

BEYOND BUILDINGS

THE FUTURE OF MARITIME LEFTOVERS

RESEARCH PLAN

AR3A010

GRADUATION STUDIO: REVITALISING HERITAGE

DELFT UNIVERSITY OF TECHNOLOGY

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THE FUTURE OF MARITIME LEFTOVERS

*focusing not just on buildings but also on non-building
structures that have defined industrial landscapes.*

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INTRODUCTION

Maritime industry determines the Netherlands' cultural-historical identity has and played a significant role in shaping the relationship with water. The collection of landscape, structures and buildings, such as dikes and canals, harbours, shipyards and wharfs reflect the history and current situation (TU Delft Chair Heritage and Architecture, 2024). Only recently the appreciation for these objects has grown (Archadis, 2019).

The transformation and re-use of the industrial heritage have become a 'hot topic'. Especially since the 1990s people and instances like architects, urban planners, politicians, preservations specialists and the general public began to realise the importance of this topic (Nevzgodin, 2016).

The role of maritime heritage in the Waterdriehoek

The Gedeputeerde Staten¹ South Holland have indicated that it sees opportunities in the development of a new heritage line around the maritime industrial heritage of Hoek van Holland up to and including Gorinchem along the Nieuwe Waterweg and Nieuwe Maas, Noord and Merwede. This heritage line should be the physical reflection of the specific historical developments that have been important for the history of South Holland and stand for the character of parts of South Holland (Archadis, 2019).



Figure 1: Overlay Erfgoedlijn IJzeren Eeuw and Waterdriehoek Archadis. (2019). Verkenning Erfgoedlijn IJzeren Eeuw: Maritime industrie van Hoek van Holland tot en met Gorinchem. In Provincie Zuid-Holland (083814320 E). https://www.zuid-holland.nl/publish/pages/24906/a1_bijlage_3_verkenning_erfgoedlijn_maritieme_industrie_incl_bijlagen.pdf

¹Gedeputeerde staten

forms the daily management of provinces. Their task is to prepare and implement decisions of the Provincial Council. Furthermore the Gedeputeerde Staten implements a large number of regulations of the central government in joint administration. They also have a coordinating and planning function and supervise the municipal governments in financial matters.

The construction of the Nieuwe Waterweg, creating a connection between Rotterdam and the sea between 1866 and 1872 coincided with the start of a new era; the Iron Age. New harbour basins and infrastructure were built, steam cranes and other machines made loading and unloading more efficient.

Industrial complexes concerning shipbuilding, dredging companies and suppliers to the metal industry were built in the area and became famous worldwide. A new maritime cluster was created (Archadis, 2019).

However, nowadays the region deals with the relocation of port activities. Some activities have moved towards the Eerste and Tweede Maasvlakte and shipyards have merged in recent decades. Only a few of the original shipyards are being used. Due to these developments the attention to the redevelopment of these vacant industrial complexes and harbour areas becomes more relevant (Archadis, 2019).

The province of South Holland has adopted the Cultural Heritage Policy Vision 2017-2020 (Beleidsvisie Cultureel Erfgoed 2017-2020), with as main focus to tell the broader story of South Holland history and make it more tangible. The so-called heritage lines are an important means of making the heritage tangible. Where in the previous policy vision 2013-2016 the tasks of protecting, making and using the heritage were the motto, the focus will now be on the further development of the heritage. (Archadis, 2019)

The province has asked the Heritage and Architecture department of the Technical University of Delft to value the maritime collection and its potential for development in the region the 'Waterdriehoek' for this graduation studio with focus from Kinderijk to Gorinchem (along rivers De Noord and Beneden Merwede) (TU Delft Chair Heritage and Architecture, 2024).

Heritage and architecture

Heritage started with professionals who were mainly concerned with the restoration of neglected castles, historic mansions and ruinous churches, a limited quantity of outstanding pre-industrial buildings (Kuipers & De Jonge, 2017).

People used to care most about buildings older than 50 years in order to ensure sufficient distance in time which would allow for proper assessment of their historic value. However, this perspective shifted (Kuipers & De Jonge, 2017). The interest in redeveloping more modern sites is growing since the last few decades (Nevzgodin, 2016; Meurs, 2016; Kuipers & De Jonge, 2017). Everyone is aware of the high potential and importance of heritage. There is also a widespread feeling that architectonic interventions can be necessary to give heritage new life and social relevance (Meurs, 2016).

