Urban Maestro

Marineterrein: slowly-growing living lab

An adaptive process driven by informal dynamics like community-forming and programming (NL)

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UN-HABITAT
UNITED NATIONS HUMAN SETTLEMENTS PROGRAMME

This project has received funding from the European Union’s Horizon 2020 research and innovation programme under grant agreement n° 831704
# TABLE OF CONTENTS

1. HIDDEN GEM .......................................................................................................................... 4
2. ADAPTIVE DEVELOPMENT ..................................................................................................... 5
3. PRAGMATIC GROUNDS ......................................................................................................... 7
4. VALUE SET ................................................................................................................................ 8
5. SUPERCHARGER FOR INNOVATION ....................................................................................... 9
6. THE POWER OF COMMUNITY-FORMING AND PROGRAMMING ......................................... 10
7. LIVING LAB ................................................................................................................................ 12
8. SCALING UP ............................................................................................................................ 15
9. CONDITIONS ............................................................................................................................. 15
10. NOT A MATTER OF COURSE .................................................................................................. 17

KEY REFERENCES ....................................................................................................................... 18
Marineterrein Amsterdam is a former naval dock in the center of Amsterdam, which for a long time was not publicly accessible. This changed in 2013 when the Dutch State and the municipality of Amsterdam signed an agreement to open up most of the thirteen-hectare Marineterrein. Both parties agreed to organize the development of the Marineterrein into a lively, densified neighborhood in an adaptive manner, one that would be phased and without a masterplan. The concept of innovation became a leading principle, and driven by informal dynamics like community forming and programming, Marineterrein slowly developed into an innovative hotspot. The next step is the development of the neighborhood, which requires the scaling-up of application of innovation, albeit that is not an issue of course.

\[1\] Marineterrein translated in English is: Marine Terrain.

\[2\] With the signing of the administrative agreement, the Dutch state and Municipality of Amsterdam have committed themselves to making €3.25 million each immediately available for the project to cover the investments for the first three years. In addition, the municipality has made €1 million available for the renovation of building 027E. Therefore, the separate designated reserve within the Equalization Fund still contains approximately €1 million of the original budget. This budget is currently assigned to the implementation costs of the Bureau Marineterrein Amsterdam, as well as the process and research costs for the project phase.
Marineterrein is a 13-hectare defense terrain, enclosed by water and walls. From 2013 onwards, the terrain will be in a transitional phase. The Dutch Ministry of Defense has gradually made the site available for temporary exploitation. Photo: Siebe Swart.

1. HIDDEN GEM

It is a ten-minute walk from Amsterdam Central Station to Marineterrein Amsterdam, yet for a long time the terrain was unknown to most inhabitants of and visitors to the Dutch capital. This is because the Marineterrein is bordered by a high brick wall and the water of the Dijksgracht and Oosterdok. In particular, the terrain of this over 350-year-old naval dock was constructed to house a wharf and the seat and workplace of the Admiralty.

The wharf closed in 1914 and was used by the Royal Netherlands Navy since then. The site was not publicly accessible and, until recently, was blurred on Google Maps. The Royal Netherlands Navy kept the terrain closed and hidden from curious eyes.
The Marineterrein used to be a naval dock. Its neighbour is the National Maritime Museum that is housed in a former naval storehouse: 's Lands Zeemagazijn of 1656. Photo: Marineterrein Amsterdam.

2. ADAPTIVE DEVELOPMENT

In 2013, the Dutch government, partly prompted by cutbacks in defense expenditure, decided to open up the terrain to public access. On 5 December 2013, the Dutch State and the Municipality of Amsterdam signed the Administrative Agreement for the Development of the Marineterrein Amsterdam, in which they agreed to initiate this development together. Because the land would not be transferred directly from the State to the Municipality of Amsterdam's possession, a collaborative organizational model has been chosen in which the ambitions in the area would be jointly realized since a joint effort would be made to achieve the appropriate, optimal yield for the government. Both parties provided the land, while the real estate and management of the site is in the hands of one organization: the Bureau Marineterrein Amsterdam. This development is currently in a transitional phase, in which the Ministry of Defense has gradually made the site available for temporary exploitation.

