permission from the municipality of Amsterdam for the new ones with a contract period over 2029 (Municipality of Amsterdam, 2017a). The Harbor Company also agreed on the task to try as much as possible to keep the environmental zones (noise pollution) in the area as they are and preferably if possible, to reduce them. And to increase the number of workplaces in the area or at least keep the number as it is (Municipality of Amsterdam, 2017a).

VII- SELECTION CRITERIA HIPCS FOR FIELDWORK

TABLE 30 OVERVIEW OF THE COMPANY SELECTION CRITERIA. OWN ILLUSTRATION

Aspect	Explanation	Link to theory
E-cat	>3.1 noise >2.0 smell & substance	The aim of the development plans is having businesses that can be located next to residential function, with a maximum distance of 30 meters (Municipality of Amsterdam, 2017;2013). From environmental perspective, the most problematic ones are considered noise, smell and substance (Municipality of Amsterdam, 2017;2013).
E-Zone	B and C	Companies located in Zone C are placed there due to legal system. These companies cannot be replaced elsewhere without ensuring the same environmental zone, due to their business. Companies located in zone B, have in some cases the same rights as those in C, depending on the nature of their business.
Type of sector	Industry, Agri bulk, logistics, construction	Based on the projects area and company analysis. Most HIPCs are in the CV, CD & MH parts. These areas are mostly occupied by the 4 sectors: industry – Agri bulk – logistics – construction (area & company analysis).
Location	Coen and Vlot harbor, Cornelis Douwes parks, Minerva harbor	Idem; at first the focus was to include only the HIPCs located at the CV. But due to difficulty of getting in touch with them, a much broader area has been used (area & company analysis).

VIII- SELECTED HIPCS (*FIELDWORK*)

Table 31 shows several companies that exceed the environmental class that is under the current law able to be mixed with residential functions. The last three columns provide the information about the distance regarding smell (I*), substance (II*), and what might be the distance after some new changes to their work process (III*).

TABLE 31 THE TABLE PROVIDES AN OVERVIEW OF THE COMPANIES WITH AN ENVIRONMENTAL CLASSIFICATION 3.1 AND HIGHER, DUE TO 'SMELL' AND 'SUBSTANCES'. (DECISIO & URHAHN, 2015)

#	Name	Address	SBI Category	VNG Cat	Type	S* or SS*	I*	II*	III*
1	Amsterdam Scrap Terminal	Vlothavenweg 1	383202.C - Afvalscheidingsinstallaties	4.2	C	SS	100	100	100
2	De Balk	Condensatorweg 42	251, 333-1 Constructiewerkplaats	3.2	B	S	10	10	0 (S)[1]
3	BAM Materieeldienst	Toetsenbordweg 11	4120, 45211, Civiele techniek met waterwerken/ open opslag	3.2	B	SS	0	10	10
4	Bek en Verburg Scheepsafval	Coenhavenweg 22	381.C - Vuiloverslagstations	4.2	C	S - SS	100	100	100

5	Bek en Verburg	Westerhoofd 12	19202.B – Recyclingbedrijven	4.2	C	S	200	0	100 (S)
6	Bijenkorf Patisserie	Magneetstraat 3	1072 Banket, biscuit- en koekfabriek	3.2	B	S	50	0	30 (S)
7	BMN bouwmaterialen	Vlothavenweg 10	4120, 45211, Civiele techniek met waterwerken/ open opslag	3.2	B	SS	0	10	10
8	Bohlen & Doyen	Coenhavenweg 18	2562, 3311.1 – Overige metaalbewerkende industrie	3.2	B	SS	0	10	0 (S)
9	Braspenning	tt Melissaweg 10	2561, 3311.1 – Metaaloppervlakte behandelingsbedrijven: - Algemeen	3.2	B	S – SS	30	30	0 (S)
10	Bunge Netherlands B.V. Voorheen Cargill Soja B.V.	Coenhavenweg 1 en 3	104102.2 Raffinage van plant & dierlijke oliën/ vetten	4.2	C	S	200	30	**1000**
11	Damen Shiprepair Amsterdam B.V. (Shipdock)	tt Vasumweg 131	301, 3315.4 – Scheepsbouw/ reparatie.: - metalen schepen >= 25m/ proefdr. Moteoren >= 1MW -	5.1	C	SS	50	50	50
12	Diaki Swiet Moffo	Printerstraat 12-14	1039.1 – Groente- en fruitconservenfabrieken: - jam – milieuzwaarte: 3.2	3.2	B	S	30	0	0 (S)
13	Eggerding Industrial Minerals	Coenhavenweg 22	52241.3 -Laad-, los-/overslagbedr. Zeeschepen: - ertsen/mineralen, >-2.000m²	5.3	C	S - SS	30	500	500 (S)
14	FEBO productie snacks	Processorstraat 21	108.8 – Slachterijen & ovg vleesverwerking: - snacks & kant-en-klaarmaaltijden p.o.	3.1	B	S	30	0	0 (S)
15	Gary's Home baked Muffins	tt Vasumweg 260	1073 – Deegwarenfabrieken -	3.1	B	S	30	10	0 (S)
16	Holland Repair Service	Vlothavenweg 16	251, 331.2 – Constructiewerkplaatsen: - in open lucht, p.o. <2.000m² – Milieuzwaarte: 4.1 – Uitvoeringsniveau: 2: gemiddeld	4.1	B	SS	10	30	30