Wessel de Jonge states that this shift poses an ethical dilemma: these buildings were designed with an anti-monumental stance, these buildings should be purely functional. With the idea that when they lose their functions they should be demolished. When conserving these 'ordinary' buildings as 'monuments' it goes contrary to their original 'idea' (Kuipers & De Jonge, 2017).

However, today, properties are often left vacant due to societal and economic developments. This mainly affects religious and industrial sites, thereby as well maritime sites. Instead of demolishing or a building or site left vacant, it can be given a lease of life when a existing building or site is given a new function (Ministerie van Onderwijs, Cultuur en Wetenschap, 2024) an it can be the quartermaster of the renovation (Meurs, 2016).

Maritime heritage

“As the industry declines, followed by the population shift, the original purpose of these buildings has been lost. Instead of demolishing them and rebuilding from scratch, many have been renovated to serve as the bases for revitalizing the regions.”(Hernández, 2022)

The biggest difference is that where monuments focus on a ‘stamp collection’ of exceptional buildings, heritage embraces all. It covers loose objects (movable heritage) buildings (built heritage), urban structures, landscape, archaeology, traditions and stories (intangible heritage). Heritage becomes the placemaker (Meurs, 2016).

Heritage is more than just historical objects (Hein, 2019). Only conserving these buildings is not enough to ensure the conservation of a historic city, also immaterial values are important (Meurs, 2016). It is an combination of both tangible heritage, associated with industrial technology and processes, engineering and architecture, and intangible heritage, embodies in people, skills, memories, traditions and social life of workers and their communities (ICOMOS, 2011). The role of historical industrial buildings on educational perspective is very important (Nevzgodin, 2016).

Industrial heritage is highly vulnerable and at risk, often lost for lack of awareness, documentation, recognition or protection but also because of changing economic trends, negative perceptions, environmental issues or its sheer size and complexity. However, more people start to realise that extending the life cycle of these structures and their embodied energy can contribute to achieving the goals of sustainable developments at different levels (ICOMOS, 2011).

But how to manage former large-scale historical industrial sites? Comparing this with the preservation of buildings which were relatively easy to deal with because of their scale it brings new challenges (Nevzgodin, 2016). The concept of the historical cultural landscapes which includes buildings, green spaces, water, urban structures, and landscapes. These (urbanised) landscapes can be considered heritage but they cannot be frozen in time (Meurs, 2016).

From the heritage perspective, the ambition is to keep the ‘historic urban landscape’ (HUL) recognisable, including characteristic places and structures (Bandarin & Van Oers, 2012). How to find a new function and undertake rehabilitation of building complexes on this scale? What are the most valuable elements that should be preserved? (Nevzgodin, 2016)

Maritime heritage consist of sites, structures, complexes, areas and landscapes as well as the related machinery, objects or documents that provide evidence of past or ongoing industrial processes (ICOMOS, 2011). Most shipyards are now huge sheds, without floors, internal infrastructure and heavy machinery. Elements that determined the character and appearance of the yards such as slipways, cranes, docks and railway tracks are hardly present anymore (Crimson, 2005). Maritime heritage is more than just buildings; movable heritage, machines, mechanisms and technical installations are also considered as an important element to be protected and preserved. They can represent crucial links in a cityscape because they mark a transition, are iconic, show rare traces of a certain historical period or provide historic character (Meurs, 2016; Nevzgodin, 2016).

In the Netherlands, the importance of these objects is more often recognised. Objects, that are significant and present the former use of an area and the structure itself, now sometimes get a monumental status to show their (historical) importance. In industrial and maritime context this most often is an structure used for some kind of transport. Examples of these structures are De Hef and the Kraan Entrepothaven in Rotterdam.



Figure 2: De Hef Rotterdam
Infrasite. (2022, 4 februari). *Veel Hef-ophef om niets: iconische brug (voorlopig) niet uit elkaar voor superjacht Bezos* | Infrasite. <https://www.infrasite.nl/bruggen/2022/02/04/veel-hef-ophef-om-niets-iconische-brug-voorlopig-niet-uit-elkaar-voor-superjacht-bezos/?gdpr=accept>



Figure 3: Entrepothaven Rotterdam
Blankestijn, H. (2021, 29 juni). *Boten in de Entrepothaven, Kop van Zuid • Rotterdam. Make it Happen*. Rotterdam. Make It Happen. <https://rotterdammakeithappen.nl/media-objecten/boten-in-de-entrepothaven/>

PROBLEM STATEMENT

Traditionally, adaptive reuse has focused on buildings². An often-overlooked aspect of industrial heritage are other structures³, like cranes, bridges, and tracks that have defined maritime landscapes. These elements are integral to the maritime landscape and possess significant historical, cultural, and sometimes even technological value (Meng et al., 2023; Iñiguez, 2024).

