Designing a strategic orchestration framework to create societal value

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Designing a strategic framework for ecosystem orchestration in the Port of Rotterdam

Acknowledgements

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By completing this thesis, I have fulfilled the requirements for the master's degree in Strategic Product Design at Delft University of Technology. I am grateful that this project allowed me to contribute value to the Innovation Team of the Port of Rotterdam, to innovators within the port area, and to the residents of Rotterdam. Through this work, a personal ambition to create societal impact has been realised.

First and foremost, this project would not have been possible without the support of many people. I would like to express my sincere gratitude to the Port of Rotterdam Innovation Team for welcoming me and for their continuous support throughout the project. The access to information, contextual knowledge, and openness to discussion were of great value. In particular, I would like to thank my company mentor, Arn, for his guidance, critical input, and for standing by my side in key moments to ensure progress throughout the project.

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Executive summary

The Port of Rotterdam operates in a fragmented innovation ecosystem where societal legitimacy is earned locally, yet strategic innovation work is often organised at a different scale. This thesis developed a strategic orchestration approach to reduce this disconnect by making societal value more explicit, legible, and traceable in everyday innovation practice. The final outcome is the Impact Map system, a boundary object that structures dialogue through a physical board and a supporting Miro environment, see figure 0. It runs as a recurring cycle in which innovations are mapped against neighbourhood needs across four dimensions: living, working, experience, and safety, grounded in neighbourhood visions and stakeholder input. Validation indicated strong desirability, with district managers, innovators and the innovation team recognising value in the system as a shared tracking and narrative tool.

The design also proved feasible and viable within the organisational context, requiring an estimated annual effort of approximately 0.03 FTE to operate. A key limitation is that district manager input functions as a proxy for residents' perspectives, and the visual markers remain interpretative judgements rather than causal measures of impact. The system provides practical value by operationalising societal legibility, with next steps focused on formal ownership embedding and gradual geographical scaling across the region.

Figure 0: Not only a map, but a whole system

Notes on AI

Throughout this project, AI tools supported tasks such as summarising scientific articles, transcribing and coding interview data, creating concept visualisations, and assisting with communication materials. These tools were used to improve efficiency, accuracy, and structure, but all critical analysis, decision-making, and summarising findings into insights were performed exclusively by the author.

The following AI tools were used for specific purposes:

Chat GPT+ for improving text clarity, grammar, structure and during the process as a sparring partner. It also provided visuals for the concepts.

MS Copilot for improving text clarity, grammar structure and during the process as a sparring partner.

Google Notebook LM for generating summaries of multiple research papers and thematic analysis (coding) of interviews. More on this in chapter 6.3.

Microsoft Teams MS to transcribe interviews accurately. More on this in chapter 6.3.

DeepL for translating written text, when needed.

Google AI studio for making the neighbourhood need check-in tool, see appendix J.

AI tools were used as supporting instruments and not as a replacement for original research or design decisions. All interpretations, design choices and written arguments in this thesis are the result of the author's own critical reflection and analysis.

Glossary of terms

Abbreviations:

PoR - Port of Rotterdam

LTO - License to Operate

SROI - Social Return On Investment

TLMBC - Triple-Layered Business Model Canvas

TBL - Triple Bottom Line

KPI - Key Performance Index

ESG - Environmental, Social and Governance

FTE - Full-Time Equivalent

M4H - Merwe-Vierhavens

R&D - Research and Development

BRZO - Besluit Risico's Zware Ongevallen

Key concepts:

Boundary object - A tangible tool that helps make implicit knowledge visible and structure dialogue between different groups.

Leaderfirms - Large, established companies with a lot of capital and data that play a decisive role in system innovation in the port

Orchestration - The coordination of a complex ecosystem by a central party that convinces others to voluntarily contribute to a common goal.

Absorption capacity - The ability of a region to recognize, translate, and successfully apply externally developed knowledge within its own operations.

Neighbourhood visions - Official documents from the municipality of Rotterdam that set out the ambitions and challenges of a specific neighbourhood.

District manager - A professional official who acts as an intermediary between local residents and the municipal organization.

Frame Creation - A design approach that tackles complex problems by exploring underlying paradoxes and redefining the problem.

Impact Map - A physical or digital tool that visually links port innovations to specific neighbourhood needs and stimulates dialogue about them.

System journey - A detailed description of how the Impact Map system is used over time, including roles and interaction stages.

Content

Introduction

The Port of Rotterdam (PoR) is undergoing a period of major developments, presenting both new opportunities and difficult challenges. Sustainability must be combined with profitability, while employment, resilience and the quality of the living environment require a great deal of attention (Port of Rotterdam, 2025).

Furthermore, the Port of Rotterdam is not located in a random place; its strategic location on the North Sea and at the mouth of the Rhine and Meuse rivers makes it attractive for logistics and industry on a global scale. The port can accommodate the largest seagoing vessels and offers direct access to an extensive network of rivers, canals, roads, rail connections and pipelines, making the Netherlands the 5th largest exporter and 7th largest importer in the world. Many everyday products and materials are manufactured or imported in the port. Thanks to its strategic location and economic activities, the port has brought widespread prosperity, including 192,000 direct and indirect jobs, mainly in the region. This makes the port the largest employer in the region and contributes 8% to the Dutch economy (more than 60 billion in added value) (Port of Rotterdam, 2025). Furthermore, the Port Authority earns money by acting as a landlord in the port area (property and land rental) and by collecting fees from docking (seaport fees) and passing (inland port fees) ships.

To initiate this transition and thereby maintain competitiveness, a new port vision is being developed. Within this vision, the Port of Rotterdam's innovation team has been tasked with achieving up to 30% more innovation over the next five years (2025 to 2030). By setting up an innovation ecosystem and taking on an orchestrating role within it, with an emphasis on financial, social and ecological value, the team aims to stimulate innovation. Within this context, the research question has been defined as follows:

"How can the Port of Rotterdam design a strategic orchestration framework that creates societal value?"

This thesis forms part of the MSc Strategic Product Design graduation project at TU Delft and has been conducted in close collaboration with the Port of Rotterdam's innovation team. The next chapter outlines the project approach, including the design methods applied and how it will structure the project.

Project approach

This thesis follows a phase based design approach that combines Dorst's Frame Creation (Dorst, 2015) with an iterative Triple Diamond logic. Figure 1 shows three diamonds that structure the project: two research diamonds and one design diamond. Each diamond varies between divergence (Discover/ Develop) and convergence (Define/ Deliver) and is linked to specific chapters.

Research phase 1
The first diamond builds a shared understanding of the problem space around the Port of Rotterdam.

In the discover side, the thesis analyses the institutional and spatial context of the port and reviews literature on innovation ecosystems, orchestration, legitimacy and multidimensional value. In parallel, three case studies are examined to understand how other regions organise societal value in practice. In the define side, these three inputs are synthesised into a first set of insights about the gaps in the current situation of the port.

Research phase 2
The second diamond re-opens the discovery space at neighbourhood level. In the discover side, ten wijkvisies (neighbourhood visions) are analysed through qualitative content analysis to extract themes and indicator ideas on four dimensions. In parallel, semi structured interviews with Rotterdam wijkmanagers (district managers) explore how they see resident needs, tensions and blind spots in these same dimensions. In the define side, the findings from documents and interviews are combined into a grounded longlist of societal value indicators, a refined frame and a design brief of what a strategic orchestration tool for the PoR must be able to do.

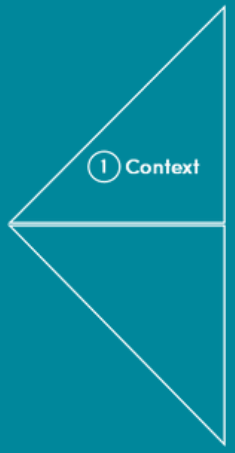
Design phase
The third diamond translates the design brief into a concrete framework. In the develop side, several alternative concepts for an orchestration framework and indicator set are generated and iteratively shaped with input from PoR stakeholders. In the Deliver side, the concepts are converged into a final framework. User tests with various stakeholders provide input for final adjustments before the application phase. After that, in a separate validation step, the proposed design is tested for feasibility, desirability, and viability.

Throughout all phases the project uses short feedback loops between research, framing and design, combining creative ideation, grounded analysis, stakeholder engagement and visualisation (Roscam Abbing, 2017; Van Boeijen et al., 2013).

Figure 1: Triple Diamond

Chapter 1

"Understanding the context"



Research I

1 understanding the context

The Port of Rotterdam, Europe's largest port, which is 30% owned by the Dutch state and 70% by the municipality of Rotterdam, is a complex innovation ecosystem where international companies, small and medium-sized enterprises, start-ups, government agencies, industry organisations and knowledge institutions collaborate on a daily basis, while remaining organisationally autonomous. This fragmentation hinders coordination, legitimacy and long-term value creation, meaning that promising initiatives often remain isolated or are short-lived (Autio & Thomas, 2014; Nieuwsma & Mulder, 2017). According to Mendes Constante et al. (2023), research shows that in port ecosystems, many innovation programmes often fail not because of technical barriers, but because of a lack of shared vision, insufficient legitimacy of the coordinator and poorly aligned stakeholders, known as fragmentation. For the Port Authority, strengthening its position as coordinator therefore requires not only strategic clarity, but also relational capital and trust (Thomas & Ritala, 2021). The challenge also depends on where important choices are made and how quickly the region can learn new knowledge from outside.

A striking feature of Rotterdam's port-industrial complex, for example, is that many of the companies based there are subsidiaries of foreign multinationals, whose strategic investment and R&D decisions are taken outside the region. In ports, this structure shifts the innovation challenge from invention to early acceptance and integration of technologies developed elsewhere. In other words, absorption capacity, i.e. the ability to recognise, understand, translate and apply external knowledge, becomes the limiting factor (Mendes Constante et al., 2023). As a result, Mendes Constante et al. (2023) argue that conventional innovation metrics, such as local R&D expenditure and patents, paint a too optimistic picture. Better metrics include, for example, investments in clusters to apply new technology in companies and the number of start-ups creating solutions for ports. For an organisation with a lot of land, such as the port of Rotterdam, this means that they should collaborate and ensure that companies can easily use new knowledge. They do this through shared infrastructure, knowledge platforms and clear rules for land and concessions, in addition to their safety and environmental responsibilities. (Hollen, Van den Bosch, & Volberda, 2015).

These structural conditions create additional external pressure, making it even more important for everyone in the ecosystem to work well together.

External pressure factors such as the energy transition, climate neutrality ambitions, labour shortages and geopolitical uncertainty are raising the bar for collective action, something that no single stakeholder can achieve on its own (Mendes Constante et al., 2023; Hollen et al., 2015; PBL, 2024). In this context, legitimacy is crucial: a social Licence to Operate (LTO) cannot be taken for granted and depends on sustainable practices, liveability and the connection between port and city (Moeremans & Dooms, 2025; World Bank, 2025). According to the World Bank (2025), in Rotterdam, the port and the city are literally and organisationally close to each other. How they connect determines whether innovations are seen as fair and useful. Things such as separate zones, freight through the city and visible environmental impacts influence how residents experience the advantages and disadvantages. According to Moeremans & Dooms (2025), this means that social value is not just an extra point in a report, but is really necessary to make progress. For the Port Authority, this means that it must always take two groups into account: companies in the industry and the people in the city (World Bank, 2025).

According to Notteboom, Pallis and Rodrigue (2022), public support for ports cannot be taken for granted. In many regions, ports are seen as noisy, polluting and socially distant, especially when the port area is physically separated from the city. At the same time, the public debate is shifting from purely economic effects to living environment, safety and the environment. As a result, port managers are increasingly being assessed on transparency, stakeholder relations and demonstrable social and environmental performance, in addition to economic results. This shift underlines the need to make social value explicit and measurable.

This thesis introduces a new perspective by assessing the PoR's innovation strategy on the basis of four societal dimensions: living (living environment), working (and economic participation), well-being (and social cohesion) and safety. These dimensions reflect both academic approaches to multidimensional value creation (Joyce & Paquin, 2016; Santos & Zen, 2022) and practical policy frameworks such as the CBS Monitor Brede Welvaart (CBS, 2025). To test these dimensions in context and assess their value in terms of measurability, three semi-structured interviews were conducted with stakeholders in the sector, see table 1 for the participants.

Participant	Company	Department/ role
p(1)	Municipality of Rotterdam	Port coordinator
p(2)	Deltalinqs	Sustainable innovation
p(3)	TU Delft - TBM	Scientific director & associate professor

Table 1: Participants context interviews

The three interviews confirm that the four selected dimensions: living, working, well-being and safety form a relevant and useful framework for addressing social value in the port context. Interviewees recognise these dimensions as central to the port's social legitimacy, often referred to as its LTO.

At the same time, the interviews make it clear that translating social value within these dimensions into measurable indicators is complex. Three underlying reasons were consistently identified. First, social value is often expressed in qualitative or "soft" effects, such as perceived well-being or sense of security, which are difficult to capture in quantitative terms. Secondly, the innovative nature of many port initiatives brings with it a high degree of uncertainty. Because innovations are new and context-specific, there is often a lack of historical data or validated models to predict their societal impact. Thirdly, the importance of different forms of societal value is not fixed. What is considered most valuable depends on political priorities and the perspectives of different stakeholders.

Figure 2: Leaderfirms

The findings therefore suggest that the tool should not be used as a fixed evaluation tool. Its value lies more in structuring the dialogue and reflection around social value, allowing different interpretations to be made explicit and discussed. In this way, the tool supports informed dialogue rather than a definitive judgement.

Within this perspective, specific attention is paid to Leaderfirms (e.g. BAM, Unit45, Eneco, Shell, Deltares, Fugro, Damen, Boskalis, Rabobank), see figure 2. These organisations have considerable capital, data and capabilities at their disposal and therefore have a disproportionately large potential to stimulate system innovation and thus make an impact.

However, in practice, innovations often face delays at large companies because they do not generate immediate profits. This is because the societal benefits usually outweigh the profits for a single company,

resulting in insufficient investment (Hall & Lerner, 2009). Policy instruments such as subsidies, guarantees and concessional financing can enable these types of projects, but only if there is credible evidence of societal value (Gaillard-Ladinska, Non, & Straathof, 2014). For the Port Authority, it is not just about ideas and pilots, but also about how projects are financed. If you can demonstrate that they have value for living, working, well-being and safety, they can receive support through port funds or subsidies, even if the business case is weak in the short term. That is why a clear and standard framework is needed to make social impacts measurable and defensible.

Figure 3, on the next page, summarises the PoR's innovation ecosystem: how context preconditions (regulation, infrastructure, talent, geopolitics, LTO) shape the orchestration challenge and which levers the Port Authority can deploy (Leaderfirms convening, tenders, agenda-setting, propositions, portfolio management). The loop on the right indicates that societal value strengthens (internal/external) LTO, which in turn enables further orchestration.

The purpose of this thesis explores how the PoR can design a strategic framework that makes societal value explicit and measurable and uses the four dimensions as a helping compass for orchestration. The aim is to accelerate systemic innovation with Leaderfirms while strengthening societal legitimacy and safeguarding LTO, while contributing to long-term economic, environmental and social value (Autio, 2021; Van der Bijl-Brouwer, 2017).

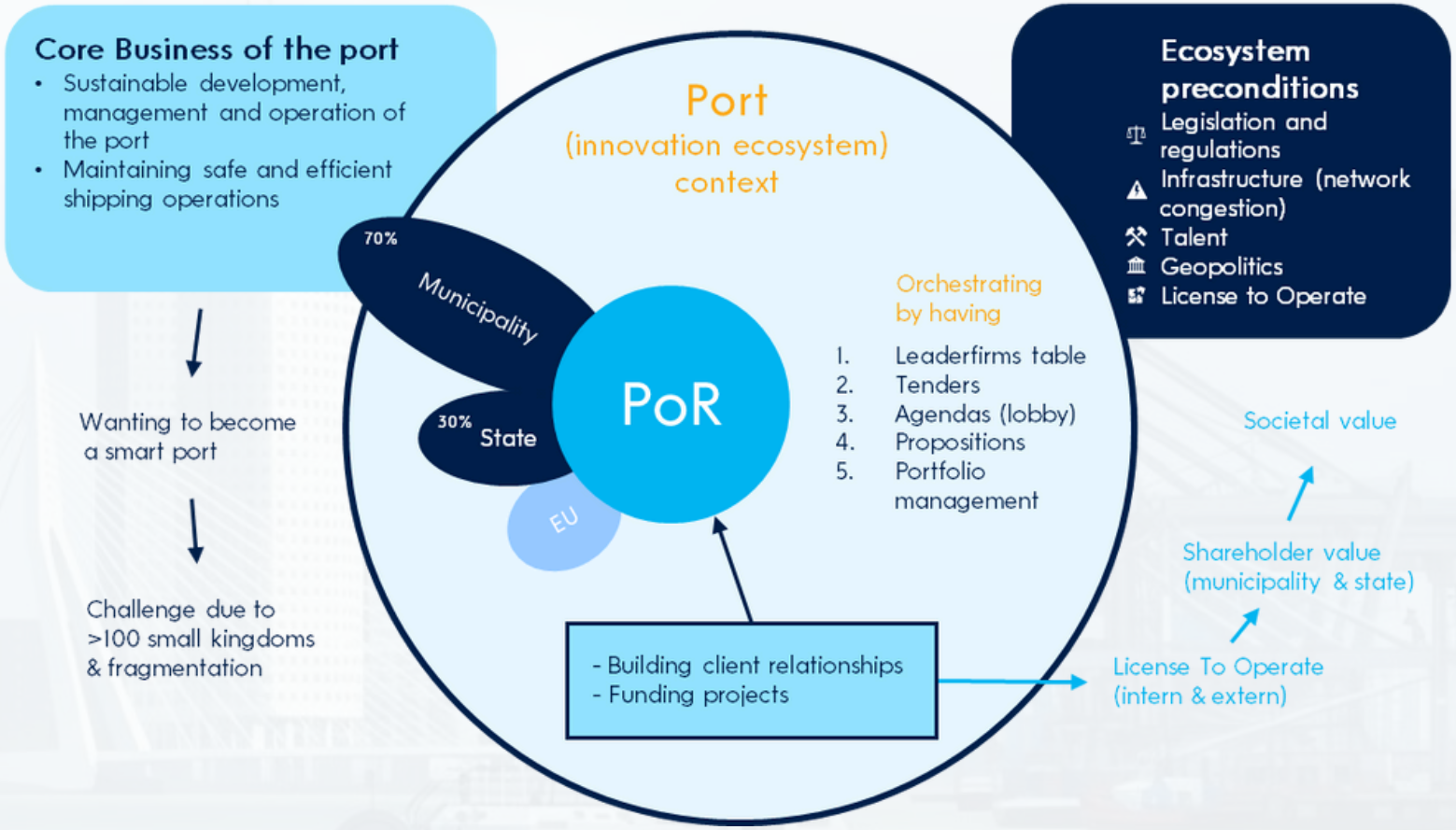


Figure 3: Port innovation ecosystem context

1.1 Conclusion

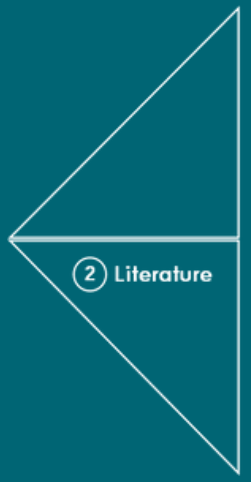
This chapter outlines the structural and behavioural dynamics that shape the innovation ecosystem of the Port of Rotterdam. In other words, absorption capacity, i.e. the ability to recognise, understand, translate and apply external knowledge, becomes the limiting factor. The challenge facing the port is therefore not a lack of innovation potential, but rather a fragmented coordination process, which is made worse by legitimacy pressures in the areas of liveability, safety and inclusion. Together, these circumstances reveal a paradox: social value is frequently cited, but rarely operationalised in day-to-day decision-making. This calls for a framework that links coordination to measurable social value, enabling the port to translate collective ambitions into workable administrative routines.