The Royal Netherlands Navy partly left the site in 2015 when the Voorwerf became freely accessible for public. A year later, the west side of the site was opened to the public and there a temporary bridge over the Dijksgracht was realized, so that a

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4 Idem.
5 Originally the bureau was called Projectbureau Marineterrein Amsterdam, later changed to Bureau Marineterrein Amsterdam.
continuous route would be created across the site. The plan was that from mid-2018, almost the entire site would be opened up and accessible; the Royal Netherlands Navy would only leave their national Recruitment and Selection section on the site. Yet, under a new cabinet in 2018, the Dutch government decided that the navy would not leave the site completely. As such, development plans had to be reshuffled.

As Amsterdam is developing at a rapid pace—especially given the ambition to build 52,500 houses by 2025—it is tempting to simply open up the gates and begin developing houses as quickly as possible. Nevertheless, the Marineterrein is not part of the Residential Building Action Plan that has targeted ten ‘acceleration locations’ for the construction of homes. Agreed upon in the Administrative Agreement for the Development of the Marineterrein Amsterdam, the decision was made to develop this top-located area in Amsterdam ‘gradually’ and ‘based on a concept rather than by urban plan’ in the first years. The development of the Marineterrein Amsterdam, therefore, is adaptive in character: no masterplan with a clear result has been made and the development has taken place in phases.

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7 Municipality of Amsterdam, Koers 25. Ruimte voor de stad (Course 25: Space for the City), Amsterdam, 2016, p. 51.
3. PRAGMATIC GROUNDS

This decision, made by the Dutch State and the Municipality of Amsterdam\(^9\), was based on pragmatic grounds, given that the development started in 2013 in the context of a global financial crisis. Using a masterplan to organize the start of the development would not have worked, given that the uncertain economic situation made it impossible to present clear images of the future. This meant project developers and investors were unable to invest, as the future was uncertain. Instead, the responsible administrative organizations kept all doors to the future open and decided upon ‘an irreversible process’ as a method for development. As they stated in their Memorandum of Strategy: “The financial climate didn’t allow for the land to be transferred directly from the State to the municipality of Amsterdam based on land value. Therefore, the aim of the collaboration between the government and the municipality is to initiate the development of Marineterrein as an irreversible process.”\(^{10}\) Secondly, the Royal Netherlands Navy planned to leave the terrain in phases; therefore, the land available for redevelopment also became free in phases.

Given that there was hardly an intrinsic motivation for adaptive development in 2013 when it came to the Marineterrein, there was a lack of understanding regarding what values or opportunities existed for this organic method of development. The Agreement mentioned: “The concept for the area functions as a compass and as a dot on the horizon. There is no fixed final picture fixed.”\(^{11}\) But what does that mean? How does one develop a concept that ‘functions as a compass’? The usual players in the field of city planning, the planners and designers of the municipality, found it difficult to translate this idea into new ways of working: new methods, instruments and products. One of the first things they did was making foam models of a future neighborhood, yet one can argue whether making models is a fruitful first step when developing that neighborhood in an adaptive manner. As Wouter Jan Verheul and Tom Daamen, both working at TU Delft, mention about adaptive planning: “An emergent adaptive strategy is not made from the drawing board, but arises during the practice of project development from an environmentally aware, connecting and reflective attitude.”\(^{12}\)

\(^{9}\) The Minister of Defense, J.A. Hennis-Plasschaert, and the Minister for Interior, S.A. Blok, acted as the representatives of the State of the Netherlands. Amsterdam Mayor, E. E. van der Laan, and the Alderman for Spatial Planning, M. van Poelgeest, represented the Municipality of Amsterdam.

\(^{10}\) Idem.


4. VALUE SET

In a study commissioned by the Bureau Marineterrein Amsterdam, Peter van Assche (bureau SLA), Vincent Kompier and myself, studied the method of adaptive development and defined its chances for Marineterrein Amsterdam.\textsuperscript{13} We argued that in an adaptive development process it is not the plan but a value set that represents the “dot on the horizon.” The values are basic, common ideas that form the guidelines for thought and action during a development. A joint value set as that “dot on the horizon” keeps the development on course, given that as values are fixed, the program, functions and spatial device might change.\textsuperscript{14} Furthermore, the development time is not necessarily fixed in advance—often one works in phases in which each phase has different objectives that can be realized.\textsuperscript{15} It therefore seemed reasonable for the stakeholders to start defining value sets with one another.