These non-building structures⁴ face numerous challenges once their original functions become obsolete. The loss of their utility can result in neglect or demolition, even though their presence provides an understanding of past industrial and/or maritime practices and how they shaped the urban landscape.

“Verkenning erfgoedlijn ijzeren eeuw” from Archadis (2019) shows the recognition in the Waterdriehoek. Here, they list objects important for the maritime heritage site. In this list, 27 of the 173 listed objects are non-building like structures such as crane tracks, cranes and bridges, which is almost 16% of this list, see Appendix A. Often they are used as a symbolic reference, nothing more.

However I believe that when these structures are recontextualized within a modern framework, they not only preserve historical narratives but also contribute to the cultural identity and memory of a place and can be used as a base for architectural intervention.

For instance, structures like Amsterdam's Kraanspoor, the Danish National Maritime Museum or Shanghai's West Bund redevelopment demonstrate how non-building structures can be repurposed into architectural landmarks that attract tourism and local engagement.

Their preservation requires an approach that goes beyond standard building conservation, as they often lack interiors and traditional architectural features. This makes their adaptive reuse particularly complex, but also full of potential for innovative design and urban integration. Currently, there is no literature written about how to adapt these non-building structures.

²**Building**

a structure with walls and a roof, such as a house or a factory, to give protection to people, animals or things (Cambridge Free English Dictionary And Thesaurus, 2024)

³**Structure**

something built, such as a building or a bridge (Cambridge Free English Dictionary And Thesaurus, 2024)

⁴**Non-building structure**

a structure that does not seem building like: no walls or roof

RESEARCH QUESTION

The focus of this research plan and future research paper is about how maritime leftover⁵ structures can be used in a design. In many port cities around the world, industrial constructions such as docks, cranes and quays have been abandoned or become obsolete due to technological advancements and the shift of the maritime industry. However the structures remain reminders of the past of the area and often hold significant historical or even cultural value. This raised the question:

How can non-building structures that have lost their original functions be valued, investigated and transformed for contemporary use?

The sub questions these are focuses into two main categories. The typology (characteristics and values) of these structures and how to adapt these structures into a new use.

Typology

- *What type of maritime non-building structure is suitable for transformation for contemporary use?*
- *What are the key values (historical, aesthetic, functional, technical) associated with maritime non-building structures that extend beyond their functional use?*

Transformation

- *What are the challenges and opportunities in adapting these non-building structures for new uses, considering historical preservation and modern needs?*
- *What are examples of transformation projects of industrial and maritime non-building structures, and what strategies have been employed in these cases?*

The final sub question is closely related to the design project: *How can this be applied in the Waterdriehoek?*

With a focus on the significance and the historical and cultural values from the non-building structures. The goal of the research is to present strategies for design interventions and adaptive reuse that balance the preservation of maritime leftovers with contemporary needs in a way that they remain relevant in its urban landscape.

This can be implemented to the site of the Waterdriehoek where maritime leftovers are common in different shapes (Archadis, 2019). One of these structures will be the starting point of my graduation project. Where gained knowledge will be implemented.

However this can be used on a broader scale. All over the world maritime structures are abandoned or have lost their function even though the structures itself are still strong and characterizing for the former use of the area. In the future, or even now already, adapting these structures can be very relevant in a way of remaining the spirit of the urban landscape even though the area gets a complete new function.

⁵ **Maritime Leftover**

a maritime structure that has lost their original function within the maritime context

THEORETICAL FRAMEWORK⁶

There is a lot of research done on heritage and maritime landscapes. Many books and articles give an overview on adaptive reuse and transformation. Key publications such as *Designing from Heritage* by Marieke Kuipers and Wessel de Jonge and *Heritage based design* by Paul Meurs have been studied. They address different ways of approaching a (maritime) heritage site. However, there is no clear way to do this.

This foundation will explore and expand on the theories to develop conclusions regarding the research questions.