Key takeaways

- The Port of Rotterdam is not short on innovation, but on coordination and absorptive capacity.
- Strategic and R&D decisions are often made outside the region, while legitimacy is earned locally.
- Societal value is frequently mentioned but rarely operationalised in daily decisions.
- Orchestration is required to translate collective ambition into concrete, legitimate action.
- A framework is needed that links innovation to measurable societal outcomes.
- The value of the tool lies in structuring dialogue and reflection around societal value.

Chapter 2

"Theoretical background"



Research I

2 Theoretical background

2.1 Innovation ecosystems & orchestration

Innovation ecosystems are communities of heterogeneous, hierarchically independent but interdependent stakeholders who together create a system-level value proposition (Autio, 2022). Because they cannot rely on command-and-control, coordination depends on non-hierarchical orchestration by a central stakeholder (orchestrator) who persuades others to make voluntary, coordinated contributions (Autio & Thomas, 2014).

A classic view described by Dhanaraj & Parkhe (2006) explains what the orchestrator needs to manage: three interrelated processes. Knowledge sharing (enabling valuable knowledge to flow to where it creates the most value), fair distribution of innovation (ensuring that contributors receive a fair share and discouraging free-riding) and network stability (maintaining partnerships). Practical tools such as trust, clear agreements, shared ownership and strong partnerships help to reinforce these processes.

An additional perspective explains where orchestration can be applied. Autio (2022) proposes a multi-layered framework that distinguishes between technological, economic, institutional and behavioural layers, each of which requires different steps in terms of initiation, momentum building and maturity. Technological choices determine how well systems connect with each other. Economic incentives, such as rewards, help to solve the "chicken and egg" problem at start-up. Institutional agreements ensure that rules and interests are aligned. Behavioral norms encourage cooperation and reciprocity. In uncertain situations, these agreements are usually made together with the participants, rather than imposed from above (Autio, 2022).

Legitimacy is both a precondition and a result of effective collaboration. New ecosystems face a 'responsibility for novelty', which makes joint legitimation processes important. These processes revolve around three things: shared narratives, visible results and a clear identity. Legitimacy arises through interaction between orchestrators, partners, users and external stakeholders (Thomas & Ritala, 2021).

In addition, value in ecosystems is multidimensional and is experienced differently by stakeholders. Platform approaches by Santos & Zen (2022) focus primarily on economic value and the role of hubs, while territorial approaches also look at regional development and broader effects (financial, social, ecological). An integrated approach sees value creation as a coordinated process, tailored to the phase of the ecosystem and the role of each stakeholder (Autio & Thomas, 2014).

2.1.2 Conclusion

Innovation ecosystems function on orchestration to enable collaboration and value creation. This requires managing knowledge sharing, fair distribution and network stability, supported by trust and shared agreements. Orchestration takes place on multiple levels: technological, economic, institutional and behavioural and often requires bottom-up coordination in uncertain contexts. Legitimacy is both a precondition and a result, built through shared narratives, visible achievements and a common identity. Value in ecosystems is multidimensional and varies per stakeholder. An integrated approach that combines economic, social and ecological dimensions offers the most sustainable perspective.

Key takeaways

- Innovation ecosystems depend on orchestration, not hierarchy.
- Effective orchestration balances knowledge sharing, fair value distribution and network stability.
- Orchestration operates across technological, economic, institutional and behavioural layers.
- Legitimacy is both an input and an output of successful orchestration.
- Value creation in ecosystems is inherently multidimensional.

2.2 Value creation: a multidimensional view and a way to measure it

Innovation in the port context creates and destroys value that goes far beyond financial returns. A triple bottom line (TBL) approach (financial, environmental and social) provides a useful basis, but also shows that there are real trade-offs that need to be made rather than ignored (e.g. noise pollution versus connectivity; jobs versus emissions). According to Fischer, Mauer & Brettel (2020), entrepreneurs and ecosystems must continue to actively address these tensions and not view them as a one-off win-win.

To design from this broader perspective, the Triple-Layered Business Model Canvas (TLBMC), see figure 4, expands the classic canvas with an ecological (life cycle) and a social (stakeholders) layer. In this design by Joyce & Paquin (2016), the three layers clarify the types of value that exist and ensure connection within and between layers. This supports the alignment of actions and indicators in sustainable innovation.

Social Return On Investment (SROI) offers a simple way to turn results that are important to stakeholders into measurable data. It can be used retrospectively (evaluative) or prospectively (predictive), the last of which is useful for guiding programmes and investments.

The seven principles, which are involving stakeholders, understanding what is changing, valuing what is important, only including what is material, not exaggerating, being transparent and verifying, form a six-step process, from scoping to calculating the cost-benefit ratio (Nicholls et al., 2009). The six-steps are as follows: first, determining the scope and identifying stakeholders. Second, mapping outcomes. Third, proving outcomes and assigning them a value. Fourth, determining the impact, Fifth, calculating the SROI. Sixth, reporting, using and embedding it.

2.2.1 Conclusion

Measuring and designing value creation requires a broader perspective than just financial results. Innovation in the port context has both advantages and disadvantages, requiring trade-offs between economic, ecological and social interests. The Triple-Layered Business Model Canvas helps to make these different types of value visible and ensures coherence between actions and indicators. Social Return on Investment offers a structured approach to measuring social value, based on seven principles and a six-step process. Together, these methods provide direction for the development of sustainable innovations that not only generate profit, but also contribute to the environment and society.

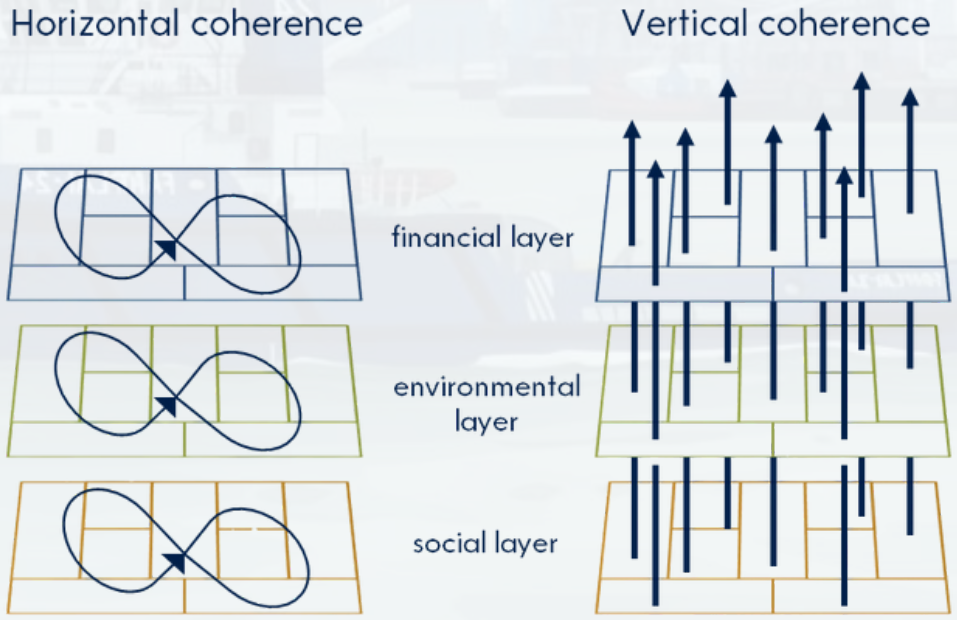


Figure 4: Triple Layered Business Model Canvas

Key takeaways

- Societal value is inherently multi-dimensional and cannot be reduced to a single metric.
- Visibility of assumptions and trade-offs is more important than precision.
- Societal value emerges over time and across contexts, not at a single moment.

2.3 Legitimacy, social license and relational capital

According to Thomas & Ritala (2021), legitimacy means that people believe organisation's actions are in line with the norms and values of society. In ecosystems, this must be built up together, not simply assumed. In port contexts, this translates into a Social Licence to Operate, which is the continued support of local communities and society to allow activities to continue (World Bank, 2025). In ports, LTO has not yet been laid down in standard rules. Data show that it is mainly influenced by how people perceive the financial, ecological and social effects and by genuine involvement with communities (Moeremans & Dooms, 2025; World Bank, 2025).

Because orchestrators have no formal power, their legitimacy depends heavily on relationships: trust, reciprocity and fair processes. In ports, trust is the key that links the perceived impact and quality of involvement with acceptance. Research by Moeremans & Dooms (2025) shows that (i) social impact is usually most important for trust, (ii) fair procedures have the strongest effect on acceptance through trust and (iii) regular, positive contact also helps. This makes participation design not just an extra, but a strategic tool. In addition, transparency, through proactive information, ESG reporting and clear governance, strengthens accountability and reduces information gaps that would otherwise undermine legitimacy (World Bank, 2025).

To embed legitimacy in their daily activities, ports should maintain “open indicators” that align with these processes and four social dimensions, see figure 5:

- Triple bottom line results, where social impact often has the strongest link with acceptance through trust (Moeremans & Dooms, 2025).
- Quality of engagement, such as how often and how well contact takes place and whether stakeholders can participate, be heard and see responses (Moeremans & Dooms, 2025).
- Level of trust in the coordinator/Port Authority, measured regularly and linked to decisions (Moeremans & Dooms, 2025).
- Transparency in governance, through public annual reports, ESG reports, tariffs, public meetings and a stakeholder portal, which strengthens accountability and supports LTO (World Bank, 2025).

According to Notteboom et al. (2022), many stakeholders take economic value for granted, while public support depends primarily on social and environmental performance, transparent communication and genuine engagement. Without these

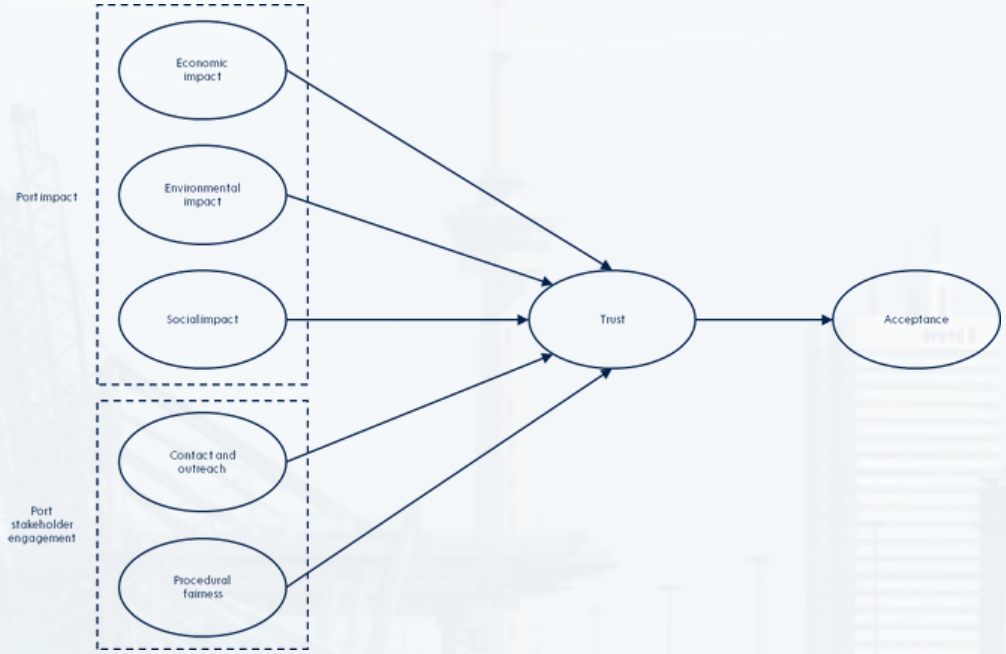


Figure 5: Hypothesized model of social license to operate for the port industry (Moeremans & Dooms, 2025)

elements, conflicts arise over expansion and use and support declines. A true legitimacy strategy therefore requires measurable indicators, open reporting and active engagement with heating, education and the labor market.

2.3.1 Conclusion

Legitimacy in ports revolves around the Social License to Operate. This depends on social and environmental performance, transparency and engagement. Because orchestrators lack formal authority, trust and fair processes are crucial. Open indicators for impact, engagement, trust and governance strengthen legitimacy. Without these elements, support diminishes.

Key takeaways

- Social License to Operate is central to port legitimacy.
- Trust, fair procedures and engagement matter more than formal authority.
- Legitimacy requires open indicators, not closed or purely internal metrics.

2.4 Port specific insights

Ports are not conventional high-tech clusters. They are large, operationally intensive industrial complexes with multiple companies, where most of the R&D takes place elsewhere and the local challenge lies in the early adoption and integration of external technologies into 24/7 operations (Hollen, Van den Bosch & Volberda, 2015). In this context, the PoR acts as an extensive landlord that must combine public contracts with coordinating the ecosystem. It does this through infrastructure, land allocation, rules, data and bringing parties together (Van den Berg & De Langen, 2020; Hollen et al., 2015).

2.4.1 The port ecosystem

As noted in the study by Mendes Constante et al. (2023), port-industrial complexes combine terminals, transport, storage and heavy industry. Many companies involved are subsidiaries of multinationals, with R&D usually occurring in their home countries. Consequently, local challenges primarily involve the application of innovations, not their invention. According to Hollen et al. (2015), key indicators are therefore also investments in new technology and the growth of startups developing port solutions.

In the (extended) landlord model, the Port Authority is responsible for long-term development and nautical safety, as well as for stimulating innovation. According to Hollen et al. (2015), this dual role requires a combination of market instruments (such as prices and contracts), public guarantees (safety and the environment) and ecosystem development (connecting businesses, knowledge and infrastructure).

2.4.2 Ports strategic and institutional levers

The Port Authority plays an active role in developing infrastructure and ecosystems. It initiates projects such as joint pipeline bundles (e.g., MultiCore), ethylene connections between ports (RC2) and steam networks that reuse residual energy. This type of industrial synergy increases both competitiveness and environmental performance (Hollen et al., 2015).

Besides physical projects, the port encourages knowledge sharing through platforms and living labs (such as SmartPort). These enhance the ecosystem's learning capacity. Design research of Nieuwsma & Mulder (2017) in the nautical chain shows that boundary objects (such as role maps, value networks and "port play" tables) help to visualize tacit knowledge, align routines and accelerate learning processes. See figure 6 for an illustration of the boundary object, it helps to make implicit knowledge visible.

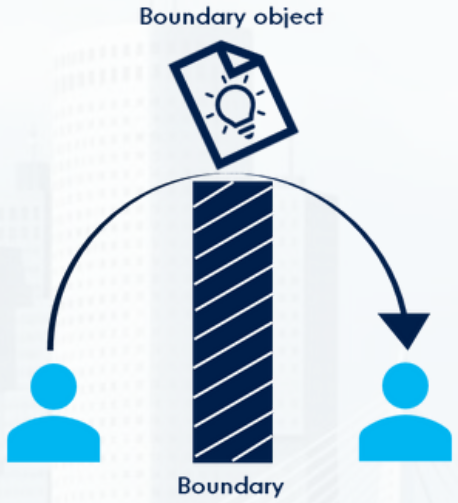


Figure 6: Boundary object

Land policy and concessions (for land) are powerful tools. Through criteria and renegotiations, the port can influence location choices, modal split, emissions and contribution to cluster value. In this way, land policy becomes a means of internalizing externalities and accelerating ecosystem formation (Hollen et al., 2015).

As a NOVEX area, which means one of the 16 areas designated by the national government where spatial challenges are so significant and numerous that they require joint management by the national government and the region (Ruimtelijke Ordening Nederland, 2025), Rotterdam must strike a balance between energy transition, material flows, living environment, safety and limited space. The NOVEX perspective emphasizes system transitions but also identifies specific considerations (such as noise, nitrogen and congestion) and the need for shared indicators. This makes permit-related KPIs (noise, safety, air quality and space) crucial preconditions for innovation portfolios (NOVEX, 2023).

2.4.3 Why ports under-invest without orchestration

Companies often underinvest in shared infrastructure or pilot projects, especially when this requires specific investments or the benefits are shared among multiple parties. According to Hollen et al. (2015), this is due to risks such as poor coordination and loss of value. The Port Authority can play a key role here as an orchestrator. By bringing parties together and coordinating shared interests, Hollen et al. (2015) argue that the Port Authority can help reduce these obstacles and enable change.

In a well-functioning ecosystem, the port is more than a logistics player: it is a steward of the area, acting based on shared values and the common good. This role goes beyond traditional forms of corporate social responsibility (CSR) (Jansen, 2025). A stewardship role requires active involvement in three areas:

one, making shared infrastructure available, such as pipelines, networks, or data platforms.

Two, rewarding companies that contribute to the ecosystem, for

example, through favorable land prices or tariffs.
Three, use of design-oriented tools to make dependencies between parties visible and discussable, so that wicked problems can be solved together (Nieuwsma & Mulder, 2017).

2.4.4 Port innovations

Countless innovations are taking place within the port area. For example, there is a strong focus on shore power, whereby ships are connected to electricity at the dock in order to reduce emissions. Terminals are becoming increasingly robotised and automated. They are operated remotely using joysticks, without operators having to be physically present at the terminal (Port of Rotterdam, 2025).

In addition, the port works with various substances, some of which are dangerous or harmful gases that are not always detectable by human senses. For this purpose, the e-nose (electronic nose) is used to detect changes in the air composition (Port of Rotterdam, 2025).

Drones also play an important role, inspecting ships for emissions and being deployed in incidents, firefighting and surveillance (Port of Rotterdam, 2025).