The development of the Marineterrein has been characterized by formal and informal dynamics: the main principles were formally defined in the policy documents that marked the start of development, principles that had been decided upon by the Dutch state and the Municipality of Amsterdam. Those were: a. Marineterrein will be one of Amsterdam’s innovative workshops with international appeal; b. Marineterrein will be maritime in nature, based on 400 years of history and development of protective power; c. Marineterrein is located in the city center and its implementation must contribute to the regeneration of the urban fabric—both the water and open spaces on the property will be transformed into an important meeting place as well part of the development of a connective route; and d. the Marineterrein itself already functions as an icon. However, an icon in the sense of one large building is not desirable here, not even to attract new flows of visitors. These must come because of the place itself and the programmatic interpretation.\textsuperscript{16} These four principles form the basis for choices for exploitation of the terrain and its projects today. These processes, dealing with the selection of particular tenants, making program-forming communities, developing a common story and stimulating actors to make programs themselves, have a more informal character.

\textsuperscript{13} Peter van Assche (bureau SLA), Marieke Berkers en Vincent Kompier, Koers Houden. Leidraad adaptief ontwikkelen, deel 1 Methodiek & deel 2 Case Marineterrein, Amsterdam, 2016.

\textsuperscript{14} Idem.

\textsuperscript{15} Dutch State and Municipality of Amsterdam, ‘Bestuursovereenkomst Ontwikkeling Marineterrein Amsterdam’, in: Staatscourant, Den Haag 9 December 2013, Article 4, p. 4-5.
5. Supercharger for innovation

The common policy documents used in the area's development were useful in aligning ideas about main principles as dots on the horizon. In 2013, in the Administrative Agreement and Memorandum of Strategies, the Marineterrein was seen as an area that "will once again be one of Amsterdam's innovative workshops with international appeal." The decision to focus on innovation as a development value regarding the Marineterrein was made early on and has proven to be a constant factor in the site's development over the last eight years.

The next phase in policy making – documented in the Memorandum of Principles of 2017 – takes the theme of innovation one step further. The stakeholders foresee "a future in which the Marineterrein will acquire a prominent and self-evident position in Amsterdam's international innovative network, and in which it will make a substantial contribution to making society more sustainable and to the economic future of the city, the region and the country." 

Two innovative building by Bureau SLA: In 2016 (left) Bureau SLA realized the transformation of one of the educational buildings of the navy as a space for innovative startups. In 2019 (blue building) the Bureau SLA designed a facade for the Science Museum from residual material from the automotive industry. Photo: bureau SLA (c) Thijs Wolzak.

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In 2016, bureau SLA realized the transformation of one of the educational buildings of the navy as a space for innovative startups. Its façade represents all European flags, as the building hosted the Presidency of the European Union, which took place at the Marineterrein.

6. THE POWER OF COMMUNITY-FORMING AND PROGRAMMING

The value of innovation is not only an abstract value anymore, but rather is connected to projects those that took place in between 2013 and 2017 up until now. The Bureau Marineterrein Amsterdam selected the organizations that will rent the spaces by taking into account the level of innovation present in their business profiles alongside any sense of why they would fit the growing community best. No formal decision-making process is used here; instead, they were particularly interested in adding innovative forms of education. Overall, the final slate of tenants would include: three international communities of start-ups, three educational institutions, six organizations that are committed to a sustainable and innovative city, four designers of digital platforms or services, three agencies focused on digital learning and serious games, three organizations that unite history and the future, several restaurants and one hotel. Because of this selection, an innovative community has emerged at the Marineterrein. By mid-2017, some 350 people were
The amount of businesses, organizations and schools grew in between 2017 and now, but the focus on innovation and education remained.¹⁹

¹⁹ The amount of businesses, organizations and schools grew in between 2017 and now, but the focus on innovation and education remained.
7. LIVING LAB