Heritage based Design

Meurs, 2016

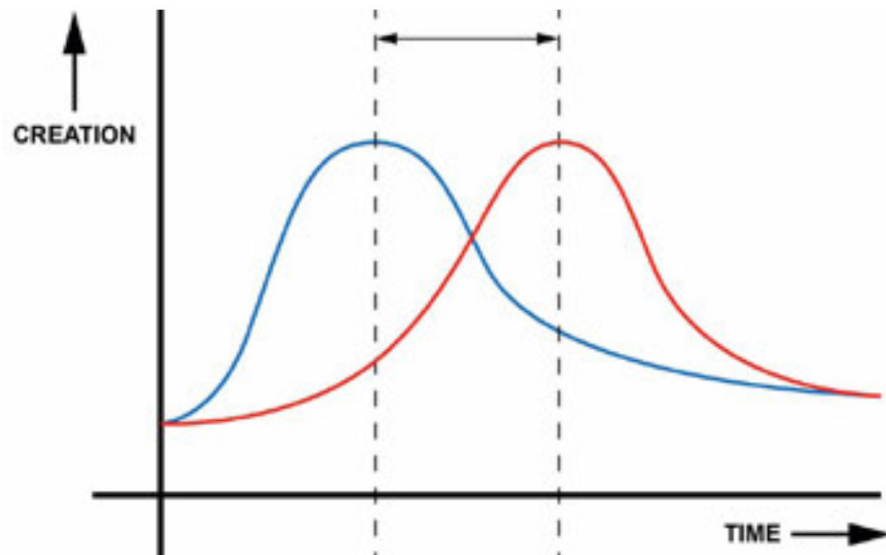
The main idea of this book is that cultural heritage value of a site should be the starting point of a design. The ambition is to make it obvious for the designers to base their thinking on the qualities of a site, and at the same time not giving up at their freedom to make their own design choices. In the end there is no standard solution for heritage design.

Meurs talks about different approaches to work with heritage. Looking into the tangible and intangible, age value and design value, experts value and community value, context value and object value... All different values an architect can (and should) investigate in order to determine the cultural heritage value of the object.

Designing from heritage

Kuipers & De Jonge, 2017

This book discusses the development of heritage design and different point of views over the years. This is used as a base to show how a heritage based design can take form.



²Theoretical framework

detailed and responsible analysis of the strengths and weaknesses of the literature in a particular area, which demonstrates that you are aware of what is already known about your area of research (Saunders et al., 2011)

Figure 4: A comparison of the 'creative curve' when designing new buildings (blue) and re-designing existing buildings (red) for which the creative process builds on a basis of research Kuipers, M., & De Jonge, W. (2017). *Designing from Heritage: Strategies for Conservation and Conversion*.

A possible way to examine heritage is by using the shearing layers of Steward Brand. Brands framework makes the observer aware of the integral physical coherence of a building, as well as the different rates of change that pre-defined layers go through is relevant to most buildings.

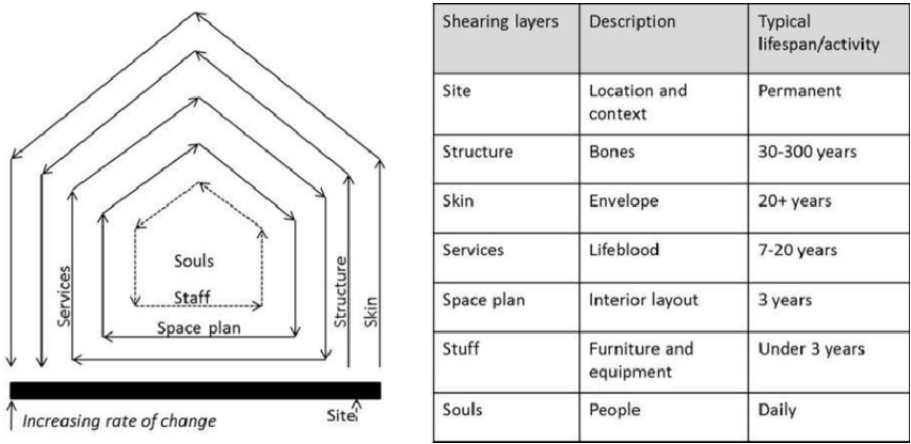


Figure 5: Steward Brand's Shearing Layers Diagramme
 Brand, S. (1994). *How buildings learn*. https://en.wikipedia.org/wiki/How_Buildings_Learn

However mentioned literature is mainly focussed on heritage buildings, not so much on maritime leftover structures. Therefor this will be used as a base to create strategies for these structures.
 This literature, combined with case studies and document analysis, will be the basis for the design of the graduation studio.