2.4.5 Conclusion

Ports don't function like traditional high-tech clusters, but rather as complex industrial systems where innovation primarily revolves around applying external technology in 24/7 operations. This makes the role of the Port Authority crucial. The port combines public tasks with ecosystem coordination and utilizes strategic levers such as infrastructure, land management and knowledge platforms. By acting as orchestrator and steward, through shared infrastructure, reward mechanisms and design-oriented tools, the port can stimulate collaboration and accelerate system transitions. This approach is essential to reduce investment risks, achieve industrial synergy and safeguard social legitimacy in a context of scarce space and strict permitting requirements.

Key takeaways

- Ports are industrial systems focused on application, not invention.
- The Port Authority combines public responsibility with ecosystem stewardship.
- Infrastructure, land policy and data are powerful tools for orchestration.
- Shared infrastructure tends to be underinvested without coordination.
- Design-oriented tools, such as boundary objects, help make interdependencies discussable and actionable.

2.5 Design foundations for wicked problems

Current challenges for ports, such as energy transition, livability and safety, are open, complex and dynamic, making traditional, linear management tools vulnerable, according to K. Dorst (2015). Frame Creation views these situations not as puzzles with a single solution, but as fields that must be reexamined to find new solution logic. According to K. Dorst (2011), the core of this method is abductive reasoning: you work backward from a desired value (e.g., legitimacy or livability) to design a new how (working principle) and a corresponding what (system, service, or governance instrument) in parallel.

In design abduction, the desired value is known, but the working principle and form are not. These are developed together through reframing (K. Dorst, 2011). Rather than immediately resolving paradoxes such as "growth versus environment," K. Dorst's (2015) "Frame Creation" expands system boundaries and examines the broader field for underlying themes: recurring meanings that transcend all stakeholders. These themes enable reframing: from a new perspective, a different working principle can credibly realize the desired value (K. Dorst, 2011; K. Dorst, 2015).

Frame Creation follows a structured series of steps (archaeology, paradox, context, field, themes, frames, future, transformation, integration). According to K. Dorst (2015), the core lies in reading the field to discover themes and often through metaphors, translating these into usable frameworks. This is not a brainstorming session, but a disciplined process of meaning-making in which solutions are deliberately postponed until a fruitful framework emerges (K. Dorst, 2011; K. Dorst, 2015).

Once a new framework is chosen, it needs to be translated into social infrastructure: roles, rules, routines and indicators that help people apply the new logic in their daily work (e.g., protocols for joint measurements, boundary objects, portfolio management). In design terms, this means that themes are first transformed into goals, scenarios and interaction rules before concrete solutions and KPIs are specified. In this way, the orchestrator creates conditions for shared change, rather than a single, prescribed solution (K. Dorst, 2011; K. Dorst, 2015).

2.5.1 Conclusion

Frame Creation offers a robust approach to addressing wicked problems in ports, such as energy transition and livability. Instead of seeking linear solutions, this method operates abductively: starting from a desired value, a new working principle and corresponding form are developed. By systematically identifying themes and translating them into social infrastructure, such as roles, rules, routines and indicators, the orchestrator creates conditions for shared change. This makes innovation not a matter of a single solution, but of designing frameworks that enable collaboration and adaptive transformation.

Key takeaways

- Port challenges are wicked problems that resist linear solutions.
- Desired values precede solutions, not the other way around.
- Themes and meaning must be identified before designing interventions.
- Frameworks matter more than individual solutions for systemic change.

2.6 Conclusion

The literature review brought together four interrelated theoretical perspectives that together frame the challenge of societal value in port innovation contexts.

Firstly, innovation ecosystem and orchestration theory explains how value creation in complex, distributed systems depends on coordination rather than hierarchy. In such ecosystems, a guiding role is needed to align stakeholders, resources and ambitions without direct control.

Secondly, legitimacy theory emphasises that orchestration can only be sustained when stakeholders consider decisions, processes and outcomes to be fair, transparent and responsive. In port contexts, legitimacy is not guaranteed by formal authority, but must be continuously negotiated with surrounding communities and public stakeholders.

Thirdly, the literature on societal value and impact measurement shows that value extends beyond economic performance to include social and environmental dimensions. However, this literature also reveals an ongoing tension: although frameworks such as TBL, SROI and TLBMC offer structured ways of measuring value, they tend to abstract the lived experience and are poorly aligned with everyday decision-making and dialogue.

Finally, design theory does not view design as a means of optimisation, but as a way of making complex issues concrete, discussable and feasible. Design approaches such as Frame Creation emphasise interpretation, meaning-making and shared understanding rather than closure or control.

Together, these perspectives explain why ports are expected to create social value, but offer limited guidance on how this can be meaningfully integrated into everyday innovation practices. Existing frameworks or approaches (such as SROI, MKBA & TLBMC) focus on representation, structure and accountability, while the challenge in port ecosystems lies in interpretation, credibility and acceptance by all stakeholders.

This theoretical gap motivates a design-led approach in the following chapters.

Chapter 3

"Case studies'

Research I

3 Case studies

To learn from orchestration frameworks in practice, three Dutch ecosystems were examined on the basis of literature and report analysis: Amsterdam Airport Schiphol, the Rotterdam Maritime Board (RMB) and Brainport Eindhoven. These cases are comparable in terms of the size and complexity of the stakeholders, but differ in terms of the maturity of the governance and legitimacy dynamics. In each case study, the four dimensions are discussed: what went right or wrong and why and extract lessons for the Port of Rotterdam. See Figure 7 for a summary.

In addition, two different context stakeholders were interviewed to find out how they and their companies deal with social value and how they measure it.

AMS Schiphol

Strong economic narrative (accessibility, competitiveness, many jobs) + broad coalition → rapid growth (Working).

What went wrong: long-term undervaluation of Living/Well-being (noise, emissions, night flights); information monopoly and model dependency → loss of trust.

Repair attempts: Social KPIs, ceilings, Alders table, citizen sensing (Geluidsnet), technical innovations → partial recovery of LTO.

Blind spot: "Sustainable mainport" often remained reactive; internal "saying–doing gap".

Lesson: Economic legitimacy alone is vulnerable; early open indicators + co-measurement are prerequisites for Living/Well-being/Safety.

Huijs, 2011; Berti Suman & Van Geenhuizen, 2020

ROTTERDAM MARITIME BOARD

Intention: Public-private advisory platform; linking sustainability/ digitalisation/ labour market to maritime innovation.

What went wrong: Too large, too thinly staffed → "loudest voice wins"; no clear mandate; low transparency; little translation into projects/impact.

Consequence: Limited legitimacy, fragmentation, lack of lasting effect on Living/Well-being/safety.

Lesson: Advice ≠ orchestration. Needed: right-sized structure, publication standard, a staffed backbone with follow-up power.

Elmar, 2021

BRAINPORT EINDHOVEN

Backbone & governance: Triple helix with a visible, staffed coordination centre → continuity and mandate.

Link to social themes: Innovation directly linked to mobility, health, energy → Living/Well-being explicitly in portfolio.

Measurability: Roadmaps, business cases and indicators (jobs, CO_2, quality of life) → data-driven decision-making.

Narrative & branding: "Leading in technology, improving quality of life" → legitimacy and coalition building.

Risks: Dependence on a few icons (ASML/Philips); gap with residents (accessibility of jobs); pressure on the housing market (Living).

Transfer to Rotterdam: Do not copy the location, but do copy the backbone, indicators and inclusion approach.

Bronnenberg et al., 2023; Weijma, 2011

Figure 7: Summary of the case studies

3.1 Amsterdam Schiphol Airport

Schiphol initially succeeded in building a strong economic narrative that included employment, connectivity and competitiveness, under a broad coalition that anchored the mainport strategy in national policy (Huijs, 2009). This strategy emerged during the recession of the early 1980s, when KLM (icon of the ecosystem) and Schiphol aligned their hub ambitions as one of the few EU airports pursuing hub status; Ministries (Transport, Public Works and Water Management and Economic Affairs), regional authorities (the province of North Holland, Amsterdam, Haarlemmermeer) and logistics lobbies (e.g. HIDC) rallied behind selective hub development (Huijs, 2009). The policy line called Koers "85 and the shift to hub-and-spoke positioned the Netherlands as a distribution country and argued that Schiphol's expansion was necessary to maintain the country's future role in world trade (a classic 'trend" justification) (Huijs, 2009). Over time, however, this growth-oriented approach came into conflict with housing and residential areas: noise pollution, emissions and night flights intensified the conflict and led to a policy deadlock between growth and the environment, reinforced by non-transparent governance and model-driven standards that undermined trust (Huijs, 2009; Berti Suman & Van Geenhuizen, 2020). An information monopoly surrounding modelled contours and limited disclosure of raw data kept, according to Berti Suman & Van Geenhuizen (2020), social damage off the balance sheet and deepened the controversy.

In response, Schiphol and public partners gradually introduced social KPIs (e.g. noise contours, CO_2 per passenger) and capacity limits, often after moments of crisis and formal dialogues such as the Alders Table (2006-2009), which institutionalised negotiations with local residents and regional stakeholders (Huijs, 2009). Parallel citizen measurements (e.g. Geluidsnet) introduced independent measurements, broadening the evidence base and improving problem recognition where institutions accepted this (Berti Suman & Van Geenhuizen, 2020). Schiphol also pursued technical innovations (quieter aircraft, trials with electric taxiing) and reframed its narrative as a "sustainable mainport", yet progress remained uneven as the internal gap between words and deeds persisted and transparency lagged behind (Huijs, 2009; Overvoorde, 2012). The lesson is clear: economic legitimacy alone is vulnerable. Open indicators and joint measurements must be established at an early stage to prevent zero-sum debates and translate efficiency innovations into visible gains in terms of housing, living and safety (Berti Suman & Van Geenhuizen, 2020; Huijs, 2009; Overvoorde, 2012).

Alongside Schiphol's growth narrative sits the "KLM-feeling": a widely shared sense of belonging and pride tied to uniforms, service rituals and the feeling of "coming home" when boarding. A cultural asset that mobilises employees and the public in moments of uncertainty (van Walsum, 2019). This identity functions like relational glue: it sustains trust, attracts support and projects legitimacy beyond economic metrics. Yet the blue swan also creates expectations. When frontline behavior or transparency falls short, that same bond reinforces disappointment and fuels reputational fluctuations. In short, KLM's iconic status illustrates how symbolic legitimacy can stabilize orchestration, but only if the experience ("service reality") aligns with the narrative.

The lessons are for Rotterdam. Anchor the innovation narrative in transparent social measurement data (noise, air/CO_2, safety incidents) from the beginning. Avoid information monopolies: combine official models with measurements from third parties/citizens to maintain credibility. Link technological pilots (e.g. operational efficiency) to tangible benefits for the neighbourhood, so that improvements are noticeable not only in work, but also in living and well-being. At last, keep the coalition broad and transparent. (Huijs, 2009; Berti Suman & Van Geenhuizen, 2020).

Key takeaways

- Economic legitimacy alone is fragile.
- Late or closed social measurement undermine trust.
- Independent and open indicators prevent zero-sum debates.
- Cultural identity can stabilise legitimacy but also amplify disappointment.
- Social KPIs should be embedded from the start, not added after conflict.

3.2 Brainport Eindhoven

Brainport is characterised as a smart high-tech manufacturing industry, with a strong R&D cluster that is locally based with ASML (icon of the ecosystem), Philips and VDL Group. This is an ecosystem that helps and inspires each other. Furthermore, the ecosystem has a mature triple helix collaboration that focuses on high-tech organisations, government and knowledge institutions (Weijma, 2018). Its clear governance combines a strategic core (Brainport Foundation) with an operational network organisation (Brainport Development), enabling a coherent course with flexible execution. Over the course of 25 years, it has learned to keep its strategy stable while adapting its instruments to multiple crises. This has resulted in coordination capacity, trust and consistent positioning. The metaphor used to describe this is called the backbone (Bronneberg et al., 2023).

Brainport was explicitly set up around societal challenges such as mobility, health technologies and energy. This meant that economic and societal values were promoted together rather than in parallel (Bronneberg et al., 2023). A clear regional narrative and brand (‘leading in technology, improving quality of life, collaboration is in our DNA, Unity is strength’) supported external legitimacy, while roadmaps and indicators made progress tangible, looking at the number of jobs created, sustainability results and effects on the liveability of the region (Weijma, 2018). The Brainport region's distinctive feature is its innovative spirit. Its residents pride themselves on their innovative work and the way that, through collaboration, they can solve the toughest societal challenges for a better future not just for them but for the rest of the world. This inquisitive mindset is why they are 'The Home of Pioneers' (Brainport Eindhoven, n.d.). Recent years have seen Brainport emphasize a shared regional identity and pride, with ASML’s successes frequently cited as a catalyst and symbol of that identity (Brainport Eindhoven, 2022).

This model had a positive effect on working through skills pipelines and supplier improvement, living through a sustainable ‘social arena’ for collaboration and safety through shared facilities and rules that reduced operational risks (Bronneberg et al., 2023). Next to that, the Smart City Entrepreneurial Ecosystem (SCEE) of the Brainport Smart District is very condensed (”small world” characteristic). This means that stakeholders are closely connected and can reach each other quickly (Dai, 2022). Nevertheless, vulnerabilities remain. Dependence on a few large companies exposes the region to sector cycles and rapid growth can increase pressure on the housing market and a perceived access gap to high-tech jobs, undermining housing and inclusion (Weijma, 2018). For Rotterdam, the transferable lesson is not to copy the place, but to create a visible backbone, embed social themes in the innovation agenda, bring pride to the region and measure the combined economic, environmental and social impacts from the beginning.

Key takeaways

- A visible backbone enables long-term coherence.
- Societal challenges are embedded directly in the innovation agenda.
- Measurement supports alignment between innovation and quality of life.
- Regional identity and pride reinforce legitimacy.
- Dependence on a few key firms remains a structural risk.

3.3 Rotterdam Maritime Board (RMB)

The RMB was established in 2017 (stopped in 2021) as a public-private advisory platform with participation at CEO level to strengthen Rotterdam's maritime ecosystem and international profile. The initial results, international positioning under Rotterdam Maritime Capital of Europe, targeted in-depth analyses and initiatives in the field of education/mediation, showed potential (Elmar, 2021). However, the impact remained limited because the organisation, mandate and structure were weak. Membership grew to ~40-45 without redesign, leading to generic advice. Next to that, a dynamic where the loudest voice dominated, having a small secretariat and dependence on municipal capacity limited follow-up (Elmar, 2021). Limited transparency with little public advice and low external visibility (profiling and positioning) further weakened legitimacy, meaning that recommendations were rarely translated into sustainable portfolio shifts in the areas of working, well-being or safety. On top of that, the Covid crisis did not help the project as well. The key lesson is that access to advice is not the same as coordination: the right size, publication standards and a well-equipped executive core are prerequisites for linking innovation from leading companies to social value and LTO (Elmar, 2021).

3.4 Port of Moerdijk and industry company interviews

In order to gain two additional insights into how industrial companies deal with innovations and weak business cases and how social value is currently measured, these two semi-structured interviews were conducted, see participants list in table 2.

Participant	Company	Department/ role
p(4)	Industry company	Global process safety
p(5)	Port of Moerdijk	CFO

Table 2: Participants context interviews

The interviews revealed that industrial companies are often still strongly commercially driven. Economic value carries considerable weight. This explains why innovations sometimes remain on the shelf when the business case is not conclusive. In addition, there is often a lack of tools to measure social value, even though this could be of great value.

p(5) described an interesting approach: look at social value in four circles of areas and always ask the question: what do local residents, the municipality, the province and the country think? This method can help in making informed decisions.

Key takeaways

- Advice without mandate does not lead to coordination.
- A weak backbone prevents translation from advice to action.
- Access to leaders is not the same as ecosystem orchestration.

- Industry companies are often commercially driven.
- Social value as an area of circle approach

3.5 Conclusion

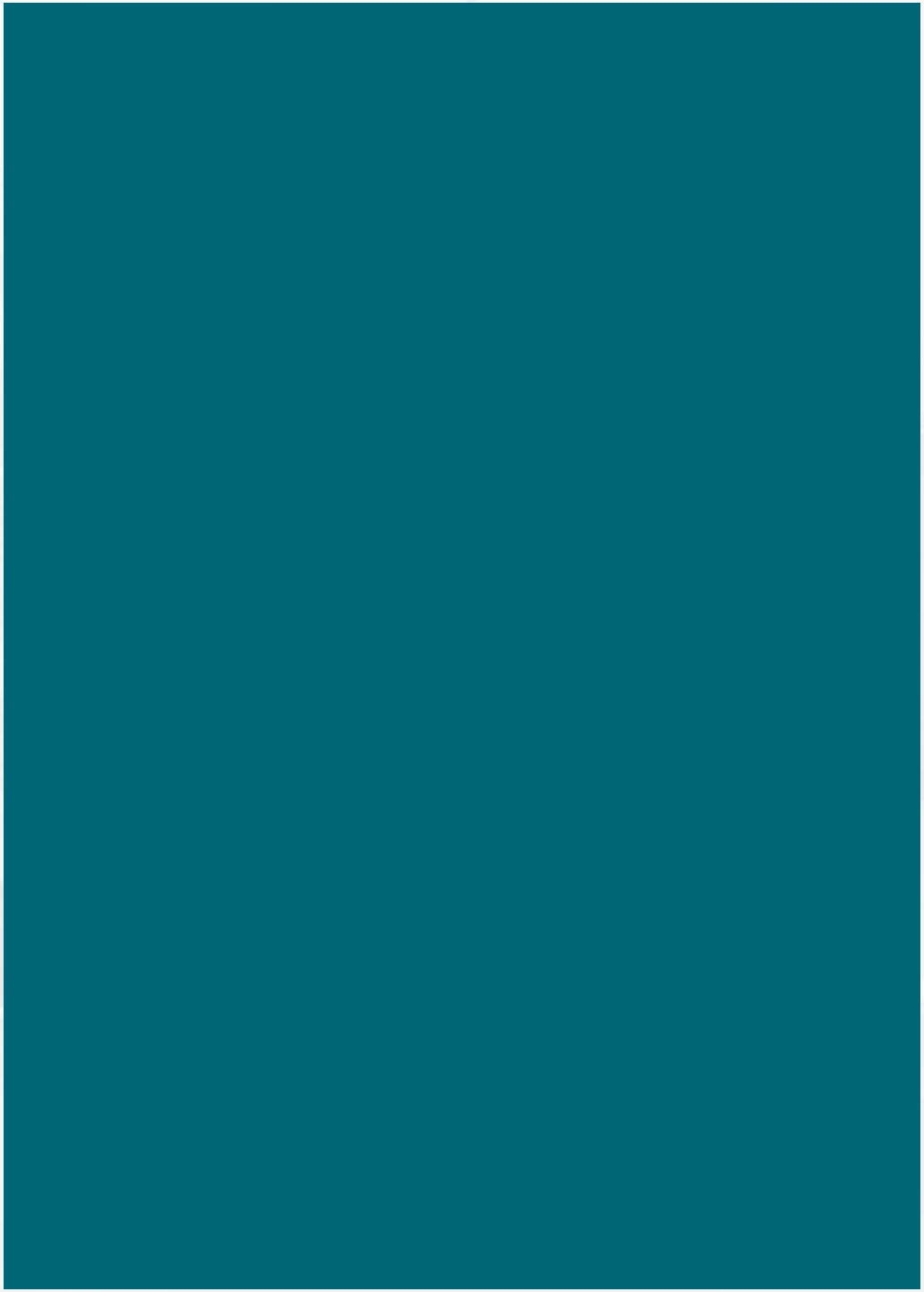
Three design principles emerge consistently across all cases.