These businesses or institutions have not only innovated behind their screens in their offices—as the Marineterrein has developed slowly over time, without legally fixed zones or fixed land reservations, there has been a vast amount of free space. As defined in the Memorandum of Principles: “An area of this size (about 13 hectares in size), centrally located, offers excellent opportunities for an environment accessible to everyone in which innovations are not only devised, but also made, tested and applied.” The Bureau Marineterrein was particularly interested in innovative concepts of education. For example, there has been Codam, a college that teaches forms of coding as the basis of solutions for all kinds of challenges that we face as a society. Codam introduced a breakthrough in programming education by teaching talented students with peer-to-peer education, with its assignments being defined by major tech companies. This school on the Marineterrein does not charge tuition fees and students can go there 24 hours a day if they so choose. In 2019, the Marineterrein, together with the Amsterdam Institute for Metropolitan Solutions (AMS Institute) opened up as a Living Lab. It uses the land, water and air as testing grounds for experiments. As such, going from a mere “dot” on the horizon in 2013 to becoming an “innovative workshops with international appeal,” the Marineterrein has essentially developed into being one.

To make it clear how the Marineterrein works as a Living Lab, I will describe three of about twelve projects that take place on the terrain. What all of these projects have in common is that they seek to provide possible answers to the question of “How do we keep cities liveable while tackling challenges such as climate change, social inequality, and digitalization?”

20 Because the terrain was in hands of the Royal Netherlands Navy there was no zoning plan for most of the Marineterrein. No new zoning plan has been drawn up for the remaining area, pending plans for redevelopment, though the lack of such a legal-planning framework has not led to any problems. In the project phase, it will be determined how the legal planning framework can best be fleshed out in line with the adaptive development. The public legal frameworks against which initiatives and activities are tested are mainly the Environmental Law General Provisions Act (Wabo) insofar as it concerns environmental permits for building and use, and permits and notifications Activities Decree under the Environmental Management Act (Wm), which also includes rules for noise, air quality, external safety, nature and ecology, within which water management can play a role. Furthermore, rules on the basis of the Drinks and Catering Act and the General Local Regulation (APV) can establish frameworks for specific activities, for example for operating permits and events.


22 https://www.living-lab.nl/
In 2019 Marineterrein together with Amsterdam Institute for Metropolitan Solutions (AMS Institute) opened as a Living Lab. It uses land, water and air as a testing ground for experiments. Photo Sjoerd Ponstein / Marineterrein Amsterdam.

One of these projects is investigating innovative, autonomous methods of water-based transportation, especially given that the city of Amsterdam is highly crowded. Can autonomous floating platforms help to transport people, rubbish, and construction material and waste? Can they be a solution to diminishing road traffic and therefore relieve the crowded streets? Being able to conduct testing in quiet waters like those the Marineterrein offers means the team will be able to answer
some of these pertinent questions like how one ensures that autonomous boats learn how to respond to other traffic in the canals.23

Another example is the Boombrix project. Numerous trees in the city are suffering from drought, yet it is not so clear why some trees are more vulnerable than others are. What influences the way a tree responds to drought? The location of the tree, the type or quality of soil, the species? Two researchers from the Advanced Metropolitan Solutions (AMS Institute) installed a sensor in the ground beneath a tree on the Marineterrein. They collected data, for example on how long it takes for water to reach the tree’s roots. First tests in the quiet area of Marineterrein have convinced the municipality of Amsterdam of the value of this technique and have led to them deciding to use it also in other spots in the city. The researchers were enthusiastic: the trees have been given a voice, they can now “tell” us how they react to a drought.24

One last example: How to prepare for the arrival of autonomous vehicles on the streets of a dense city like Amsterdam? Marineterrein Amsterdam offers a relatively secure environment for testing, given that the terrain is private and mainly car-free. For example, currently a 3D-printed, autonomous electric vehicle named Olli drives across the Marineterrein. There’s space for eight passengers in Olli and the electric vehicle continuously scans its surroundings so that it can respond immediately to changing situations and learn from them by leveraging machine learning principles.25

As such, not only are technological solutions being tested. Researchers also study the social impact of their projects. The Olli team for example studies whether people feel more comfortable in an autonomous car. Does it help if the vehicle can respond to you through the use of artificial intelligence?