Figure 6: Heritage-based design
 Meurs, P. (2016). *Heritage-based design*. <https://books.bk.tudelft.nl/index.php/press/catalog/view/484/493/107-1>



Figure 7: Designing from heritage
 Kuipers, M., & De Jonge, W. (2017). *Designing from Heritage: Strategies for Conservation and Conversion*.

METHODOLOGY

The methods⁷ used for this research on the transformation of maritime non-building structures will be literature review, document analysis and case study analysis.

Literature review

This review will provide essential context, placing the study within the broader academic conversation. It helps fill the gaps in existing knowledge, justify the need for the research and avoids duplicating work and therefore establishes a strong foundation. Additionally it enhances the credibility of the study and helps refine the research questions.

This literature review will be used to collect information on methods used in adapting maritime heritage for contemporary purposes by reading mainly secondary literature⁸. As a base the books *Designing from Heritage* and *Heritage Based design* will be used. This will be complemented by other literature, for example charters, memorandums conventions and recommendations that have been drawn up.

Case study analysis

The case study⁹ analysis will deepen the understanding, providing insights and open up new directions for both theoretical and practical use. The case studies will examine projects that have repurposed maritime leftovers by looking at what design decisions have been made based on the values, such as historic value, structural integrity, aesthetic contribution and adaptability using different approaches. The method can be used to answer the questions 'why?', 'what?' and 'how?'.

Some examples for the case studies are the Kraanspoor in Amsterdam, the Faralda Crane Hotel in Amsterdam, and the Long Museum West Bund in Shanghai. All maritime leftovers that have been repurposed in different ways.

The different approaches used will be evaluated, identifying common and unique strategies.

Document analysis

This review will mainly focus on administrative data and documents, mainly primary literature¹⁰, as source. Often previous research from others is used. Analysing historical records, photographs, and planning documents related to the structures in the Waterdriehoek on the site will provide background on their original use and significance.

The province of South Holland has mentioned the importance of these kind of structures in for example the *Beleidsvisie Cultureel Erfgoed 2017-2020*. They also set up reports about the valuation of these structures. Such documents will provide a base to answer the last research question about how to adapt structures in the Waterdriehoek.

Time line

The next quarter will be mainly focused on research. This will later be used as a base for the design. However, this is still a sketch, when the process continues this will be completed.

⁷Method

a systematic and purposeful way (of a researcher) to collect, analyze and interpret data

⁸Secondary literature

later publications of information obtained from primary literature such as newspapers, books, and magazines.

⁹Case study

a research strategy that empirically investigates a particular contemporary phenomenon within the context of everyday practice, using a variety of sources of evidence./ a method of conducting research that uses empirical investigation of a particular contemporary phenomenon within its current context, using a variety of sources of evidence.

¹⁰Primary literature

the first record of a particular work (original version by the original author) including published sources such as government documents and unpublished manuscript sources such as letters, memos, and minutes of meetings. Reports (state, university, etc. research reports)