17	Holtkamp patisserie	Elektronstraat 13	108.8 – Slachterijen & ovg vleesverwerking: - snacks & kant-en-klaarmaaltijden p.o. <2K m²	3.1	B	S	30	0	0 (S)
18	ICL Fertilizers Europe CV	Fosfaatweg 48	2015 Kunstmeststoffenfabriek	5.1	C	S - SS	300	200	300
19	ISPA Plastics	Kabelweg 28	222-1 Kunststofverwerkende bedrijven zonder fenolharsen	4.1	B	S	100	30	30 (S)
20	Jaffa Bakkerij	Contactweg 28-30	1071-2 Brood- en banketbakkerijen	3.2	B	S	50	10	30 (S)
21	Jansen, A. B.V.	Papierweg 5	Betoncentrale 381.C - Vuiloverslagstations -	4.2	C	S - SS	100	100	100
22	Kersten B.V	Processorstraat 28	251, 331.1a - Constructiewerkplaatsen: - gesloten gebouw, p.o. < 200 m²	3.1	B	SS	10	10	10
23	Maja Stuwadoors	Pier Azië 10	52241.3 - Laad-, los- en overslagbedrijven t.b.v. zeeschepen: - ertsen mineralen	5.3	C	SS	30	500	500 (S)
24	Mebin betoncentrale	Toetsenbordweg 61	2351.1 - Cementfabrieken: - p.c. < 100.000 t/j -	5.1	B	SS	10	50	50
25	RNB Autoschade	Contactweg 26B	45204C Autospuitinrichtingen	3.1	B	S	30	10	30
26	T&M Kunststoffen B.V.	Magneetstraat 5	222-1 Kunststofverwerkende bedrijven zonder fenolharsen	4.1	B	S	100	30	50 (S)
27	Union Milieu	Processorstraat 3	381.A - Vuilophaal-, straatreinigingsbedrijven e.d. - Milieuzwaarte: 3.1 - Uitvoeringsniveau: 2: gemiddeld	3.1	B	S	30	10	30
28	RENEWI Before: Van Gansewinkel	Nieuwe Hemweg 10	383202.c Afvalscheidingsinstallatie	4.2	C	S - SS	100	100	100
29	Van Vliet	Toetsenbordweg 3	52241.3 - Laad-, los-/overslagbedr. Zeeschepen: - ertsen/mineralen, >= 2.000 m² -	5.3	B	SS	30	500	100 (S)

TABLE 32 EXPLANATION OF THE ABBREVIATIONS USED IN TABLE 29, OWN ILLUSTRATION.

Abr.	Explanation

1 (s):	Spelregel (ja, gevoelige functies mits); een nader onderzoek kan uitwijzen of van richtafstand kan worden afgeweken. Genoemde afstand in deze kolom wordt op basis van de bedrijfsgegevens door ODNZKG ingeschat en is een indicatie van wat na onderzoek haalbaar is.
S*	Smell
SS*	Substance
I*	Directional distance Smell
II*	Directional distance Substance
III*	Indicative distance ODNZKG

The following companies were added in during the process of visiting and interviewing the ones listed in table 33. Eventually the amount of companies contacted has reached 41.

TABLE 33 THE REMAINING HIPCS OF THE FIELDWORK, OWN ILLUSTRATION.