Marineterrein Amsterdam offers a relatively secure environment to test autonomous vehicles, as the terrain is private and mainly car-free. Photo Sjoerd Ponstein / Marineterrein Amsterdam, graphics Roy Korpel.

23 Jaap Jan Berg and Marieke Berkers (ed.), Marineterrein Amsterdam Magazine, Amsterdam 2020, Bureau Marineterrein Amsterdam, p. 14. This experiment is a collaboration between the Massachusetts Institute of Technology (MIT) and the Amsterdam Institute for Advanced Metropolitan Solutions (AMS Institute).

24 Ibidem, p. 15. Boombrix is a startup founded by MSc MADE (TU Delft and Wageningen University & Research) students Jakub Supera and Noelle Teh. The Marineterrein pilot was made possible by the partnership with Bureau Marineterrein Amsterdam.

25 Ibidem, p. 16. This experiment is a collaboration between Local Motors, AMS Institute, GVB, the City of Amsterdam, Provincie Noord-Holland, Vervoerregio Amsterdam, and Bureau Marineterrein Amsterdam.
8. SCALING UP

How will the story of Marineterrein as an innovative living lab continue? It is of huge importance to keep innovating when in the coming years the step will be made moving from a temporary used and programmed area towards a densified living quarter with long-term residents, functions, businesses and a focus on learning. This is because cities are being faced with huge tasks related to sustainability, like becoming more circular, climate adaptation or realizing sustainable energy supplies. Additionally, society is changing at a rapid rate—in the Netherlands in 2040, there is expected to be 1.6 million people over the age of 80, which is twice as much as today. We cannot finance caring for them in care institutions any longer.

How can we make environments safe so that vulnerable people can stay living at or near their homes? In the Netherlands, more people are immigrating than emigrating, especially in the big cities. These people have other aims and wishes related to housing and recreation. As well, loneliness is a large and growing problem. To illustrate: more than 40% of the inhabitants of Amsterdam feel moderately or severely lonely. That is a huge amount! We have to rethink and reconsider our neighborhoods, their design, planning and building process. We need to innovate.

9. CONDITIONS

The adaptive development process and spatial context of Marineterrein Amsterdam offers opportunities that have proven fruitful in the scaling up of the program of innovation to the level of neighborhood development. First: The lack of a zoning plan provides scope for experimenting with temporary use in the current transitional phase. For the final development, there are possibilities to experiment with the municipal Environmental Vision. This new instrument is the result of the Environmental Act, which was expected to enter into force in 2019. An integrated approach is envisaged from the spatial, economic and social domain. If central government and the municipality work together in researching the most innovative

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26 Amsterdam set clear goals. For example: By 2030 the city wants to use 50% less new raw materials and by 2050 the city must be 100% circular. Municipality of Amsterdam, Amsterdam Circulair 2020-2025 Strategie, 2020.


and effective planning framework, the development of the planning area can serve as an educational process.”

Second: the Marineterrein is seen as an area with opportunities for creating a distinctive living environment, one that is also attractive for international businesses. The development of Marineterrein is not part of the plan to accelerate the construction of houses in Amsterdam, therefore, there is no need to very quickly start with developing houses—there is time to innovate. Third: the Marineterrein is situated in the city center of Amsterdam, near Amsterdam Central Station. This accessible location offers opportunities to act internationally as a showroom for innovation. On the other hand, this top location also offers opportunities to easily reap large profits when development is conducted quickly and at a high density. Therefore, the location is also its weakness in relation to the scaling up of innovation. Fourth: the Marineterrein borders the quarter of Kattenburg, a living quarter consisting mainly of rented family houses from the 1970s and 1980s. It deals with unemployment amongst its youth, especially given that some are involved in criminal activities. Development of the Marineterrein should be done in connection with the socio-economic and spatial challenges present in this quarter. Moreover, the Bureau Marineterrein already works together with the community of the Marineterrein to examine how social return and societal impacts can be further worked out so that more places for internships/work experience can be created.