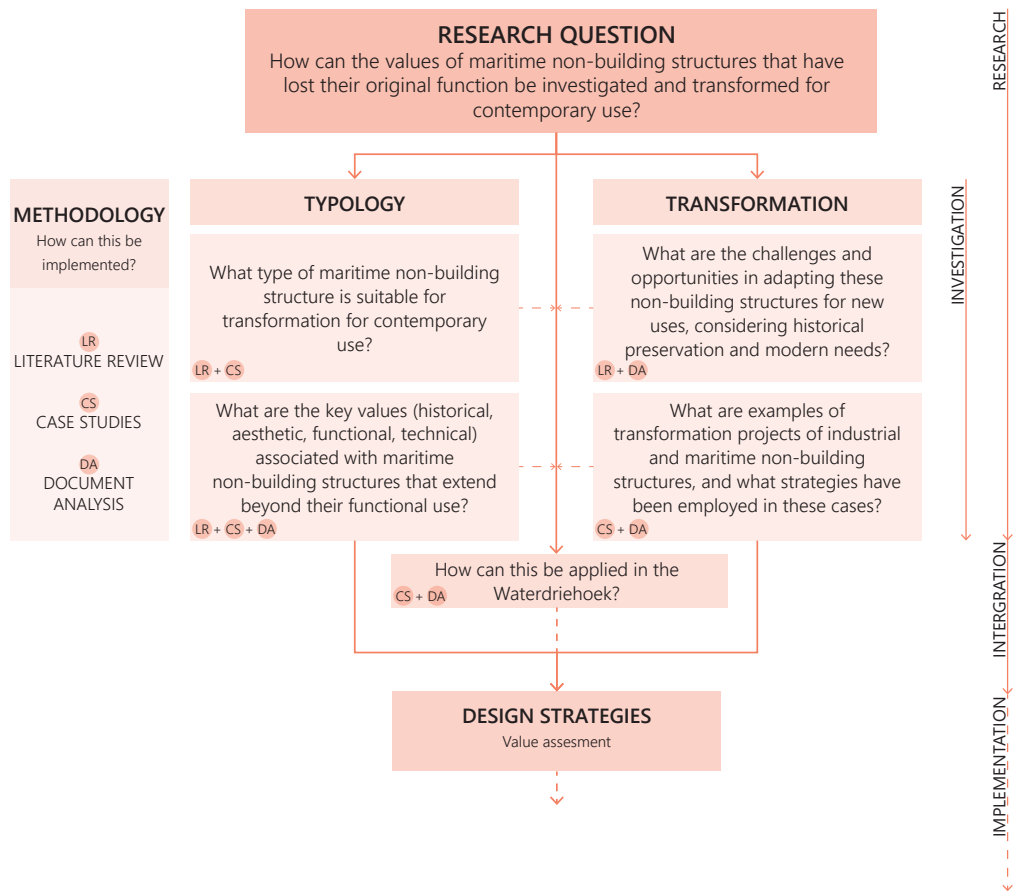


Figure 7: Research Plan - Methodology implemented in the (research) questions
Own image

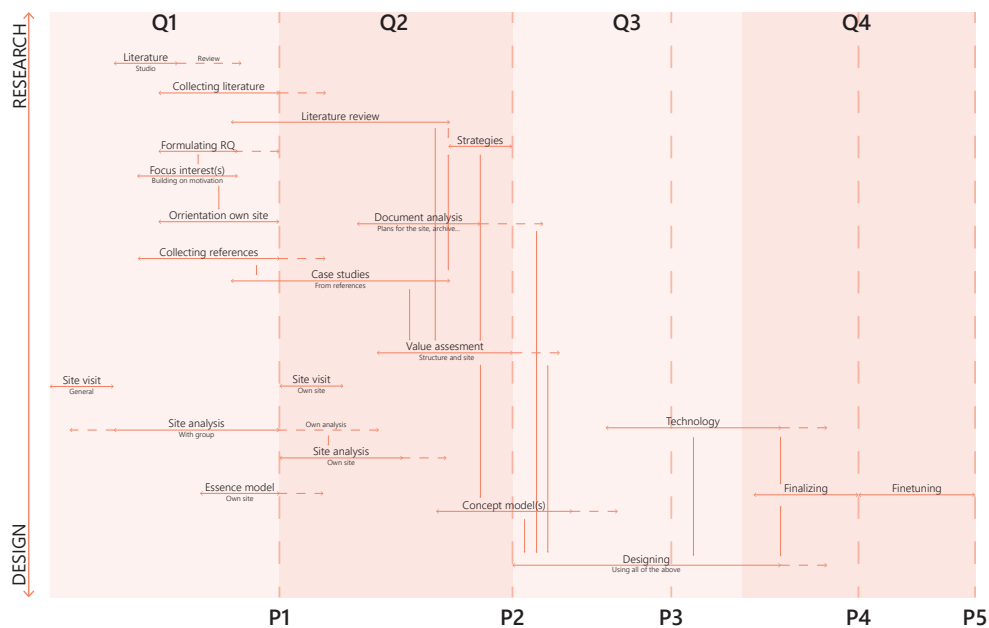


Figure 8: Timeline graduation
Own image

RESEARCH DESIGN

The research plan and my research design will go hand in hand. The images below show how the questions and analysis relate to each other. Both are based on the problem statement. This problem statements arises from first impressions of the site visit where an maritime leftover structure, see images, was (one of) the only object(s) left on a former maritime landscape. This highlights the significant value of these structures, they reflect the characteristics of the past. However, they often function as symbol without use. I think this provides an opportunity to give a new function to these structures, to show not only building-like heritage can be transformed.