First, build a visible, coordinating backbone with a clear organisation, mandate, resources and follow-up routines. Brainport's long-term coherence contrasts sharply with the thin, scattered structure of the Rotterdam Maritime Board. A sustainable backbone translates ambition into continuity.

Second, make societal value measurable from the outset through open, shared indicators for living, working, wellbeing and safety. Schiphol demonstrates that closed or delayed measurement methods undermine public trust, while Brainport's early integration of social measurement methods has contributed to aligning technological progress with quality of life.

Third, keep governance appropriately sized and open: advice should not be biased towards "whoever shouts loudest" but must remain evidence-based, so that portfolios can credibly steer towards societal legitimacy and long-term value.

Finally, both Brainport and Schiphol demonstrate that legitimacy is not only institutional but also emotional. Pride in practice is the visible rituals and stories through which people see themselves contributing to collective progress. It acts as a social glue between innovation and community. Where this pride is nurtured by consistent behavior and transparent results, societal value becomes tangible; where it remains a slogan disconnected from practice, legitimacy disappears.



Chapter 4

"Insights"

Research I

4.1 Insights

The first research phase of this project combined three perspectives on the Port of Rotterdam. First, the structural context of the port innovation ecosystem. Second, theoretical work on orchestration, legitimacy and multidimensional value. Third, practitioner cases from other Dutch or Rotterdam regions. Together they reveal a consistent pattern. The port already has strong economic instruments and a rising innovation agenda, but lacks a concrete way to connect that agenda to the lived experience of Rotterdam communities across living, working, well-being and safety.

From the context analysis it becomes clear that the port operates in a fragmented ecosystem where many strategic and R&D decisions are taken outside the region, while legitimacy and LTO are earned locally. Absorptive capacity, not invention, is the main bottleneck. At the same time external pressure on climate, safety and liveability is increasing and public support cannot be taken for granted. This creates a paradox that runs through the whole project: societal value is widely mentioned, but rarely operationalised in daily decision making.

The theoretical background confirms that orchestration in such ecosystems depends on more than economic performance. Orchestrators need to manage knowledge flows, fair distribution and network stability, while building legitimacy through shared narratives, visible results and a clear identity. Value in ecosystems is multidimensional and includes financial, environmental and social dimensions. Existing frameworks such as Triple Bottom Line, SROI and the Triple Layered Business Model Canvas show how this can be conceptualised, but they stop short of providing concrete, port-specific indicators that can steer day-to-day portfolio choices.

The case studies sharpen these insights. Brainport Eindhoven shows that a visible backbone, stable governance and early integration of social indicators can align innovation with regional quality of life. Schiphol demonstrates the opposite: when social and environmental effects are monitored late, in a closed way or mainly through modelled data, trust erodes and conflicts harden. The Rotterdam Maritime Board illustrates that advice without a strong mandate, clear follow-up and transparent communication does not translate into structural shifts in working, well-being or safety. Across all cases, legitimacy depends on open indicators, credible measurement and a narrative that matches lived reality rather than slogans.

For the Port of Rotterdam these patterns have three implications.

First, societal value needs to be made visible in a way that is specific to the port context. High-level concepts such as “social impact” or “quality of life” are not enough to guide land policy, investment decisions or innovation portfolios. The port requires a limited set of indicators that translate living, working, well-being and safety into observable outcomes that can be monitored over time and discussed with partners.

Second, these indicators must be credible for communities that live and work in and around the port. The analysis so far is mainly based on macro-level sources: scientific literature, national frameworks and large ecosystem cases. What is still missing is a grounded view of what residents and local officials in port-adjacent neighbourhoods actually worry about, what they value and how they experience the trade-offs between jobs, environment and liveability. Without this bottom-up perspective indicators risk remaining technocratic or one-sided.

Third, the insights highlight that legitimacy is relational. It arises from fair procedures, regular contact and recognition of local experience. This suggests that indicators should not only measure outcomes, such as noise or employment, but also capture aspects of participation, communication and trust between the port and its surrounding neighbourhoods. Therefore, the dimension of ''well-being'' will change into ''experience''.

The combined insights therefore show that the system is under increasing pressure. Innovation activities in and around the port continue to grow, while the external effects in terms of climate, safety and livability are increasing. At the same time, the ecosystem remains fragmented, innovations are being developed, concerns of local residents are being dealt with reactively, and strategic ambitions at the local level remain abstract.

Existing instruments focus on compliance, reporting or performance, but offer limited support for linking innovation practices to experiences in surrounding neighbourhoods. As a result, social value remains difficult to articulate, compare and explain. This creates a growing gap between intention and perception.

Without intervention, this gap threatens to widen. Fragmentation persists, trust declines and legitimacy becomes increasingly fragile. Instead of facilitating dialogue, social value becomes a source of disagreement, which can be addressed through regulation, procedures or escalation of conflicts, see figure 8 on the next page.

These conclusions justify a second discovery phase in the double

diamond. The first diamond has explored the problem from a systemic and expert in context viewpoint. The next step is to zoom in on the neighbourhood scale to understand which societal outcomes matter most around the port and how they are currently articulated (bottom-up).

The next chapter therefore re-opens the research diamond by analysing ten ''wijkvisies'' (neighbourhood visions) and conducting interviews with Rotterdam ''wijkmanagers'' (district managers). This has been referred to me by internal discussions with external affairs PoR and a contact at Municipality of Rotterdam.

The neighbourhood visions provide a structured record of local ambitions and concerns regarding living, working, experience and safety. The interviews add an interpretive layer by uncovering how district managers perceive resident needs, tensions and blind spots in current policy (this will be more elaborated in chapter six). Together these two sources will generate a grounded longlist of potential needs and desires and sharpen the requirements and indicators for a strategic orchestration framework that is both theoretically sound and locally legitimate.

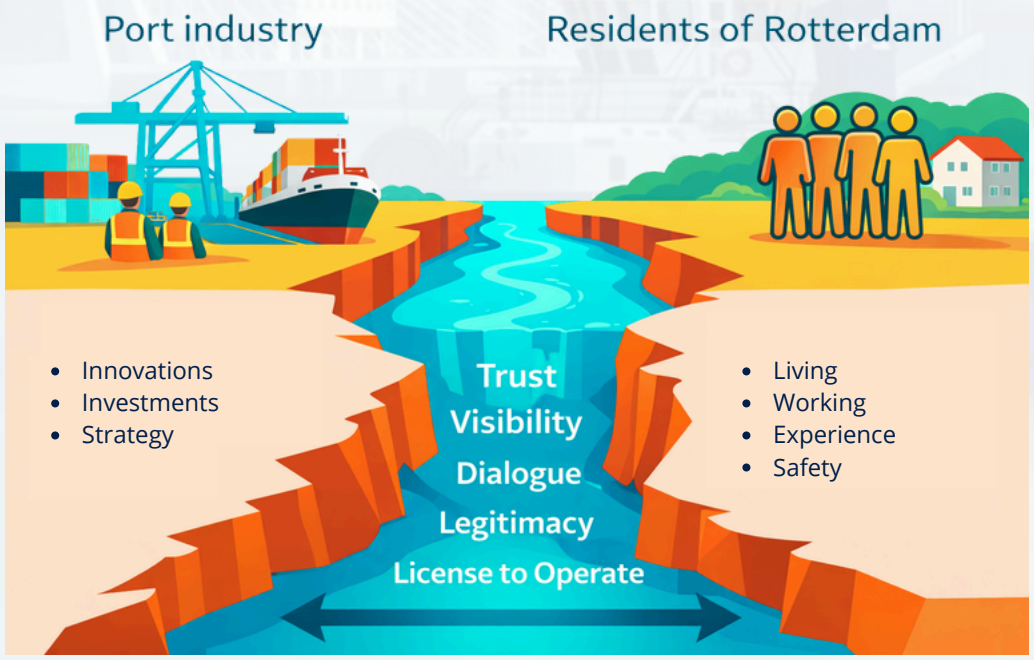


Figure 8: The growing gap

4.2 Analogy

The Port of Rotterdam area can be understood as a large orchestra, see figure 9, of soloists. Each company operates autonomously, with its own instrument, tempo and score. Within the economic system, this works well for the most part: efficiency, scale and competitiveness are optimised for each player. From this perspective, the port appears to be a well-functioning entity.

Figure 9: Orchestra

However, the problem arises as soon as this orchestra is listened to from the audience. For residents and neighbourhoods surrounding the port area, the port is not a collection of separate performances, but a single coherent experience. Noise, emissions, traffic pressure and safety risks add up. While individual players consider their contribution to be limited and rational, the total output is experienced by the public as disruptive or even harmful.

What is lacking in this analogy is not so much the talent or commitment, but a form of orchestration that looks beyond tempo and technical perfection. A conductor who focuses exclusively on speed and volume, without taking into account acoustics, timing and audience experience, creates noise rather than symphony. Similarly, innovation in the port, when assessed primarily on technological or economic criteria, leads to social friction rather than shared value.

This analogy illustrates why social value does not automatically result from individual innovations, but requires coherence, coordination and reflection at the level of the whole. It underlines the need for an explicit orchestrating role that makes social effects visible, open to discussion and connects them to concrete issues in the surrounding neighbourhoods.

Chapter 5

"Neighbourhood visions"

Research II

5 Neighbourhood visions

The insights gained from the first research phase show that social value surrounding the port can only be realised once it is clear which outcomes are actually relevant to local residents. The strategies, ecosystems and theoretical frameworks provide direction, but remain detached from the daily reality in the neighbourhoods connected to the PoR complex.

This gap poses a structural risk to the legitimacy and effectiveness of the orchestration framework.

This chapter therefore reopens the research diamond at neighbourhood level. By systematically analysing ten neighbourhood visions, see figure 10, it becomes clear which themes residents and neighbourhood professionals consider central to living, working, experience and safety. These themes form the sound basis for a long list of indicators, which will later be narrowed down to a core set.

Figure 10: Neighbourhood visions

5.1 Neighbourhood visions

To derive needs and desires for social value, a qualitative content analysis was conducted on ten neighbourhood visions (2023–2026), see figure 11. These neighbourhoods were selected because, firstly, they are connected to the PoR complex or are known to have a large number of working residents living in the port area. Secondly, because not all neighbourhoods have developed a complete and sound neighbourhood vision, but these ten have. These documents were selected because they explicitly describe the local challenges and values that are relevant to the dimensions of living, working, experience and safety.

The analysis consisted of three steps. First, the four dimensions were used as predetermined main categories. For each domain, a draft list of themes was drawn up, including topics such as air quality, noise, employment, facilities, green spaces, nuisance and external safety. This served as a guiding framework.

The documents were then read in their entirety and broken down into complete sentences.

For each neighbourhood vision, five to ten quotes were selected that mention a specific social impact. These quotes were reproduced literally. The selection criteria were specificity, policy relevance and measurability.

Finally, all quotations were coded according to dimension, theme and possible indicator. This resulted in thematic clusters that were translated into indicator proposals. The complete coding is included in a data sheet that serves as verifiable evidence for the transition from text to indicator.

The neighbourhood visions of Hoek van Holland, Rozenburg, Hoogvliet, Pernis, Heijplaat, Mathenesse, Delfshaven - Schiemond, Oud-Charlois - Wielewaal, Tarwewijk and Katendrecht - Wilhelminapier have been analysed because these neighbourhood visions are geographically most closely linked to the port.

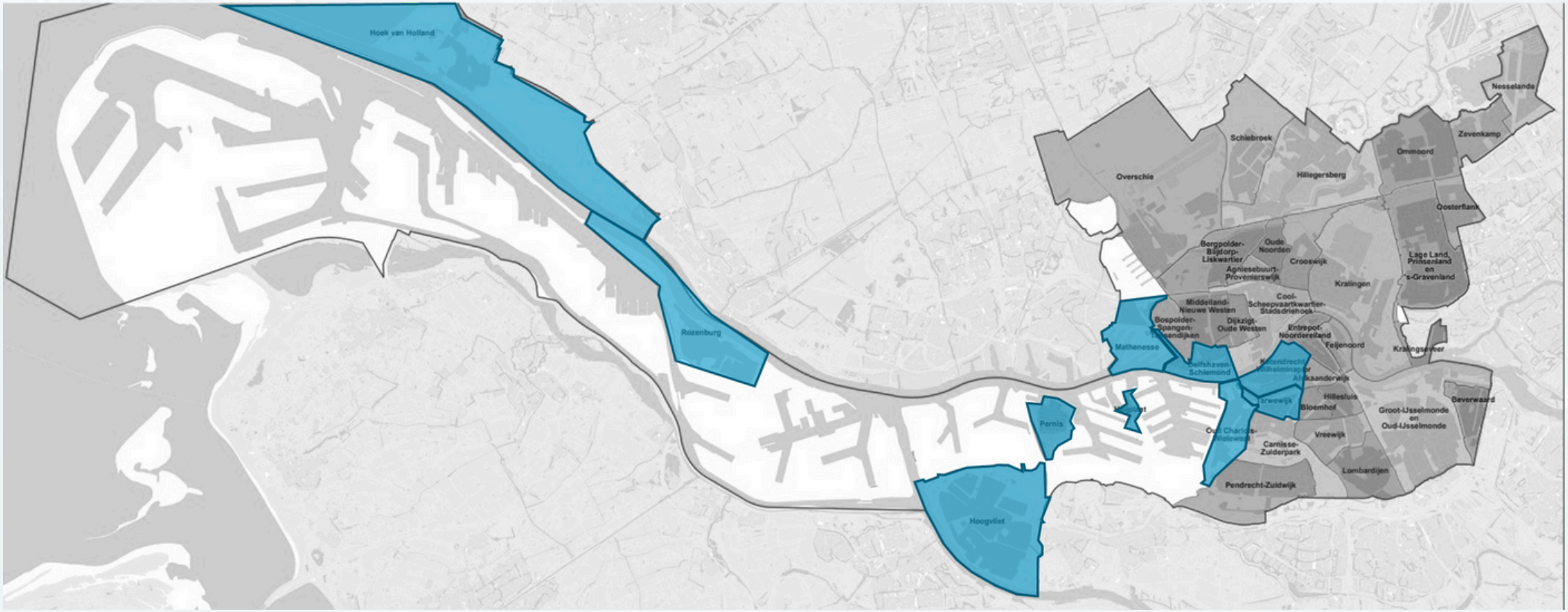


Figure 11: Map of Rotterdam with highlighted neighbourhoods

5.2 Findings from Neighbourhood visions

Across the ten neightbourhood visions a rich set of themes emerges that relates to the four dimensions of living, working, experience and safety. The coding results in 31 indicator ideas for living, 16 for working, 35 for experience and 37 for safety. Many entries cut across multiple dimensions, which already suggests that residents do not separate social value into neat categories but experience it through intertwined issues such as mobility, environment and nuisance.

5.2.1 Living

Three clusters dominate.

First, environmental quality around the PoR is a structural concern. neighbourhoods such as Pernis, Rozenburg and Heijplaat refer to air quality, noise, odour and industrial risks, often in combination with traffic from trucks and through-traffic. This is reflected in indicators like *Sluipverkeer/Luchtvervuiling*, *Milieu-impact Wonen* and *Geluid Contour*.

Second, the visions stress the basic conditions for a workable housing career. Several documents mention the quality of private rental stock, small and outdated family homes and the lack of life-cycle proof and elderly housing. This leads to indicators such as *Kwaliteit Particuliere Verhuur*, *Kleine Eengezinswoningen* and *Levensloopbestendig Wonen*.

Third, access to everyday facilities and mobility is a recurring theme, especially in peninsula-like areas. Residents point to gaps in local shops, healthcare access and declining public transport or waterbus connections. This appears in indicators like Voorzieningenniveau, OV over Water Achteruitgang, Barrière in Wijk and Fietsnetwerk Verbinding.

Together, these themes frame living near the port as a question of both environmental pressure and functional accessibility.

5.2.2 Working

The working dimension is less extensively covered in the visions, but still reveals several important patterns.

A first cluster concerns access to jobs in and around the port. Documents highlight the dependence on port-related employment and at the same time the difficulty of reaching work locations without a car, which is reflected in indicators such as Bereikbaarheid Werkplekken and OV Verbinding naar Werk.

A second cluster revolves around local entrepreneurship and the small-scale economy. Some visions underline the role of neighbourhood centres, small shops and local services for economic vitality, leading to indicators like Lokale Ondernemers and Winkelstructuur.

A third theme touches on innovation and transitions, for example energy transition projects or RDM-related activities that are visible in the neighbourhood. Here indicators like Innovatieve Proeftuinen and Energietransitieprojecten capture how residents can see and benefit from new economic activity. The relatively low number of working-related indicators compared with the other dimensions also suggests that this domain needs to be deepened in the next phase.

5.2.3 Experience

Experience is the dimension with the broadest spread of themes. Many visions emphasise social cohesion, community feeling and the desire to maintain a village-like character in the shadow of a large industrial complex. This results in indicators such as Sociale Cohesie, Dorpsgevoel and Buurtinitiatieven.

Another strong cluster concerns pride and image. Some neighbourhoods express pride in their maritime identity, while others explicitly struggle with a negative external image. Indicators like Trots op Wijk/Haven, Imago Wijk and Toeristische Aantrekkelijkheid capture this tension between internal and external narratives.

Finally, several visions connect experience to the presence of green spaces, cultural and sports facilities and the organisation of events. Here indicators such as Groen en Recreatie, Cultuur/Sport Voorzieningen and Evenementendruk show how residents value both everyday amenities and larger gatherings, but are also sensitive to overcrowding and nuisance.

5.2.4 Safety

The safety dimension is heavily represented and closely linked to the port context. One dominant cluster is everyday nuisance and enforcement. Many visions mention youth nuisance, public drinking, noise and litter and the perceived lack of visible enforcement. This is reflected in indicators like Overlast Meldingen, Handhaving en Toezicht en Cameratoezicht Verkeer.