#	HIPC	Location	#	HIPC	Location
30	Bouwhub	Coen and Vlot harbor	36	Spectakels	Coen and Vlot harbor
31	Skyworks	Coen and Vlot harbor	37	IJ Bouw B.V.	Cornelis Douwes parks 0-1
32	J en P Loodgieters	Coen and Vlot harbor	38	BIC Protein	Coen and Vlot harbor
33	Dekschuiten en Pontons	Coen and Vlot harbor	39	Cocoon Holland B.V.	Coen and Vlot harbor
34	Mateco	Coen and Vlot harbor	40	Dynniq	Coen and Vlot harbor
35	101 Motoren	Coen and Vlot harbor	41	IGMA	Coen and Vlot harbor

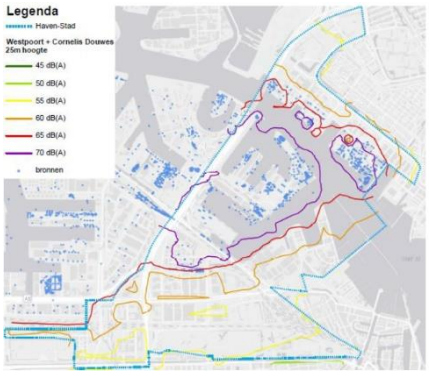
IX- ENVIRONMENTAL ASPECTS

ENVIRONMENTAL ASPECTS

With the development plans comes the MER, which is the research on the environmental impact of the companies in the project area. The municipality has researched all the relevant environmental aspects. And concluded, that (noise, smell and substance) are the most important (MER, 2017).

NOISE

The noise production can be divided between the industry and the infrastructure like the A-10 road. For this research the focus will be on the noise produced by the industrial companies. The general rule is that noise-sensitive object can be built within the 50 dB(A) range, such as schools, dwellings and kindergartens. Offices and companies are not affected by these rules. Between 50 and 55 dB(A) these noise-sensitive objects can be built if they consist of at least one silent side, see figure 23 for the area. The construction of noise-sensitive objects is above the 55 dB(A) wall not allowed. Unless they're enclosed by silent walls were the windows can't be open. This is according to the Amsterdam Noise Policy.



[23] NOISE CONTOURS OF THE ZONED INDUSTRIAL AREAS WESTPOORT AND CORNELIS DOUWES (MER, 2017)

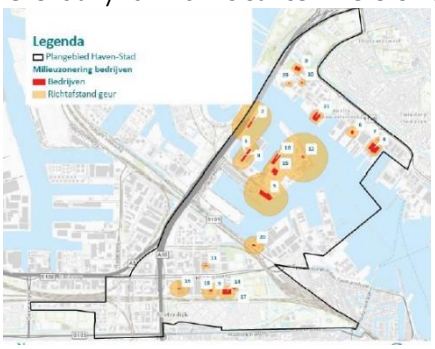
The noise levels are shown in the figure x. as can be see, most of HS lies in the area which exceeds the 55 dB(A). There are exceptions in the law that allow the development under certain, such as the Seaport Norm and the Crisis & Repair act. As can be seen in the figure, the southern part is mostly affected by the companies located in the Coen and Vlot harbor.

[24] COMPANIES WITH AN ENVIRONMENTAL EXCEEDING 3.1 (MER, 2017).

Most of the noise producing companies are located on the zoned areas, some are located outside of that area. See figure 24. This was made possible by a 'licensed Noise Space and or by the activity decision'. This has resulted in the adjustment of some of the zoning plans, where they are upgraded to allow companies up to 5.3 on the environmental scale. The higher the level the more impact on the environment the companies can make. Combining companies with a level of 3.2 is difficult to achieve, due to legal matters (MER, 2017).

SMELL

The general rule in Amsterdam, about the production of smell, is to prevent any form of nuisance. There is no policy for this specific aspect. This means that the local authority is authorized to determine what the maximum output may be (MER, 2017). Almost 90% of the smell nuisance is caused by the companies Cargill/Bunge Sojafabrieken, ICL Fertilizers and the cacao companies in the Zaan-region. The first two companies are in the Coen and Vlot harbor and are together responsible for 70% of the smell nuisance. In total there are 21 companies that contain an E-Cat level >3.1 and can be categorized as smell nuisance in the plan area, see figure 25 for the companies.