Figure 9, 10 and 11: Kraanbaan Dordrecht
Own images

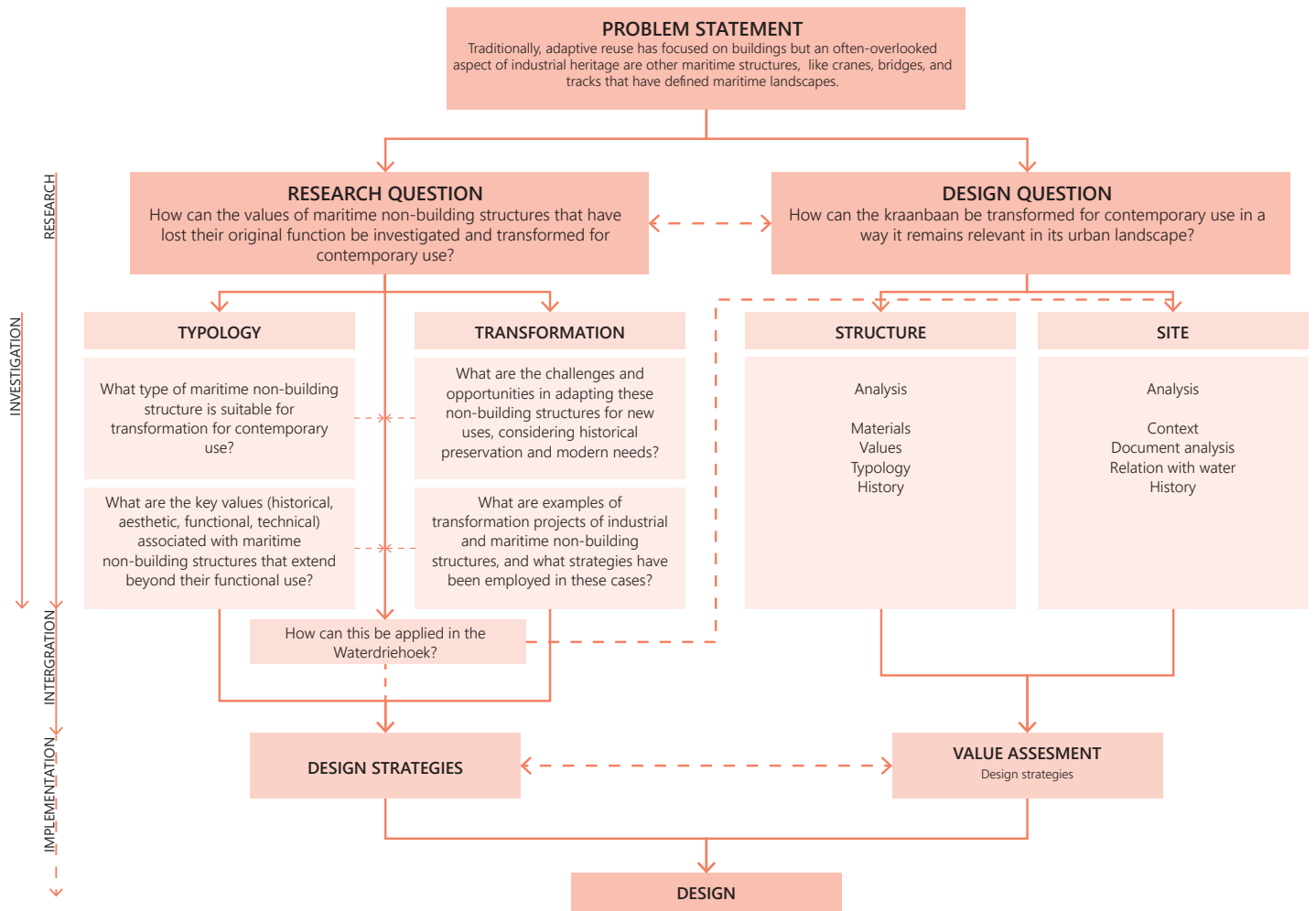


Figure 12: Research vs Design
Own image

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APPENDIX A

“Verkenning erfgoedlijn ijzeren eeuw” from Archadis (2019) shows the recognition in the Waterdriehoek. Were they list objects important for the maritime heritage site. Here you see 27 of the 173 listed objects are non-building like structures such as crane tracks, cranes and bridges, which is almost 16% of this list, see attachment A. Often they are used as a symbolic reference, nothing more.