A second cluster relates to traffic safety on routes that carry port-related flows. Residents refer to speeding cars, heavy trucks in residential streets and unsafe crossings, leading to indicators such as Verkeersveiligheid, Verkeershinder Vrachtwagens and Verkeersdrukte (Doorgang).

A third cluster captures external safety and environmental risks linked to industry. In several visions the combination of BRZO-companies, incidents and emergency preparedness is a concern, which is visible in indicators like Milieu-incidenten, Veiligheidsaandachtsgebied and Gezondheidsimpact Leefmilieu.

Together these patterns show that safety is understood both as subjective feeling and as exposure to concrete risks.

See appendix A, for all codings of themes and indicator ideas.

5.3 Conclusion

An analysis of ten neighbourhood visions shows that the social value surrounding the port is expressed in concrete, location-specific terms rather than in abstract policy language. Residents consider living, working, experience and safety to be intertwined circumstances that are determined by combined factors such as environmental nuisance, accessibility, employment prospects and perceived risks.

In all neighbourhoods, environmental quality, living conditions and access to facilities dominate the "living" dimension. Working is mainly framed in terms of job accessibility and the visibility of port-related opportunities, rather than innovation as such. Experiences are mainly focused on identity, pride and social cohesion, while safety is a combination of daily nuisance and concerns about industrial and traffic-related risks.

These insights form a solid basis for translating social value into a long list of indicators that are recognisable to residents and usable in later design phases.

Key takeaways

- Societal value is expressed in concrete, local terms.
- Residents experience living, working, experience and safety as intertwined.
- Environmental pressure and accessibility dominate perceptions of living quality.
- Working is framed around access and visibility, not innovation rhetoric.
- These insights provide a grounded basis for indicator development.

Chapter 6

"Interviews"

Research II

6 Interviews

6.1 Participants and purpose

To address the insights found in Chapter 4, a series of interviews were conducted with district managers, see table 3. District managers are the eyes and ears of the neighbourhood, translating the voice of residents into the municipal/administrative context. They understand local needs and have insights into policy bottlenecks. They are therefore very valuable for the bottom-up approach. These online, semi-structured interviews with ten district managers lasted between 35 and 70 minutes. The participants were selected on the basis of their geographical location, i.e. in or around the PoR area or in the south of Rotterdam, see figure 12. This is because residents in these areas are likely to have some connection with the port. Mostly work related.

The interviews served two purposes: they gave me better insights into the needs and wishes that play a role in the four dimensions in the neighbourhoods and the interviewees also immediately shared ideas and initiatives that exist to fulfil these kinds of needs and wishes. This to get a deeper understanding in the societal values and how to tackle it.

The process of finding the right interview questions, see appendix B for the final version, was carried out very carefully. This was to ensure that only the right questions were asked and that no false expectations could arise. Furthermore, there has been close contact with the external affairs department within the PoR to provide information and receive approval for conducting the interviews.

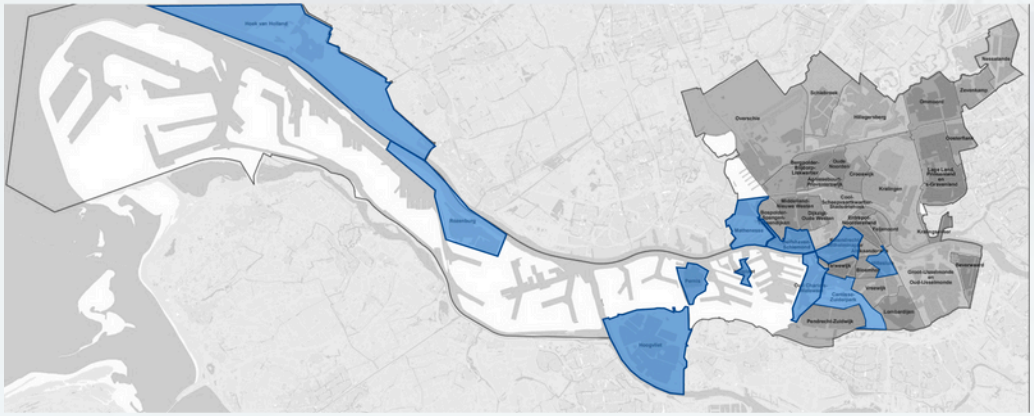


Figure 12: Map of Rotterdam with highlighted neighbourhoods

Participant	Neighbourhood	Role
Alpha	Pernis & Heijplaat	Wijkmanager
Bravo	Hoogvliet	Wijkmanager
Charlie	Rozenburg	Wijkmanager
Delta	Mathenesse	Wijkmanager
Echo	Hoek van Holland	Wijknetwerker
Foxtrot	Katendrecht & Wilhelminapier	Wijkmanager
Golf	Carnisse, Zuidplein & Zuiderpark	Wijkmanager
Hotel	Delfshaven & Schiemond	Wijkmanager
India	Oud Charlois & Wielewaal	Wijkmanager
Juliet	Hillesluis	Wijkmanager

Table 3: District managers

6.2 Structure of interviews

This chapter describes the design and structure of the interviews.

Because the focus of the research is on innovations, it was first important to create a common understanding of what 'innovation' means to the interviewed district managers. This understanding is not only relevant in a general sense, but also in the specific context of their neighbourhood. Next, ideas were investigated within the neighbourhood that could stimulate its development and why or why not action is being taken on such ideas. This provides insight into how ideas are assessed and which factors are considered important in this regard. Finally, possible needs that arise in the interaction between PoR and the neighbourhood were asked and whether there are any concrete ideas for addressing these needs.

Following this exploratory study, various dimensions were examined in greater depth. Within the dimension of housing, the focus was on residential satisfaction. The question was how residents define residential satisfaction. Complaints often arise about noise pollution, odours, dirt on the streets, green spaces and possible flooding. In addition, there is investigated what other needs are at play and what, besides reducing nuisance, is considered important for improving living enjoyment. There is also asked what ideas people in the neighbourhood have for this.

The experience dimension focuses on the extent to which people feel connected to the city and to businesses. What gives residents a sense of connection or appreciation? Are there initiatives that improve the experience in combination with PoR and is there a need for this? There is also looked at whether the neighbourhood is proud of the port, why this is the case and how this pride can be strengthened.

The dimension of work focuses on the opportunities and threats that innovations bring. Innovations can create new jobs, but they can also cause existing jobs to disappear. That is why we asked which jobs are popular in the neighbourhood among men, women and young people who work in PoR. There is also investigated what type of work PoR could offer in the future to provide residents with a stable and attractive working environment and what needs and challenges are involved in this.

Finally, attention was paid to safety. PoR is working on various projects to improve safety, not only in terms of shipping traffic and the environment, but also in terms of resilience and crime. The question was what sense of safety prevails in the neighbourhood, whether there are port-related factors that cause insecurity and what innovations could bring about improvements in this area. The needs and ideas surrounding this theme were also examined.

Key takeaways

- A shared definition of innovation is essential before discussion.
- Interviews were conducted to reveal both needs and latent solution ideas.

6.3 Data collection and processing AI tools

This chapter describes the use of AI tools to support the collection and processing of qualitative interview data. AI was only used for transcription and structured exploration of the data. Interpretation and analytical decisions were made outside of the AI tools.

6.3.1 Transcription of interviews

All interviews with district managers were conducted online via Microsoft Teams. Prior to each interview, permission was requested from the interviewee to use Microsoft Teams' built-in AI transcription feature. The AI transcription generated a written transcript immediately after each interview. This approach allowed the interviews to be documented efficiently and consistently, without the need for manual transcription.

6.3.2 Anonymisation and data preparation

After transcription, the interview transcripts were assessed. Personal names were anonymised to protect privacy and care was taken to ensure that the data was as clean and accurate as possible. References to neighbourhoods and local contexts were kept, as these were necessary to understand which needs were mentioned in which areas. The processed transcripts formed the qualitative dataset that was used for further analysis, see appendix C.

6.3.3 AI-assisted analysis in Notebook LM

The anonymised transcripts were uploaded to Google Notebook LM to support the qualitative analysis. Structured prompts, see appendix C, were used to examine the data and identify recurring needs, themes and representative quotes relating to the dimensions of living, working, experience and safety, see also an important note in appendix C.

Notebook LM was used as a supporting tool to retrieve and organise information from the transcripts. It did not generate any new interpretations or content beyond the interview material. The analytical conclusions were drawn from the original data.

6.3.4 Use and privacy

The use of AI tools ensured consistency and transparency in the processing of large amounts of qualitative data. At the same time, the analysis remained based on the interview material. AI served as a tool in the analytical process and not as an autonomous decision-making system. Furthermore, both Microsoft and Google offer AI environments in which user data is not used to train models. Microsoft is offered within the Port Authority, but Google is not. That is why anonymisation was used with the Google AI tool and Notebook LM doesn't train their model with user data.

6.4 Interview findings

Based on a thematic analysis of the interviews, the findings were structured along the four dimensions. The results below summarise the dominant needs per dimension.

6.4.1 Living

Within the Living dimension, a core need that was repeatedly emphasised concerns the reduction of environmental nuisance. District managers frequently referred to noise, light pollution, odour and air pollution as persistent issues in neighbourhoods adjacent to the port. These forms of environmental pressure are experienced as rising and directly affect residents' health, sleep quality and overall liveability.

"We also have a lot of black residue. The garden chairs are completely covered in black dust." - Echo

In addition, housing affordability emerges as a significant concern. Several interviewees pointed to a shortage of affordable housing, particularly for young people and expressed the expectation that the port could play a more active role in addressing this issue. This includes both direct involvement through land use or development and indirect influence through employment stability and income prospects.

"It is important to be able to build a housing career in your own neighbourhood, but this requires housing." - India

A third recurring need relates to climate adaptation in dense urban environments. In high-rise neighbourhoods, heat stress is increasingly experienced as a problem. As a result, there is a clear demand for additional greenery and cooling measures in public space, with district managers explicitly linking greening strategies to improved living conditions and resilience.

"Then you see that there is a strong call for more greenery in this neighbourhood. Not just on the streets, but also on the roofs." - Hotel

6.4.2 Working

Within the Working dimension, concerns about job loss and skills mismatch are increasingly prominent. Automation and digitalisation are perceived as trends that threaten traditional, lower-skilled technical jobs in the port. This creates a risk of exclusion for groups that have historically relied on port-related employment.

"When you start innovating, it often comes at the expense of jobs. And that naturally affects the people in Overvliet." - Bravo

Consequently, there is a strong need to offer accessible job and career pathways for lower-educated young

people. Interviewees stressed the importance of creating opportunities that allow these groups to enter and grow within the port-related labour market, rather than being displaced by technological change.

''When young people realise that with an education, not necessarily the highest level, you can already make progress in the port.'' - Foxtrot

Closely related to this is the need to modernise the image of the port. Several district managers noted that the port is often perceived by young people as outdated or unattractive. There is therefore a need to actively promote a contemporary image of the port, highlighting innovation, sustainability and diverse career opportunities at an early stage.

''I don't think anyone makes the connection that if you're good at gaming, you could become a crane operator in the port, because you can use your joystick to unload all those containers from a ship.'' - Bravo

Finally, accessibility plays an important role in enabling participation in port-related work. Not all residents have access to a car, particularly younger and lower-income groups. Improving the physical accessibility of the port through public transport and alternative mobility options is therefore seen as a key condition for inclusive employment.

''By organising public transport more effectively. Or organising other forms of mobility so that people can get to work within a reasonable travel time.'' - Juliet

6.4.3 Experience

In the Experience dimension, a dominant theme concerns participation and voice. Many district managers described a prevailing feeling among residents that they are not always sufficiently heard. This results in a clear need for earlier and more meaningful involvement of neighbourhoods in plans and initiatives related to the port.

''Distance is an indication of the feeling. We are not at the right table.'' - Charlie

Pride and identity also play an important role. For many older residents, the port has been a central part of their working lives and local identity. There is a strong desire to preserve this historical connection and sense of pride. At the same time, interviewees emphasised the need to foster a similar sense of pride among younger generations, linking the port's past role as an employer to its future relevance.

''Residents feel proud to be a ''Rotterdammer'' and the port is an integral part of that. Because they work there and that is perhaps the reason... they earn their money in the port.'' - Alpha

In addition, there is a need for social and cultural support within neighbourhoods. District managers suggested that the port could contribute to social and cultural initiatives as a way to build goodwill, strengthen community ties and reduce the perceived distance between the port and its surrounding neighbourhoods.

''But suppose the port were to say, "We have the half marathon in Hoogvliet and we are helping to organise it," then you would generate goodwill.'' - Bravo

6.4.4 Safety

Within the Safety dimension, concerns about large-scale risks associated with new developments are prominent. Interviewees mentioned technologies and projects such as wind turbines or nuclear facilities as sources of anxiety, even though many older residents are accustomed to living near industrial risk. This results in a strong need for transparent, timely and accessible communication about risks, incidents and safety measures, including the use of tools such as drones or real-time incident updates.

''A nuclear power plant, no matter how far away it is, still makes people a little afraid.'' - Bravo

Another recurring theme is the relationship between socio-economic vulnerability and criminal activity in the port. District managers described a perceived link between poverty, lack of future perspective and involvement in criminal activities. As a result, there is a clear need for preventive approaches that combine enforcement with guidance, education and alternative career pathways for young people, in order to keep them from being drawn into illegal activities connected to the port.

''If you can earn a few hundred euros doing bad jobs in the port, then yes, that's more rewarding than working at Albert Heijn.'' - Gamma

6.4.5 Conclusion

The interviews with district managers confirm and expand on the patterns that emerge in the neighbourhood visions.

Living is dominated by environmental pressure, affordability and climate resilience. Working shows a growing tension between innovation and inclusion, particularly for low-skilled young people and residents without access to their own transport. Experience is strongly determined by feelings of distance, limited participation and the need to maintain pride in the port across generations. Safety combines concerns about large-scale industrial risks with socio-economic vulnerability and its link to criminal activity.

Taken together, these findings show that social value is not assessed on the

basis of innovation claims, but on the basis of whether relations are visible, fair and understandable at the neighbourhood level.

6.5 Interview findings, neighbourhood level

In the previous chapter, the insights are divided across the four dimensions. However, after each interview, the most important insights from that specific neighbourhood are also summarised. This provides a good picture of how that neighbourhood is structured and what is currently happening there. It can be seen as a baseline measurement of the neighbourhood. See appendix D for all the neighbourhoods.

6.5.1 Conclusion

The analogies at neighbourhood level show that the relationship between the port and the surrounding areas varies greatly depending on the context, history and socio-economic structure. In some neighbourhoods, strong historical ties with the port generate pride and a willingness to participate, while in others, distance, vulnerability or gentrification weaken this bond.

Despite these differences, a common pattern can be seen. Where residents feel informed and recognised and can relate port activities to their own situation, tolerance and legitimacy increase. Where the effects remain abstract, are unevenly distributed or poorly explained, trust declines.

Key takeaways

- Environmental nuisance and housing affordability dominate living concerns.
- Innovation increases tension between inclusion and job security.
- Experience is shaped by distance, participation and pride.
- Safety combines perceived risk with socio-economic vulnerability.
- Social value is judged relationally, not technically.

- Port–neighbourhood relationships vary strongly by history and context.
- Recognition and early information increase legitimacy.
- Where impacts are abstract or uneven, trust declines.
- Pride is a powerful but fragile connector.
- Local context determines how innovation is interpreted.

Chapter 7

"Insights'

Research II

7.1 Insights

The analysis of neighbourhood visions and interviews reveals a consistent pattern in the four dimensions. Although the topics differ per dimension, the underlying insights converge around a number of structural tensions between port-related innovation and daily life in the surrounding neighbourhoods.

It should be noted that without the interviews, it would have been much more difficult to identify specific port-related needs and ideas. The conversations made it possible to zoom in on the relationship between long-term innovations and current needs at that moment. Neighbourhood visions are valuable as a reference, but because these documents date from 2023, they do not always reflect the current reality. Interviews therefore provided up-to-date insights and nuances that are crucial for the design of a relevant final product.

In all dimensions, residents do not primarily question the presence of the port itself. However, concerns do arise when port activities and innovations remain abstract, distant or unevenly distributed in their local effects. Although the social value of the port is often expressed at a strategic level, it is mainly experienced and assessed on the basis of the daily results in the surrounding neighbourhoods.

Within the dimension of living, environmental pressure, housing affordability and climate resilience emerge as persistent and growing challenges. These issues occur simultaneously and reinforce each other. Improvements in one area are often perceived as insufficient when other pressures remain unchanged. This suggests that the social value of living conditions must be understood holistically and not on the basis of isolated indicators.

The working dimension highlights a growing tension between innovation and inclusion. Although the port is still seen as an important source of employment, automation and digitalisation are raising concerns about accessibility for lower-skilled groups and young people. At the same time, the image of the port does not sufficiently reflect emerging forms of work, leading to a gap between available opportunities and perceived relevance. Accessibility, both in terms of skills and physical accessibility, acts as a crucial condition.

Feelings of distance dominate in terms of experience. Residents and neighbourhood professionals repeatedly point to a lack of early involvement and recognition. There is clear pride in the port, particularly in relation to its historical role as an employer.

At the same time, several interviewees express concern about how this sense of pride and connection can be maintained among younger generations. Social and cultural initiatives are therefore not considered incidental, but rather as mechanisms through which legitimacy and mutual connectedness can be restored.

Safety issues play a role both in terms of perception and measurable risk. Although industrial risks are not new to many neighbourhoods, uncertainty about new developments and limited transparency reinforce the feeling of insecurity. Furthermore, socio-economic vulnerability is seen as a breeding ground for criminal activities related to the port, which further increases the need for preventive approaches that combine opportunities, guidance and enforcement.

All these insights together show that the problem is not a lack of ideas or innovations, but rather a lack of common frames that connect port innovation to the needs of the neighbourhood in a credible and visible way. The findings show that you cannot simply assume that social value comes from innovation alone. It must be actively framed, communicated and experienced at the level of everyday life.

This calls for a frame creation phase prior to idea generation. Instead of immediately generating solutions, it is necessary to redefine how port innovation relates to the needs, tensions and expectations of the neighbourhood. The following chapter (after the analogy of chapter 7.2) therefore focuses on framing these insights into coherent perspectives that can serve as a guide for the development of ideas that both demonstrate and create social value.

7.2 Analogy

The innovation efforts of the Port of Rotterdam can be seen as a powerful lighthouse, see figure 13. Its beam of light reaches far across the sea, guiding ships in global trade and supporting large-scale economic growth. From this distance, the lighthouse effectively fulfils its function: visibility, direction and safety for stakeholders operating far beyond the local context.