[25] THE LOCATION OF THE SMELL NUISANCE COMPANIES AND THEIR OUTPUT CIRCLE (MER, 2017).

All the relevant companies that produce some smell hindrance do not overlap other sub areas with their smell contour, see table 34. The contours of these companies become relevant the moment that their specific sub area is being transformed. According to the smell output of the companies, residential development can be realized with some flexible rules. Except in the Minerva harbor-Noord, for the development of that specific plot additional rules and compensations is necessary (MER, 2017). Figure 26 shows that the cumulative smell wall of 3 and 2 OU_e/m_3 are covering the areas: CV, MH and CD. There are no restrictions within these levels, about the policy.

[26] CUMULATIVE SMELL CONTOURS OF THE COMPANIES (MER, 2017)

TABLE 34 COMPANIES WITHOUT A SMELL CONTOUR BUT DO POSSESS A CAT 3.1 OR HIGHER DUE TO NUISANCE DISTANCE OF THE SMELL. (MER, 2017)

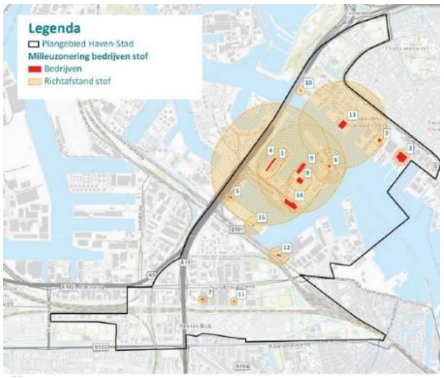
#	Name	Address	Indicative nuisance distance (m)	Location in the sub area	Contour outside the own sub area
1	Bek en Verburg Scheepsafval	Coenhavenweg 22	100	CV	No
2	Bek en Verburg	Westerhoofd 12	200	CV	No
3	Bijenkorf Patisserie	Magneetstraat 3	50	S-I South	No
4	Braspenning	Tt. Melissaweg 10	30	CD 2-3	No
6	Damen Shiprepair	Tt. Vasumweg 131	50	CD 2-3	No

7	Diaki Swiet Moffo	Printerstraat 12-14	30	CD 2-3	No
8	Eggerding Industrial Minerals	Coenhavenweg 22	30	CV	No
9	FEBO productie snacks	Processorstraat 21	30	CD 0-1	No
10	Gary's Home baked Muffins	Tt. Vasumweg 260	30	CD 0-1	No
11	Holtkamp patisserie	Elektronstraat 13	30	S-I North	No
13	ISPA Plastics	Kabelweg 28	100	S-I South	No
14	Jaffa Bakkerij	Contactweg 28-30	50	S-I South	No
15	Jansen, A. B.V.	Papierweg 5	100	CV	No
16	Maja Stuwadoors	Pier Azie 10	30	CV	No
17	RNB Autoschade	Contactweg 26B	30	CV	No
18	T&M Kunststoffen B.V.	Magneetstraat 5	100	S-I South	No
19	Union Milieu	Processorstraat 3	30	CD 0-1	No
20	Renewi	Nieuwe Hemweg 10	100	MH	No
21	Van Vliet	Toetsenbordweg 3	30	CD 0-1	No

SUBSTANCE

For the (coarse) material theme there is no difference between the current situation and the reference situation.

Dust particles larger than 10 micrometers fall under the term "coarse dust". For coarse dust no legislation or policy has been established for spatial developments and dust. The Activities Decree does, however, apply to companies for, for example, drift sensitivity. Examples of dust-sensitive substances are cement, soil, rusty scrap and fertilizer. There are 15 companies present in and around the plan area that have an environmental contour larger than 30 meters (environmental category 3.1 or higher) for dust based on the VNG brochure, see table below and figure 27.



[27] INDICATIVE SUBSTANCE CONTOURS FOR INDIVIDUAL COMPANIES (DECISIO & URHAHN, 2015)

As can be seen in the table 35, most of the HIPCs do not possess a contour that overlaps with other sub areas. Therefore, they will only matter when their specific plot is being redeveloped and in general, it is expected that these companies possess a much smaller contour, than is outlined by the VNG (MER, 2017).