Issues like building affordable houses with good quality, making environments with a good working social network, employment, giving elderly the opportunity to keep living in their neighborhoods with care on the neighborhood scale can be addressed on the Marineterrein. Fifth: Scaling up innovation to the neighborhood level is connected to current policy ambitions policy. As one can read in the Memorandum of Principles: “Because innovation is pre-eminently dynamic and imposes rapidly changing demands on the physical environment, the explicit ambition is to develop a sustainable and adaptive part of the city. […] Such an environment must have much more to offer than just adequate commercial buildings. Innovation flourishes when interacting: exchange of knowledge and skills. An attractive public space and facilities, both cultural and social, that stimulates encounters can contribute to this. […] There is a search for forms of housing that are related to the innovations or innovators, for example by applying new inventions or by combining living and working.” How to realize these ambitions requires a high level of innovation. Sixth: the Bureau Marineterrein Amsterdam worked hard in developing a strong innovative community. Experienced experts are already working on the terrain, some dealing with architecture and urbanism. For example, the research group Circular Thinking of the Academy of Architecture Amsterdam maintains an office on the Marineterrein.
This group developed a plan to develop, design and build a prototype of a circular building. With this project, they aim to investigate the potential of a new material paradigm. A circular lifestyle means a reassessment of all the core concepts and ideas that underpin our society: materials, urban planning, construction, financing, regulation, architecture, and the way we value and measure things, altering ways of living, et cetera.\textsuperscript{34}

\section*{10. NOT A MATTER OF COURSE}

Why stress these conditions? Because it is not a simple matter of course that the conditions the Marineterrein offers will be used at their full potential in the next phase. Adaptive planning and living labs are not always fully embedded in development processes when the temporary programming and building phases merge into the building of higher density phase.

A threat is the way the Dutch government is organized in the Netherlands. Although developing in an adaptive innovative way requires an integral approach – combining economic, spatial, sustainable and social aims – municipalities and the state government are still organized and functioning in silos. Innovation often deals with different domains: spatial planning, financing and legislation for example. In addition, the Marineterrein is owned by the Dutch Central Government Real Estate Agency, and Marineterrein as part of the real estate department dealing with the disposal of real estate. Because of its aim is the agency is not so much interested in future developments. The agency’s focus is instead “square meters and bricks:” quantity instead of quality.

Hopefully the formal agreements – the values as agreed upon in the Memoranda – and the informal dynamics – a lively and broadly innovative community, a common story and a visual burden of proof in the already executed tests on the terrain will be strong enough to keep the process going at a slow enough pace to develop that “dot on the horizon” as agreed upon in 2013: Amsterdam’s innovative workshops with international appeal. If the Dutch administration really wants to keep its ambitions serious, it should be willing to take unfamiliar paths.

\textsuperscript{34} Interview with Peter van Assche, Professor of Architecture & Circular Thinking at the Academy of Architecture, 25 January 2021.
KEY REFERENCES


JaapJan Berg and Marieke Berkers (ed.), *Marineterrein Amsterdam Magazine*, Amsterdam, 2020, Bureau Marineterrein Amsterdam


Platform31: Karin de Nijs, Melika Levelt and Stan Majoor (ed.), *Open stad, Werken aan duurzame en democayische steden*, Amsterdam and Den Haag, 2020, NWO-Verdus research project R-LINK.
URBAN MAESTRO

This paper was drafted as an external contribution to the Coordination and Support Action “URBAN DESIGN GOVERNANCE - Exploring formal and informal means of improving spatial quality in cities across Europe and beyond”, also known as “Urban Maestro”. The Action was funded by European Union’s Horizon 2020 research and innovation programme under grant agreement No. 831704 and implemented from 2019 to 2021 by a consortium comprising the University College London, Brussels Bouwmeester Maître Architecte and UN-Habitat.

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ACKNOWLEDGEMENTS

Principal authors: Marieke Berkers, Architectural Historian, member of the Editorial Board of Blauwe Kamer and of Yearbook Landscape Architecture and Urban Design, lecturer at the Academy of Architecture Amsterdam and TU Delft Department of Architecture

Design and layout: Kidnap Your Designer, Brussels Bouwmeester Maître Architecte (BMA)