Figure 13: Lighthouse

For those who live at the foot of the lighthouse, however, this same light is experienced differently. The intense beam of light can be disturbing, while at the same time offering little guidance for local, everyday challenges. Neighbourhoods around the port often experience the side effects of industrial activity, such as noise pollution, emissions or traffic, without clearly understanding how these developments relate to their own needs, concerns or opportunities.

This analogy emphasises that the visibility of an innovation at a global or strategic level does not automatically translate into local relevance or perceived value. To maintain legitimacy and trust, illumination must also take place on a human scale. This requires additional, more targeted light sources that make innovation understandable, recognisable and meaningful within specific neighbourhood contexts.

The previous chapter therefore focuses on identifying where these local “lanterns” are needed. Which neighbourhood needs require attention, how these differ from area to area and how innovation can be interpreted in relation to lived experience. Rather than increasing the intensity of the main beam, the challenge lies in redistributing visibility in a way that supports orientation, dialogue and shared understanding at the local level.

Chapter 8

"Frame creation"

Framing

8 Frame creation

This chapter builds on the previous analysis by translating the findings into a design framework. The aim is to create a clear design space that both supports the port's need to strengthen its legitimacy and aligns with the Port of Rotterdam's ambition to guide a socially conscious and future-proof innovation ecosystem.

The previous chapter brought together insights from neighbourhood visions and interviews with district managers. These insights show that the main the problem is that there is no shared understanding of how these innovations relate to what neighbourhoods actually need. There are many initiatives, but their social impact on living, working, experience and safety often remains unclear or fragmented.

Based on Dorst's Frame Creation (2015) approach, this chapter therefore focuses on reframing the problem before developing concepts and solutions. Instead of immediately starting with design ideas, the aim is to redefine the connection between port innovation and social value in a way that provides direction for the upcoming idea generation phase. Framing helps to expose underlying tensions, reveal different perspectives of stakeholders and create clarity about the conditions under which innovation can actually support both port development and the well-being of surrounding neighbourhoods.

8.1 Paradox

When we follow Dorst (2015) in his framing, the problem situation must be analysed by reflecting on the paradox rather than tackling it head-on. The solution often lies in the broader context of values and themes surrounding the problem. These tensions between values can serve as a guide to finding a productive way forward in a rich and complex context. Analysis of the findings reveals several recurring tensions between values that shape the relationship between the port and the surrounding neighbourhoods. These tensions aren't contradictions that can be fixed, but structural dynamics that need to be managed.

Innovation vs. liveability

On the one hand, innovation in the PoR is required to remain competitive and sustainable. On the other hand, these innovations can increase perceived pressure on neighbourhoods through noise, traffic or uncertainty. Innovation is therefore simultaneously part of the solution and part of the problem.

Strategic scale vs. local experience

PoR innovation is often designed and evaluated at a system or strategic level, while social acceptance, such as the licence to operate, is earned locally (Mendes Constante et al., 2023). This creates a gap between how success is defined institutionally and how impact is perceived in everyday life.

Transparency vs. trust

While transparency is frequently mentioned as a solution to safety and risk concerns, providing information alone does not automatically lead to trust. Moeremans & Dooms (2025) demonstrate that social impact depends on procedural justice, which has a strong influence on acceptance through trust.

Growth & Transition vs. Boundary conditions

Ports strive for growth while simultaneously seeking to transition to sustainability. However, external constraints such as grid congestion, nitrogen regulations and a shortage of talent make it difficult to realise these ambitions (Port of Rotterdam, 2025). These preconditions slow down innovation and complicate long-term planning.

Key takeaways

- The core issue is not lack of innovation but lack of shared meaning.
- Societal value must become visible and discussable.
- Visibility, interaction, ownership and credibility are key themes.
- The design challenge lies in enabling dialogue, not optimisation.

8.2 Field

The societal value of port innovation emerges within a complex field of stakeholders with different roles, interests and levels of influence. Based on the research, these stakeholders can be grouped into direct and indirect stakeholders see figure 14.

Figure 14: Stakeholder map

8.3 Themes

Across the tensions and stakeholder perspectives, several recurring themes emerge that shape how port innovation is interpreted in relation to neighbourhood needs.

Transparancy as interaction

Transparency is not limited to information provision, but requires two-way interaction and responsiveness to local concerns.

Credible contribution

Innovations are evaluated not on intention, but on whether their contribution to societal needs can be demonstrated and discussed in a acceptable way.

Visibility

Innovations need to produce effects that are observable at neighbourhood level. Abstract benefits or future promises are insufficient to create legitimacy.

Connectedness and ownership

Where residents feel a historical, economic or social connection to the port, tolerance and trust are higher. Innovation must therefore reinforce, rather than weaken, this sense of connection.

8.4 Reframe

Across literature, case studies and interviews, a recurring pattern emerges. Existing tools for assessing societal value primarily focus on indicators, reporting and accountability. While these instruments provide structure and comparability, they offer limited support for shared interpretation across stakeholders on neighbourhood level. As a result, societal value is often measured, but not jointly understood.

The identified pattern suggests that creating conditions under which societal value becomes legible, discussable and meaningful at neighbourhood level is important, which lead the reframe on

Societal Legibility

Making societal value legible across stakeholders.

The key question is how to make the social contribution of existing and beginning innovations visible at neighbourhood level. In this context, visibility refers to the extent to which social value is visible, understandable and believable to various stakeholders.

This reframing shifts the design challenge from producing new measurement criteria to enabling dialogue, interpretation and alignment. The task of the design becomes making social value legible to all stakeholders, without reducing it to simplified or purely quantitative measures.

Chapter 9

"Ideation"

Design

9 Ideation

Following the framing phase, the core challenge was determining how innovations in the port could visibly and credibly demonstrate their contribution to these needs. Because this challenge concerns perception, legitimacy and shared understanding across stakeholders, ideation was approached as a co-creative process.

A co-creation session was first conducted with participants representing different positions within the stakeholder field. The session started with establishing a shared understanding of the problem, based on the previously identified neighbourhood needs. Building on this common ground, participants collectively explored possible directions through facilitated creative methods.

After the session, the results were analysed. Based on this and prior analysis, the design brief and design criteria were first drawn up. The design criteria are an interpretation of the requirements and wishes that had been identified throughout the whole process up to that point. Three conceptual directions were then developed, each reflecting a different way of demonstrating the social contribution of port innovations.

9.1 Co-creation

The co-creation session aimed to jointly explore possible directions for making societal value visible, rather than generating concrete solutions upfront. The session focused on developing a shared interpretation of the problem space and identifying recurring patterns in how participants reasoned about societal impact.

9.1.1 Particpants

Participants in the resource group were selected to represent different positions within the port innovation ecosystem, including innovation team PoR, external affairs PoR, Innovators and public governance. This ensured that perspectives from innovation development, stakeholder relations and public values were all present. An overview of participants and their roles is provided in Table 4.

I took on the role of facilitator myself, even though I know that I was also the problem owner and that mixing these two roles can be devastating for the outcomes. I adopted neutral, flexible and alert characteristics as best I could to ensure that the session ran as smoothly as possible.

Participant	Company	Department/ role	Reason
p(6)	Port of Rotterdam	Innovation	Knowledge of innovation portfolio
P(7)	Port of Rotteram	Innovation	Knowledge of innovation portfolio
p(8)	Port of Rotterdam	Innovation	Knowledge of innovation portfolio
p(9)	Port of Rotterdam	External affairs	Relation with surroundings
p(10)	Industry company	Innovator	Expert in strategy, governance and innovation
p(11)	Gemeente Rotterdam	Strategy	Public values and policies

Table 4: Co-creation participants (resource group)

9.1.2 Session structure and activities

The session was structured in four consecutive steps:

The session started with a presentation of neighbourhood needs derived from interviews with district managers, structured along the dimensions of living, working, experience and safety. Participants were invited to reflect on these needs and to add additional needs based on their own professional experience.

This step served two functions. First, it validated the existing analysis by testing its recognisability across different stakeholder perspectives. Second, it allowed implicit or less articulated needs to surface, particularly those related to institutional roles, communication practices and labour market dynamics.

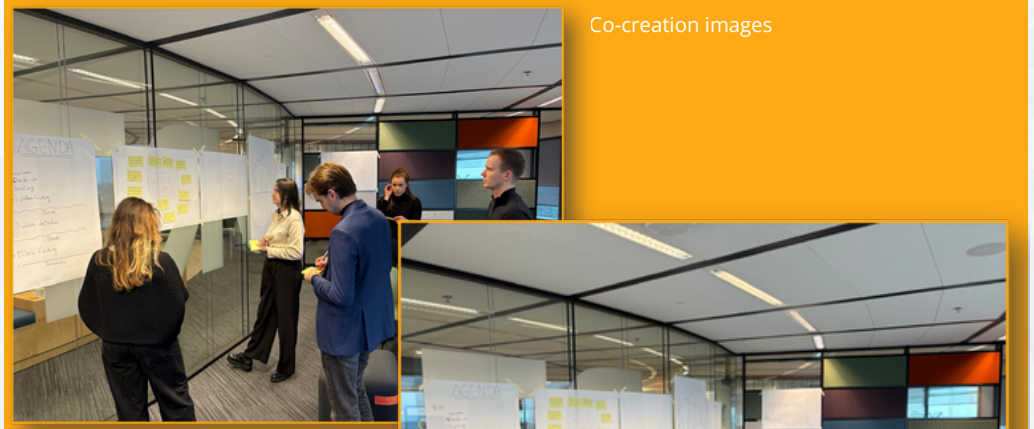
All discussed needs and observations were subsequently clustered. This clustering revealed three dominant and recurring themes that cut across neighbourhoods and dimensions.

Following the clustering, participants discussed how these needs relate to port innovations in practice. Through facilitated discussion, it became apparent that the core challenge was not the absence of societal value, but the difficulty of making such value visible and accessible across stakeholder groups. The problem as given (PaG):

How might port innovations contribute to neighbourhood needs and create societal value?

Translated to a problem as perceived (PaP), formulated as:

How might we demonstrate that port innovations contribute to neighbourhood needs and create societal value?



Co-creation images

This question reflects a shift from problem identification to problem framing, focusing explicitly on demonstration, interpretation and legitimacy.

Building on the PaP and the three clusters, participants engaged in a creative excercise aimed at exploring possible ways to address the PaP. Participants were encouraged to think beyond existing tools or organisational structures and to generate ideas that could help demonstrate societal value in practice.

The ideas generated during this step varied in form and scope, ranging from experiential and communicative interventions to more structural and system-level approaches.

The session presentation can be found in appendix E.

9.1.3 Results

The clusters formed in step 2 were as follows:

Visibility

Originating from needs related to an unclear role of the Port of Rotterdam, limited visibility of innovation outcomes, lack of accountability when impacts are negative and insufficient visibility of concrete job opportunities and career paths connected to the port.

Transparency

Emerging from needs around early involvement in plans, recognition as strategic partners and transparent and proactive communication by both companies and public authorities.

Access to labour (markets)

Rooted in concerns about preventing youth involvement in criminal activities, facilitating retraining and lifelong learning and ensuring fair and inclusive employment practices linked to port activities.

These clusters do not represent solutions, but rather interpretative lenses through which societal value is perceived and evaluated. The session results can be found in appendix F.

This session and prior analysis also enables the design brief and design criteria to be drawn up, as can be seen in the following chapters.

The co-creation session gave a rich collection of ideas and reflections. Instead of selecting individual ideas, the results were summarised into three coherent concept directions, each corresponding to a different way of addressing the shared problem. These concept directions form the basis for the three concepts developed after the next two chapters. This step was done individually again after the co-creation session.

9.2 Design brief

Problem
The analysis shows that societal value is not primarily lacking, but fragmented, difficult to articulate and unevenly visible across stakeholders.

Innovators struggle to demonstrate how their projects contribute to neighbourhood needs, while district managers and public stakeholders lack overview and tangible entry points to engage with ongoing innovations. As a result, societal value remains abstract, limiting trust, dialogue and shared ownership.

Design challenge
The core challenge is not to measure societal value more precisely, but to make it discussable, relatable and actionable across different perspectives.

Design objective
The objective of this project is to design a product that enables innovators, district managers and institutional stakeholders to jointly explore and communicate how port-related innovations contribute to neighbourhood-level societal value across the dimensions of living, working, experience and safety.

Design question

How might port innovations be demonstrated in such a way that they visibly contribute to neighbourhood needs in living, working, experience and safety?

Scope and positioning
The design focuses on early-stage exploration and sense-making rather than formal evaluation. It does not aim to function as a KPI system or decision-making instrument, but as an intervention that supports dialogue, learning and alignment across stakeholders with different roles, languages and interests.

9.3 Design criteria

Target audience

Innovators

Innovation team

District managers

Design requirements
- Visibility of societal value

The solution must make visible how an innovation relates to neighbourhood needs across living, working, experience and safety.
- Neighbourhood grounding

The solution must represent neighbourhood-specific needs in a concrete and recognisable way.
- Argumentation support

The solution must enable innovators to explain and substantiate their societal value proposition in a clear and structured manner.
- Transparency for external stakeholders

The solution must allow external parties, such as investors and residents, to understand how innovations align with societal objectives.
- Holistic measurability

The solution must be lively and allow comparison and reflection over time.

Design wishes
- Engaging interaction

The solution should be engaging and intuitive to use.
- Accessibility across backgrounds

The solution should be understandable for stakeholders with different levels of technical or policy expertise.
- Modularity and adaptability

The solution should be adaptable over time as neighbourhood needs and innovations change.
- Shared ownership

The solution should invite participation and discussion rather than positioning itself as an authoritative judgement.

Concept: Structured neighbourhood-innovation diagolue

Figure 15 AI-generated visual of the concept, With the innovation team PoR as users.

Intention
This concept aims to create structural dialogue between neighbourhood needs and port innovations, so that social value is interpreted jointly rather than accounted for afterwards.

Role of the impact map
The impact map functions as a boundary object that structures conversations and brings together different perspectives without reducing them to a single truth.

Type of interaction
- Linking innovations to neighbourhood needs
- Explaining positive and negative effects
- Making assumptions open to discussion via question cards

Core mechanism
Regular, facilitated dialogue sessions in which innovations and neighbourhood needs are jointly mapped and discussed.

Users
- Innovation team PoR
- District managers
- Innovators

used in physical sessions.

Type of interaction for neighbourhoods
- Recognition of local knowledge
- Visibility of their interests

for innovators
- Better problem definition
- Early feedback

for Port of Rotterdam
- Increasing legitimacy
- Better alignment between innovation and living environment

Concept: Impact Mapping & Reflection Tool

Figure 16: AI-generated visual of the concept With innovators as users.

Intention
This concept focuses on supporting innovators in making explicit and arguing for their social contribution.

Role of the impact map
The impact map serves as a reflection tool on which innovators position their innovation in relation to neighbourhood needs and social goals.

Type of interaction
- Linking innovation to relevant needs
- Reflecting on expected impact
- Developing a narrative around social value

Core mechanism
Structured self-reflection by innovators, supported by a visual impact map and fixed indicators.

Users
- Innovators
- Innovation team PoR
- Investors (secondary)
- District managers (secondary)

used as a working and pitching tool.

Type of interaction for neighbourhoods
- Indirect representation of needs
- Less misalignment in innovations

for innovators
- Stronger and more consistent impact story
- Support with subsidy and investment questions

for Port of Rotterdam
- Overview of social claims
- Comparability between innovations

Concept: Port-Wide Societal Impact Overview

Figure 17: AI-generated visual of the concept With all kind of users.

Intention
This concept aims to provide insight into how port innovations collectively contribute to societal challenges at the system level in a platform.

Role of the impact map
The impact map serves as a strategic overview tool that reveals patterns, gaps and collection of impact.

- **Type of interaction**
- Analysing patterns
- Comparing priorities
- Facilitating strategic discussions

Core mechanism
Collection and visualisation of innovation–need relationships across multiple neighbourhoods and projects.

Users
- Innovation team PoR
- Municipality of Rotterdam
- Programme and policy makers
- Innovators (secondary)
- District managers (secondary)

Type of interaction
for neighbourhoods
- Indirect safeguarding of interests
- Prevention of structural blind spots

for innovators
- Understanding the strategic context
- Positioning within larger tasks

for Port of Rotterdam
- Strategic management
- Accountability to the city and politicians

9.4 Concept differentiation

Although the three concepts originate from the same framing and design brief, they propose distinctly different ways of making the societal value of port innovations visible and meaningful. Each concept addresses the central challenge from a different angle and operates at a different level of interaction within the port–city ecosystem, see figure 14 for a positioning.

The first concept focuses on dialogue and shared interpretation. It positions societal value as something that emerges through structured interaction, as a boundary object, between neighbourhood representatives and innovation stakeholders. In this concept, value is not predefined or quantified, but collectively discussed and negotiated. The impact map functions primarily as a facilitation tool that supports reflection, sense-making and mutual understanding. This concept emphasises legitimacy through participation and recognises societal value as relational and context-dependent.

The second concept approaches societal value from a more systematic and comparative perspective. Here, the emphasis lies on creating overview and consistency across innovations. The impact map acts as a shared reference structure that allows innovators to position their projects in relation to neighbourhood needs and broader port ambitions. Societal value becomes visible through alignment, patterns and comparability rather than dialogue. This concept strengthens internal learning and decision-making, but offers less direct engagement with neighbourhood stakeholders.

The third concept operates at an ecosystem and strategic level. It frames societal value as part of a larger narrative of port-wide transformation. Innovations, neighbourhood needs and strategic goals are connected within a single integrative structure. In this concept, the impact map functions as a boundary object across organisational and institutional boundaries, enabling coordination and strategic storytelling. While this concept offers strong coherence and long-term orientation, it is more abstract and less grounded in day-to-day interaction. See figure 18 for a positioning framework.

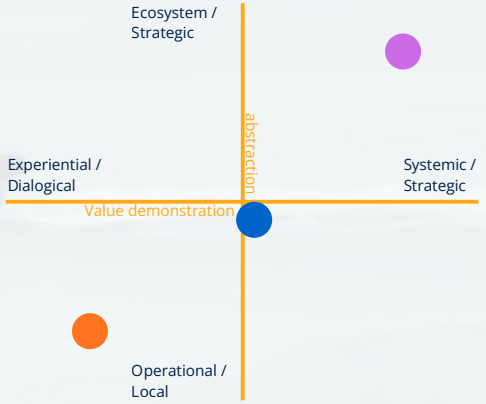


Figure 18: Positioning framework

This chapter forms the basis for the selection and refinement of one chosen concept in the next chapter.

Chapter 10

"Solution"

Design

10 Solution

Following the ideation phase, the project transitions from conceptual exploration to the development of a single, integrated solution. Whereas the previous chapter focused on generating and positioning multiple concept directions, this chapter addresses the selection, refinement and validation of the final design.