TABLE 35 OVERVIEW OF THE HIPCS BASED ON SUBSTANCE (DECISIO & URHAHN, 2015)

#	Name	Address	Indicative nuisance distance (m)	Location in the sub area	Contour outside the own sub area
1	Bek en Verburg Scheepsafval	Coenhavenweg 22	100	CV	No
2	Braspenning	Tt. Melissaweg 10	30	CD 2-3	No
3	Damen Shiprepair	Tt. Vasumweg 131	50	CD 2-3	No
4	Eggerding Industrial Minerals	Coenhavenweg 22	30	CV	No
5	Holland Repair Service	Vlothavenweg 16	30	CV	No
6	ICL Fertilizers	Fosfaatweg 48	200	CV	No
7	ISPA Plastics	Kabelweg 28	100	S-I South	No
8	Jansen, A. B.V.	Papierweg 5	100	CV	No
9	Maja Stuwadoors	Pier Azie 10	30	CV	No
10	Mebin Betoncentrale	Toetsenbordweg 61	50	CD 0-1	No
11	T&M Kunststoffen B.V.	Magneetstraat 5	100	S-I South	No

12	Renewi	Nieuwe Hemweg 10	100	MH	No
13	Van Vliet	Toetsenbordweg 3	30	CD 0-1	No
14	Cargill/Bunge Soja B.V.	Coenhavenweg 1	30	CV	No
15	Amsterdam Scrap Terminals	Vlothavenweg 1	100	CV	No

TRANSPORTATION OF DANGEROUS SUBSTANCES

Dangerous substances are transported over the rail, the North Sea Canal, the motorways and some urban roads. For these transport routes, the contours for PR 10-6 lie on the transport route and therefore do not entail any obstacles. However, there are areas of influence around these main transport routes. These transport routes with the areas of influence are shown in figure 28.

[28] OVERVIEW MAP OF THE TRANSPORTATION ROUTES (ANTEAGROUP, 2015)

Haven-Stad is not located within the external safety assessment area in accordance with the Schiphol Airport Classification Decree (LIB) within which attention must be paid to the risks of an aircraft accident. Based on the LIB, however, maximum building heights apply because of the normative test height and the test height in connection with the functioning of radar equipment.

- Maximum construction height 146 m above NAP
- Sloterdijk Center 60 m in accordance with the zoning plan
- North Basic road 100 m in accordance with zoning plan
- Port area 50 m in accordance with zoning plan
- Northern IJ bank, 15 m in accordance with the zoning plan.

EXTERNAL SAFETY

External safety is a theme that must be given a place in almost every development during the transformation of Port-City. This is mainly due to the areas of influence that lie over a large part of Haven-Stad. The advice for the municipality is to draw up clear rules.

X- INTERVIEW PROTOCOL (HIPC)

Bedrijf:

Geïnterviewde:

Functie:

Datum:

Locatie:

Haven-Stad

In de afgelopen jaren heeft Amsterdam een flinke toename in woningbouw mogen ervaren. Desondanks is de vraag naar een geschikte woning niet minder geworden, wat een belangrijke drijfveer voor de gemeente of is om de waterfrontgebieden te gaan transformeren. Zoals in het geval van de Haven-Stad, kan het hierbij ook om zeer actieve industriële gebieden gaan. Het transformeren naar een woon-werk gebied vormt dan een directe dreiging van het voortbestaan van de daar gevestigde zittende bedrijven, met name voor de bedrijven in een hoge milieuklasse. De vraag is dan hoe de gemeente of met de zittende bedrijven omgaat.

Rol van de milieuklasse in de transformatie van industriële havengebieden

Dit interview is onderdeel van mijn afstudeeronderzoek binnen de master *Management in the Built Environment* aan de TU Delft. Hierin bestudeer ik de specifieke uitdagingen die gevestigde bedrijven, in een hoge milieuklasse, ondervinden in de transformatie van een industrieel gebied naar gemengd woonwerkgebied. In eerste instantie wordt op basis van de milieuklasse van een bedrijf bepaald of het wel of niet op de gevestigde locatie kan voortbestaan, zodoende kan de (*potentiële)* meerwaarde van een bedrijf voor de ontwikkeling worden weggecijferd vanwege de milieuklasse. De hypothese luidt als volgt: door middel van de huidige aanpak worden de potentiele waarden die het bedrijf voor een gebiedsontwikkeling kan hebben, over het hoofd gezien.

Focus

Dit onderzoek focust zich op een mogelijke benadering van de zittende bedrijven, waarbij de milieuklasse een klein onderdeel van het complete bedrijfsprofiel is. Met dit bedrijfsprofiel worden de potenties en meerwaarde van een zittend bedrijf voor de ontwikkeling in beeld gebracht. Hierin wordt er ook gekeken naar de economische, sociale en omgevingsaspecten van het bedrijf. Het bedrijfsprofiel zal vervolgens als basis kunnen functioneren voor de onderhandelingsmomenten tussen de betrokken gemeente of(n) en de bedrijven gedurende het planvormingsproces.

De resultaten voortvloeiend uit dit interview zijn slechts voor kennisdoeleinden bestemd en zullen anoniem worden verwerkt. Los van de vooraf opgestelde vragen, zal er altijd de gelegenheid zijn om aanvullende vragen te stellen.

Mocht u zelf nog vragen hebben, dan kunt u die geruststellen.

(De opgestelde vragen dienen als richtlijn voor het interview en er is ruimte voor diepgang en andere vragen.)

(Introductie – interviewer & geïnterviewde)

Haven-Stad

- Heeft uw bedrijf een rol gespeeld/betrokken geweest in het ontwikkelingsproces van de plannen voor de Haven-Stad?

  O Zo ja, hoe?

- Vormen de transformatieplannen van de gemeente of een dreiging op het voortbestaan van uw bedrijf?

  O Zo ja, waarom?

- De gemeente of heeft een aantal bedrijven de boekwaarde aangeboden bij een eventuele verplaatsing.

  O Denk je dat, vanuit jouw bedrijf gezien, dit voldoende zou zijn?

  O Wat zou financieel gezien een ander alternatief kunnen zijn?

Economisch

- Hoeveel mensen werken er op deze locatie?

  O %afkomstig uit Amsterdam|%directe & indirecte banen| verdeling naar geslacht/leeftijd/educatie

- Hoe groot is het bedrijf en hoe kijkt u naar de komende 10 jaar?

  O Wat zijn voor uw bedrijf belangrijke groeifactoren?

  O Zou de gemeente of hierin kunnen bijdragen?

- Kunt u een globale schatting geven van de orde van grootte van uw keten?

  (Vb. Damen Shiprepair werkt met ong. 250 bedrijven en Albemarle met ong. 60 bedrijven)

  O In hoeverre zijn deze ketenbedrijven gelegen in de *metropoolregio* Amsterdam?

Sociaal

- Kunt u de toegevoegde waarde van uw bedrijf aan uw directe omgeving (Amsterdam) omschrijven?

  (Werknemers die 1x per jaar naar scholen gaan om over het werk te praten; lokale mensen aannemen)

  O banen| sociale impact | voorloper in uw sector | Erkend Leerbedrijf

- Wat betekent de stad Amsterdam voor uw bedrijf?

  (Afzetmarkt | Imago | bron van kennis | Netwerk etc.)

Milieu

- Welke werkprocessen vinden er op locatie plaats?
- Heeft het bedrijf ooit maatregelen genomen om het werkproces te veranderen?

  O Innoverende maatregelen | Wat voor impact had dit?

  - Qua bedrijfsgroei:
  - Qua milieubelasting:

- Op welke schaal denkt u dat de woonfunctie mogelijk is?

  O Naast elkaar in hetzelfde pand | Bovenop elkaar in hetzelfde pand | Naast elkaar in dezelfde straat | Naast elkaar in dezelfde wijk.

Kwaliteit

- Wat zijn voor uw bedrijf de belangrijkste locatie factoren?

  (Dit kan nabijheid van de stad zijn, watergebondenheid, infrastructuur, ruimte voor groei, ruimte om geluid te produceren etc.)

- Kunt u het ideale gebouw voor uw bedrijf omschrijven?

  O Welke elementen zou het minimaal moeten hebben?

- In hoeverre is uw bedrijf afhankelijk van de huidige locatie?

  O De directe omgeving

Evaluatie

Heeft u verder zelf nog vragen of adviezen/suggesties met betrekking tot dit onderzoek?

Einde interview.

Bedankt voor uw medewerking!

De verwachting is dat ik het onderzoek voor het einde van het jaar heb afgerond. Mocht u geïnteresseerd zijn, dan zal ik u de resultaten toesturen.

O Ja, naar:

O Nee.