The solution is not approached as a fixed outcome, but as the result of a deliberate and iterative design process. First, a concept selection is conducted based on the design criteria derived from framing and co-creation, using a Weighted Objectives Method (Delft Design Guide). This selection identifies a primary concept direction while allowing complementary elements from other concepts to be integrated.

Subsequently, the selected concept is further developed through a fine-tuning phase in which the solution is elaborated in terms of form, interaction and process. This intermediate version is tested with relevant stakeholders, including the innovation team, district managers and an innovator, to assess its clarity, usability and relevance. Feedback from these sessions is used to refine the design.

The chapter concludes with the presentation of the final design and a validation of the solution in terms of desirability, feasibility and viability. In doing so, this chapter demonstrates how the final solution responds to the design brief while remaining grounded in the realities of the port–city context.

10.1 Concept selection

The concept selection phase aimed to move from multiple conceptual directions towards a single, integrated solution. Rather than selecting one concept in isolation, the objective was to identify a preferred concept direction while allowing complementary elements from other concepts to inform the final design.

To support this decision in a transparent and structured manner, the selection process followed the Weighted Objectives Method (Delft Design Guide). This method enables a systematic comparison of design alternatives by assessing them against a predefined set of criteria, while explicitly accounting for differences in importance between those criteria.

The evaluation criteria were derived directly from the design criteria formulated during the ideation phase. It was also important to take the target audience into account.

Each criterion was assigned a weighting to reflect its relative importance. Through discussions with stakeholders and the co-creation session, a number of criteria were considered more important than others, such as those related to social visibility and dialogue and these were therefore given a higher weighting. The requirements naturally also carry a heavier weighting than the wishes. The weighting does not represent an objective truth, but serves as an explicit statement of the design priorities at this stage of the project.

The three concepts were subsequently assessed against each criterion. This was done by the author in combination with members of the innovation team PoR to create common support. For each criterion, a qualitative score was assigned to indicate how well a concept addressed that specific aspect. These scores were multiplied by the corresponding weights, resulting in a weighted score per criterion and a total score per concept. A visual overview of the weighted objectives matrix is provided in table 5.

This step made trade-offs between concepts explicit. In some cases, a concept scored highly on one criterion while performing less well on another. The comparison revealed clear differences in emphasis between the concepts. The Structured neighbourhood–innovation dialogue concept consistently scored highest on criteria related to neighbourhood grounding, stakeholder transparency, engaging interaction and shared ownership. These criteria were considered critical, as they directly address the core challenge of enabling meaningful dialogue between innovations and neighbourhood needs. With a total weighted score of **904**, this concept emerged as the strongest overall candidate.

The Impact Mapping & Reflection Tool concept performed well on criteria related to non-reductive measurability and Modularity and adaptability, highlighting its strength in supporting continuity and comparison over time. However, it scored lower on engagement and accessibility, indicating that, on its own, it risks becoming a more analytical or internal tool rather than a shared boundary object.

Weighted Objectives

	Weight	Structured neighbourhood-innovation dialogue		Impact Mapping & Reflection Tool		Port-Wide Societal Impact Overview	
		Score	Total	Score	Total	Score	Total
Visibility of societal value	14	10	140	10	140	10	140
Neighbourhood grounding	14	10	140	8	112	7	84
Argumentation support	12	7	84	8	96	9	108
Transparency for stakeholders	12	10	120	10	120	10	120
Non-reductive measurability	12	9	108	10	120	9	108
Engaging interaction	12	9	108	7	84	7	84
Accessibility across backgrounds	10	9	90	7	70	7	70
Shared ownership	8	9	72	8	64	8	64
Modularity and adaptability	6	7	42	9	54	9	54
Total score	**100**		**904**		**860**		**832**

Best concept

Table 5: Weighted Objectives Method (Delft Design Guide)

The Port-wide Societal Impact Overview concept contributed a strong strategic perspective, particularly in terms of argumentation support and Modularity and adaptability. At the same time, its lower scores on neighbourhood grounding and interaction revealed limitations in its ability to facilitate concrete dialogue at the local level.

Rather than eliminating the lower-scoring concepts entirely, the matrix was used as a generative instrument to identify complementary strengths. While the dialogue-oriented concept (Structured neighbourhood innovation dialogue) was selected as the preferred foundation, specific elements from the other concepts were deliberately integrated into the final design. From the platform-oriented concept (Port-Wide societal impact overview), the use of structured visualisation and continuity over time was adopted to support reflection beyond single sessions. From the ecosystem-level concept, the emphasis on strategic alignment and pattern recognition was selectively incorporated to ensure relevance at organisational and portfolio levels.

As a result, the final solution is not a direct implementation of a single concept, but a refined synthesis. It builds on the dialogue-oriented approach as its core mechanism, while integrating analytical and strategic elements that strengthen measurability, continuity and organisational embedding.

This concept is the best way to reach the target audience. It has a clear user and a clear group that benefits from its use. Synthesis directly informed the subsequent concept fine-tuning and development of the final design, as described in the following chapter.

10.2 Finetuning impact map - Port of Rotterdam

Firstly, the new name of the concept will be “Impact Map - Port of Rotterdam”. This is because it is generally more appropriate for the boundary object and sufficiently describes what it does.

Following the concept selection, the chosen direction was further developed into a coherent and testable concept. At this stage, the focus is on clarifying how the solution functions in practice, how it is used over time and how different stakeholders interact with it.

10.2.1 Overview of the impact map - Port of Rotterdam

The solution consists of a physical impact map that functions as a boundary object between neighbourhoods, innovators and the PoR innovation team. The map visualises neighbourhood needs, port innovations and the relationships between them, enabling dialogue, reflection and learning over time.

For the first validation session, an A0 sheet of paper was used to make the impact map tangible. When designing this map, several colour combinations were considered. Eventually, the design shown in figure 19 was chosen for its legibility. In addition to the boundary object, a system has also been created around it to make the object lively and dynamic over time. This takes the form of information retrieval, a session and feedback. During the session, elements such as green and red arrows are also used to link innovations and needs, but this will become clear later in the explanation of the system.

10.2.2 Core components

The solution consists of four main components:

Each neighbourhood has a set of modular tiles that reflect the needs, with colour codes for the four dimensions and a story to provide context for the neighbourhood, see appendix G. These tiles are updated every six months (not to put too much pressure on them) based on input from district managers. An innovation is placed at the top right of the map, with the estimated time it will take to show its effect in the neighbourhoods. Every three months, new innovations are added, which are collected from partners (PortXL, , Buccaneer, YesDelft, so incubators and accelerators, see appendix H) by the innovation team.

Arrows are used to link innovations to neighbourhood needs. Green arrows indicate a positive contribution, while red arrows indicate possible negative consequences or concerns. See figure 20.

Figure 19: First visualisation of the impact map (boundary object)

After discussion, both innovations and needs are given a shared visual green or red marker, keeping relationships visible even when the map is not actively being used. This ensures continuity, collective memory and that it does not end up in a drawer.

10.2.3 Interaction phases

The impact map is used in a recurring process consisting of three phases:

Phase 1: mapping relationships

During guided sessions, participants place arrows between innovations and neighbourhood needs to articulate the perceived impact.

Phase 2: reflection and refinement

Question cards, see chapter 2.10.5 are used to stimulate discussion, challenge assumptions and refine innovations.

Phase 3: consolidation

Agreed relationships are visually recorded using status indicators, ensuring that the map remains meaningful outside of the sessions.

10.2.4 Roles

- District managers update neighbourhood needs.
- Innovators reflect on and refine their innovations.
- Innovation team facilitates sessions and maintains the map.

Figure 20: Relationship markers & status indicators

10.2.5 Question cards and rationale

These are the question cards of phase two.

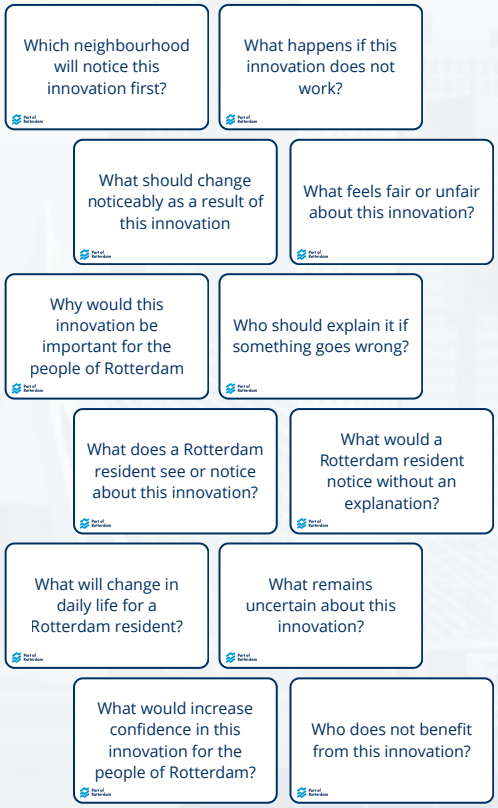


Figure 21: Question cards

Innovations are not only linked to neighbourhood needs, but are actively interrogated in terms of perceived societal value, legitimacy and lived experience. Rather than measuring impact through predefined indicators, the cards function as a structured dialogue tool that surfaces assumptions, blind spots and differing interpretations among participants of the session (innovation team).

The selected questions deliberately focus on perception rather than performance. This reflects the core insight from the framing phase that societal value in the port context is not only created through outcomes, but through how innovations are understood, explained and experienced by residents and other stakeholders such as district managers.

Each group of questions addresses a specific dimension of societal legitimacy.

Questions such as "Which neighbourhood will notice this innovation first?" and "What does a Rotterdam resident see or notice about this innovation?" examine whether an innovation becomes tangible at neighbourhood level, rather than remaining abstract or internal to the port.

Questions like "What happens if this innovation does not work?" and "Who should explain it if something goes wrong?" highlight responsibility, transparency and trust, which were identified as critical concerns in the co-creation session.

Questions such as "What feels fair or unfair about this innovation?" and "Who does not benefit from this innovation?" explicitly highlight distributional effects and potential exclusions that are often overlooked in innovation narratives.

Questions including "What will change in daily life for a Rotterdam resident?" and "Why would this innovation be important for people of Rotterdam?" connect innovations to lived experience, helping participants assess whether societal value is meaningful rather than symbolic.

Questions like "What remains uncertain about this innovation?" and "What would increase confidence in this innovation?" create space to acknowledge doubt and incomplete knowledge, supporting a more honest and constructive dialogue.

By structuring discussion around these questions, the cards help transform the impact map into an active boundary object. They guide participants from simply positioning innovations on the map towards collectively refining, questioning and improving them. In this way, the cards operationalise the design criteria related to engagement, transparency and shared ownership, while avoiding reductive evaluation or premature quantification.

10.2.6 Expected outcome and usability

The impact map resulted in a shared system that functions both as a working tool and as a communicative artefact. Its primary outcome is not the production of new innovations, but the creation of shared understanding, traceability and legitimacy around how existing and emerging port innovations relate to neighbourhood needs.

For district managers, the impact map provides continuous insight into which innovations are active, which neighbourhood needs they address and how these effects are interpreted over time. This enables targeted communication towards residents about concrete developments affecting their neighbourhood, rather than abstract or reactive explanations. In addition, the map makes visible how their own neighbourhood relates to others, allowing shared challenges to be recognised across districts.

Importantly, district managers can use the map as an evidence-based support tool in conversations with residents. Rather than defending port activities in general terms, they can refer to specific innovations, linked needs and observed effects. This positions district managers as informed intermediaries and gradually enables an ambassador role, in which they translate port innovation impacts back to their communities with greater credibility.

For innovators, the system creates feedback beyond technical performance. Phase two interactions explicitly reflect on societal effects, uncertainties and perceived fairness through the use of question cards. The outcome is a clearer understanding of how an innovation is interpreted outside the innovation context itself.

Innovators are informed of the outcomes of these reflections, including positive contributions, points of concern and unresolved questions. This feedback loop supports learning and adaptation without framing the process as a formal evaluation or compliance check. As a result, innovators gain insight into societal expectations while retaining autonomy over how they respond.

For PoR, the impact map functions as a coordination and alignment tool. It provides an overview of which neighbourhood needs are addressed, which remain unmet and where innovation efforts cluster. This supports internal reflection and helps identify gaps that may require targeted programmes or partnerships.

For municipal stakeholders, the map offers a structured overview of neighbourhood needs that are not directly addressed through port innovation. This creates opportunities for complementary policy actions or public projects. The shared visual language also reduces fragmentation between port-driven initiatives and municipal interventions.

Usability emerged from the physical and modular nature of the artefact. The map is readable, supports discussion when used actively and remains meaningful when not in use. The combination of neighbourhood-coloured need markers, innovation indicators and persistent visual traces allows stakeholders to understand relationships at a glance.

Overall, the impact map supports a shift from reactive communication to proactive, evidence-informed dialogue. It strengthens trust by making innovation effects visible, discussable and accountable over time, without reducing societal value to numerical indicators.

10.3 Iteration on impact map - Port of Rotterdam

The first iteration, with supervisors, friends and team members, focused on translating an important question of the project into a spatial and visual logic: ***how can innovations and neighbourhood needs be clearly linked and how can these relationships remain visible even when the map is not actively used?*** In the initial version, the geographical map of the port area functioned as the dominant visual element. During early reflection, it became clear that this hindered the legibility of relationships between innovations and neighbourhood needs. After some ideation and visual try-outs, the solution was reconfiguring the layout to prioritise relational clarity, see figure 22.

In the iterated version, the map was repositioned to the background and reduced in size placed at the right, serving primarily as contextual reference. The central area of the board was instead allocated to the innovation field, which was enlarged and made visually dominant. So it is visible at all times and the needs and innovations are the focal point.

In phase three, innovations continue to be visually linked to neighbourhood needs through a system of shapes and colours see figure 23.

Each innovation is assigned a specific shape and colour. When an innovation is connected to a neighbourhood need, that same shape and colour is applied to the corresponding need.

Within this visual marker, a plus or minus symbol indicates whether the perceived effect is positive or negative. This symbol directly corresponds to the direction and colour of the arrows used earlier in phase one of the process. However, the coloured arrows now make it unclear and are therefore being replaced in phase 1 by a green plus and a red minus sign, so that the connection between phases 1 and 3 is clearer, see figure 23.

Figure 23: Shapes for phase three

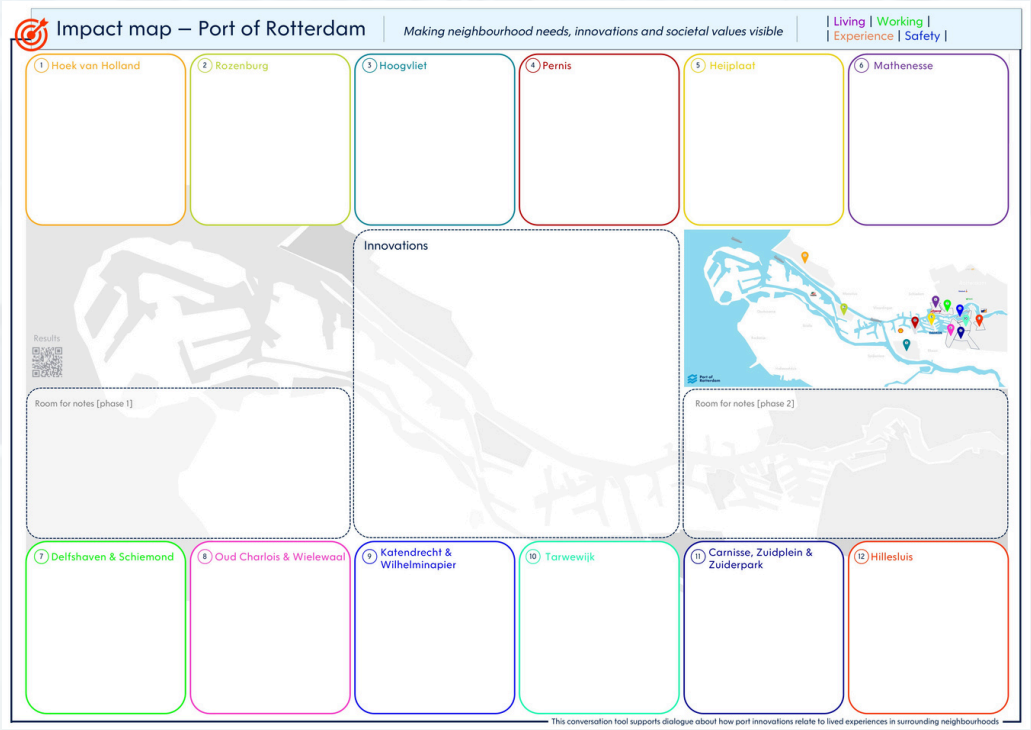


Figure 22: Iterated visualisation of the impact map (boundary object)

10.4 User-testing the system of the impact map with innovation team PoR

To test the usability, clarity and organisational fit of the refined concept, a user test session was conducted with members of the innovation team. The session was designed as a formative user test rather than an evaluation of outcomes. The objective was to test whether the proposed boundary object and accompanying system support dialogue, reflection and shared interpretation across stakeholder perspectives.

10.4.1 Setup

The session took place in a facilitated setting and followed a scenario-based approach. Participants were asked to work with the physical impact map using real neighbourhood needs and two existing innovation cases.

10.4.2 Method

Participants interacted with the artefact through three consecutive steps: step one, reading and discussing neighbourhood needs. Step two, connecting innovations to needs using relation markers (arrows). Step 3, reflecting on these connections using structured question prompts.

Throughout the session, observations were made regarding usability, interaction dynamics and points of friction or confusion.

10.4.3 Participants

The participants were selected from the innovation team PoR. see table 6.

Participant	Company	Department/ role
p(6)	Port of Rotterdam	Innovation
p(7)	Port of Rotteram	Innovation
p(12)	Port of Rotterdam	Innovation
p(13)	Port of Rotterdam	Innovation
p(14)	Port of Rotterdam	Innovation

Table 6: Participants of user-test

10.4.4 Findings and implications

The user test provided several insights, they thought it was a cool Impact Map, however some things could be improved.

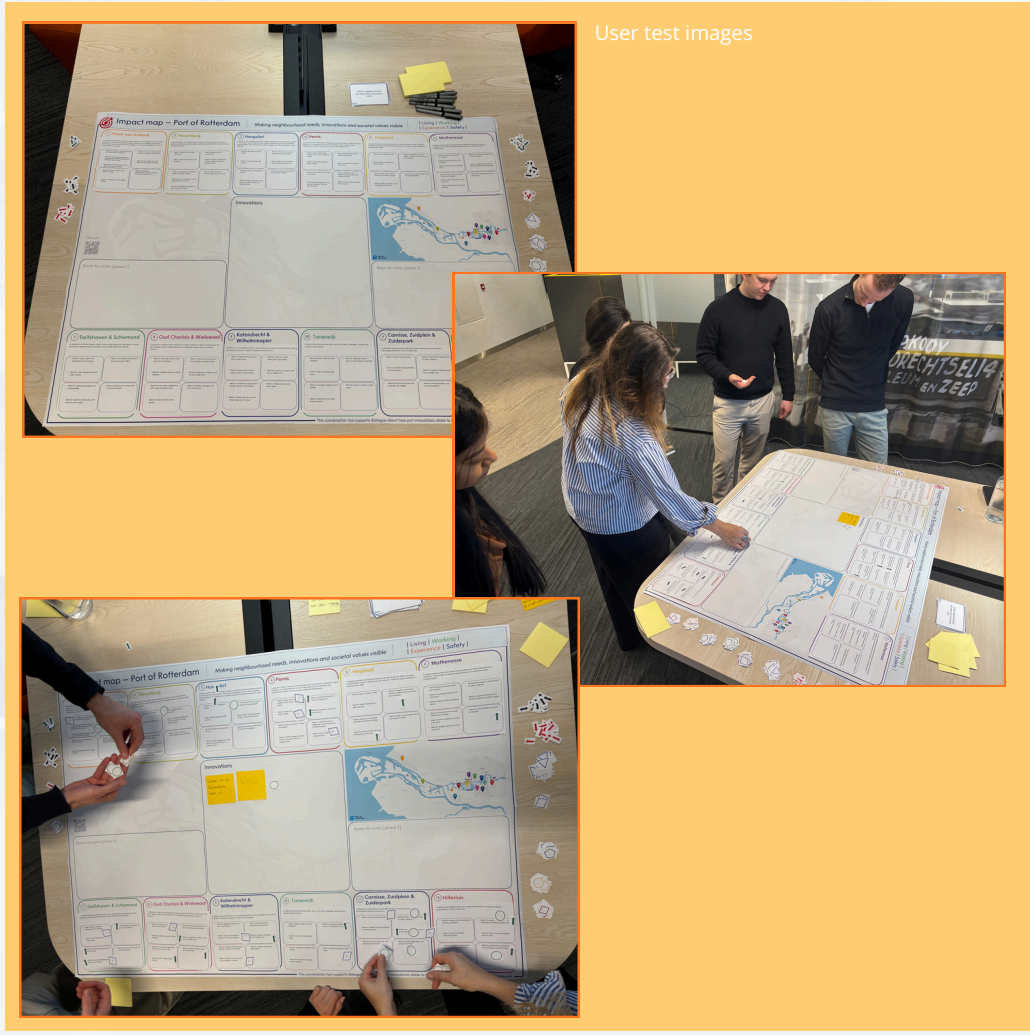
Participants indicated that the effectiveness of the session strongly depends on a clear introduction. Without a short explainer, it was not immediately evident what the goal of the session was, how the phases relate and what kind of outcomes were expected. This suggests that the artefact cannot function autonomously, but requires a structured introduction that explains the purpose, steps and logic of the interaction.

The concept requires a short explainer or session guide that clarifies the intent of each phase and the meaning of the interaction elements. - p(6) & p(7)

The discussion revealed that meaningful reflection is only possible when participants have sufficient understanding of the innovation itself. Participants explicitly noted that someone must be responsible for explaining the innovation and answering clarifying questions.

Each session requires a clearly assigned facilitator who is responsible for:

- *explaining the innovation,*
- *safeguarding contextual accuracy,*
- *guiding the discussion when interpretations diverge. - p(7), P(12) & p (13)*



User test images

The session showed that facilitation is not optional. Without guidance, discussions risk becoming abstract or drifting away from neighbourhood realities. Participants also suggested that involving district managers directly in these sessions would strengthen legitimacy and improve the grounding of discussions.

The concept performs best in a facilitated, mixed-stakeholder setting, ideally involving both innovation teams and neighbourhood representatives. - p(7) & p(12)

Participants raised the question of how to deal with innovations that negatively affect certain neighbourhoods. Rather than seeing this as a flaw, the group recognised this as a potential strength of the tool. Making negative impacts explicit allows risks to be discussed early and can inform strategic decisions about whether or how an innovation should proceed.

The impact map functions not only as a communication tool, but also as a risk-reflection instrument. Visibility of negative relations supports more informed and accountable decision-making. - p(13)

A recurring concern was how insights from the session translate into concrete outcomes. Participants emphasised that value only becomes tangible when discussions are well-documented and fed back into decision-making processes.

The process surrounding the artefact must include clear follow-up steps, such as documenting insights, sharing outcomes with district managers and linking results to innovation or policy decisions. - p(6), p(7) & p(14)

10.4.5 Comparison expected outcomes vs user test findings

Overall, the user test findings largely support the expected outcomes, but they also specify the conditions under which these outcomes can be achieved. The Impact Map does not function as a self-contained artefact. Instead, its usability depends on structured facilitation, sufficient innovation input quality, and a clear documentation and feedback loop. The test also strengthened the intended role of the tool as a risk-reflection instrument, where negative relations are surfaced early to inform deliberation rather than being hidden or reduced to simplistic scores.

10.5 Testing the system of the impact map with innovator

To validate the usability and relevance of the Impact Map as a system, a semi-structured interview was conducted with an innovator active within the port ecosystem. The purpose of this validation was not to assess the societal impact results, but to evaluate whether the proposed artefact and process meaningfully support innovators in understanding, communicating and reflecting on their potential societal contribution.

The interview focused on perceived value, limitations, conditions of use and opportunities for refinement.

Several concrete opportunities for improvement were identified. Firstly, the innovator indicated that the feasibility and difficulty of implementation should be better reflected. An additional layer reflecting the complexity or risk of implementation (e.g. low, medium, high) would help to distinguish between quick wins and more structural interventions. One proposed solution was to visually code this dimension, for example by using different colours for the innovation markers, see figure 24.

Secondly, the interview confirmed the need for clear instructions or guidelines. Without contextual explanation, there is a risk that the tool will be misinterpreted. The innovator emphasised that users need to understand where the Impact Map fits into the broader innovation and decision-making process and what question it should answer.

Figure 24: Shapes and colours for adoption

The map was also positioned as a complementary instrument rather than a standalone decision tool. It should support reflection and dialogue, not replace existing criteria such as financial viability, TRL levels, or strategic priorities.

A significant risk is that organisations misuse the Impact Map as a rigid evaluation tool and treat it as a definitive judgement rather than a discussion tool. This can lead to simplistic decision-making.

The innovator also expressed concern about negative perceptions. Innovations without a direct or visible impact on the neighbourhood, such as internal process innovations, may be misinterpreted as innovations with limited social value.

Finally, questions were raised about data sensitivity and privacy. In order to make the impact on the neighbourhood visible, information

may be required that innovators are not always able or willing to disclose. Furthermore, the interview emphasised that the actual social impact remains dependent on acceptance by larger players in the port, which means that the map mainly reflects the potential impact and not the actual impact.

This interview has been treated anonymously in accordance with the wishes of the interviewee.

10.6 Testing the system of the impact map with district managers

To further test the impact map system, three semi-structured interviews were conducted with district managers from Rozenburg, Pernis & Heijplaat and Mathenesse. The purpose of these interviews was to evaluate whether the proposed tool and working method are in line with the daily practice, responsibilities and limitations of district managers, and to identify opportunities for refinement before the design is finalised.

District managers recognised the impact map as a useful bridge between the needs of the neighbourhood and port-related innovations. In particular, the visual linking of innovations to concrete effects for the neighbourhood was considered valuable. Several respondents described the map as 'ammunition' or support in discussions with neighbourhood councils or residents, because it provides a tangible basis for explaining how the port responds to local concerns.

The map was also described as a visual 'thermometer' of the port's social engagement. The use of green and red arrows was considered effective, as it quickly shows which innovations make a positive contribution and where tensions or negative effects may arise. This selective visibility helps district managers to focus their communication on what is most relevant to a specific neighbourhood.

The interviews revealed that district managers see themselves as potential ambassadors for the impact map, but under specific conditions. Rather than acting as spokespersons for the port, they see their role more as network connectors who can bring innovators into contact with relevant local stakeholders, alliances or entrepreneurs.

In order to fulfil this role, district managers emphasised the need for concreteness. Innovations become more trustworthy when they have a clear face or contact person, ideally an innovator who can explain the initiative directly in a local setting. In addition, early insight into upcoming pilots was considered important, as it allows district managers to anticipate developments during discussions about area planning and neighbourhood priorities.

In terms of process and frequency, a six-month cycle for updating neighbourhood requirements was generally considered appropriate.

Digital feedback was strongly preferred. Updates via email, possibly followed by a short live or MS Teams session, were considered most practical due to the lack of fixed workplaces for district managers.

District managers requested that the direct contact details of innovators be included on the map to facilitate follow-up.

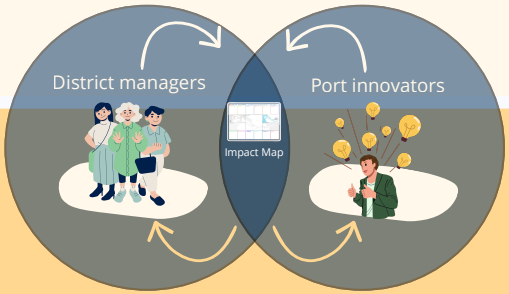
Furthermore, the importance of accessibility was highlighted. Information must remain understandable for non-experts, without too many technical details. Finally, respondents underlined the need to show nuanced effects. An innovation may be positive at the system level, but cause local nuisance. The map must be able to reflect such considerations in order to remain trustworthy.

The interviews confirm that the impact map is clearly valuable to district managers, particularly as a communication and substantiation tool. At the same time, they emphasise that its success depends on the process design, facilitation and clarity. These insights have been directly incorporated into the final version of the design. The final design is presented in the next chapter as a visual.

10.7 Final design - Impact Map System

Making neighbourhoods needs, port innovations and societal value visible

Boundary object



Impact session (by innovation team PoR)

Step 1: innovation

Step 2: impact markers

Step 3: notes

Phase 1

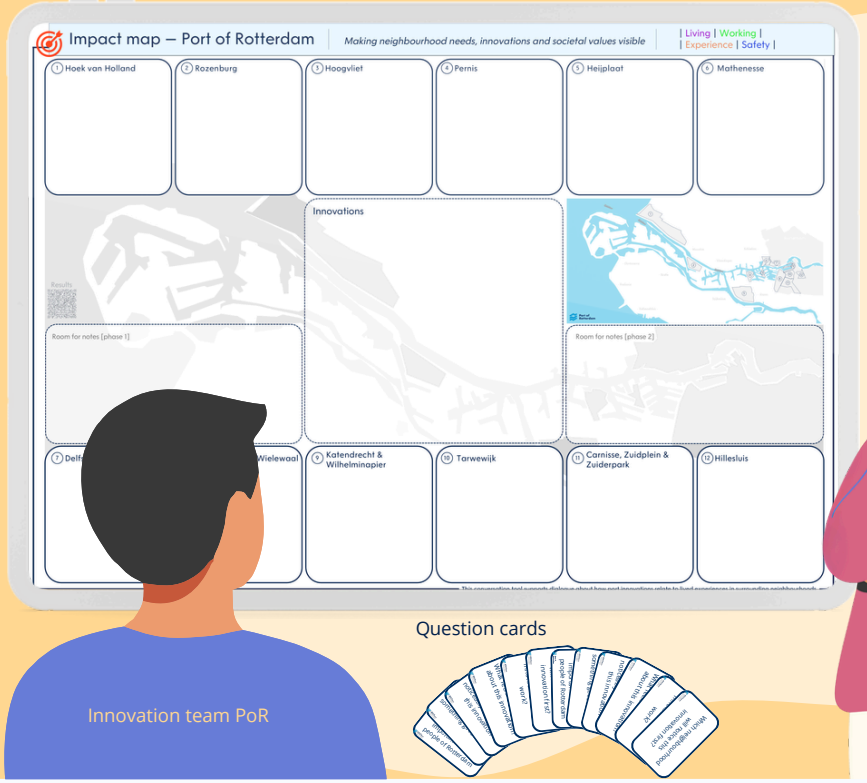
Phase 2

Step 4: shapes

Complexity shapes innovation

Quick wins / no regret
Neutral
Complex

Shapes neighbourhood needs



Question cards

Couple of neighbourhoods needs

Process

Step 1: positioning the innovation and timeframe (one at a time)
The session starts by preparing all the magnets, sticky notes (yellow and blue) and cards, followed by placing the innovation (sticky note) at the centre of the board. Alongside the innovation (presented in video form), the estimated timeframe for when first tangible results are expected is added (sticky note). This creates a shared reference point and anchors the discussion in both content and temporal expectations.

Step 2: linking needs to the innovation (phase 1)
With the session group, you go through each neighbourhood need and discuss whether the innovation has an impact on that need. If the impact is positive, you stick a green plus marker next to that need, if it is negative, you stick a red minus marker next to that need, if there is no impact, you do nothing. If there are any questions during the linking process, write them down on the yellow sticky notes and stick them next to "room for notes [phase 1]".

Step 3: improving using the 12 question cards (phase 2)
The facilitator takes the 12 question cards and starts the brainstorming discussion by asking the first question. This is done to gain a clearer understanding of the impact on the needs of the neighbourhoods and to provide the innovators with information that will enable them to better meet those needs. These points for attention and improvements are documented using blue sticky notes in the "room for notes [phase 2]".

Step 4: assigning complexity and innovation shape
Each innovation is assigned a specific shape, with a green, orange or red colour that represents its implementation complexity level, green: low, orange: medium and red: high. Place this magnet next to the innovation. This step translates abstract feasibility considerations into a clear visual cue and introduces execution realism into the discussion.

Step 5: taking picture
The facilitaror takes a clear picture of the complete impact map to use for digitalisation. After this the facilitator clears the whole impact map for the next innovation. Go back to step 1.

After the whole session: merging into a static overview
All impact markers (captured in the pictures) are to be replaced by the corresponding innovation shape with plus and minus. Former green pluses are replaced by the innovation shape containing a plus (+) symbol, while red minusses are replaced by the same shape containing a minus (–) symbol. This results in a static visual configuration that clearly shows, at a glance, which innovation affects which neighbourhoods and in what way, even when the board is no longer actively used.

Digital (Miro) environment

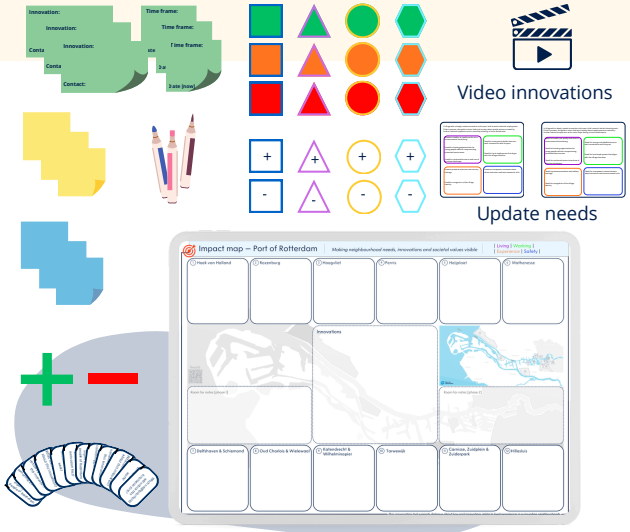
System journey

	1 Periodic input collection	2 Impact session	3 Digital translation	4 Feedback and activation
What	Neighbourhood needs and innovation info (short pitch video) are periodically collected as the input for the system. District managers actively identify emerging needs, concerns and signals from residents in relation to port activities. In parallel, innovations that are in development or deployment are gathered and contextualised.	A facilitated session is organised to jointly interpret how innovations relate to neighbourhood needs. Innovations are discussed, linked to needs and reflected upon using structured prompts. The facilitator is responsible for all materials.	The outcomes of the session are merged into a clear and shareable overview, it results in a visualisation of the impact of all innovations.	The insights are reported back to the innovators (improvements and points of attention). The impact on needs are reported back to the district managers included the contact details of the innovator for possible collaboration. Both with the explicit aim of activating follow-up actions.
Who	**District managers** are responsible for actively identifying and articulating neighbourhood needs, based on their ongoing interaction with residents. The **facilitator** is responsible for collecting the innovations video's for coordinating all the input and setting up the next impact session.	The **innovation team PoR** participates as domain experts. The **facilitator** safeguards the method. When relevant, PoR collegues (such as external affairs) can be invited to join.	The **facilitator** is fully responsible for this step. This can be done the day after.	The **facilitator** coordinates and sends the feedback.
How	Every six months, the facilitator sends a reminder email with a link to the digital "neighbourhood needs check-in" and schedules a short MS Teams call with district managers to confirm completion and address any ambiguities, see implementation 10.8.3 for explanation. Every three months, the facilitator collects info from innovators, accelerators and incubators. The facilitator ensures sufficient understanding of each innovation, including its intent and expected timeline for first effects.	The session takes place around the physical impact map, which has just been cleared by the facilitator. Innovations are placed one by one on the board with an indication of when the first effects are expected. The process will start with step one, see above.	The facilitator transfers the results (pictures) from the physical board into the online environment (Miro, see QR-code) and into the physical board of the impact map. By combining all the pictures into a visualisation of the impact of all innovations per need. Relationships are translated into visual markers, innovation shapes and indicators that remain visible over time. See "after the whole session" above.	District managers receive a concise update (Miro) via email explaining what has changed for their neighbourhood and how innovations relate to identified needs. Innovators receive feedback (Miro) on perceived societal effects, including risks or concerns. Contact details of innovators are shared to enable direct follow-up. The intended outcome is to bring district managers and innovators into direct contact, enabling further clarification, collaboration or adjustment of innovations.

10.7.1 Work instruction roadmap of the session process

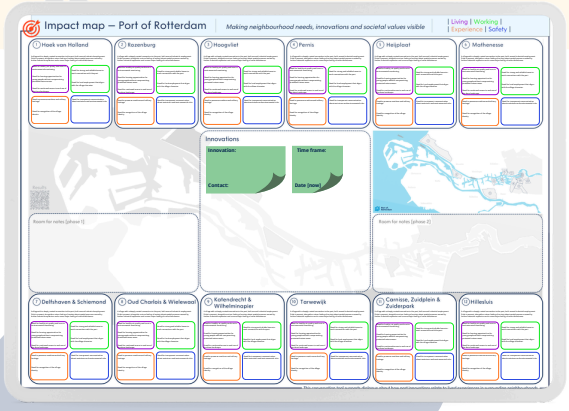
Preparation — Before the session

Prepare for the session by setting up the board, magnets and sticky notes. Also gather the short pitch videos about the innovations and update the neighbourhood needs. Distribute the collected requirements across the dimensions and print them on magnetic sheets.



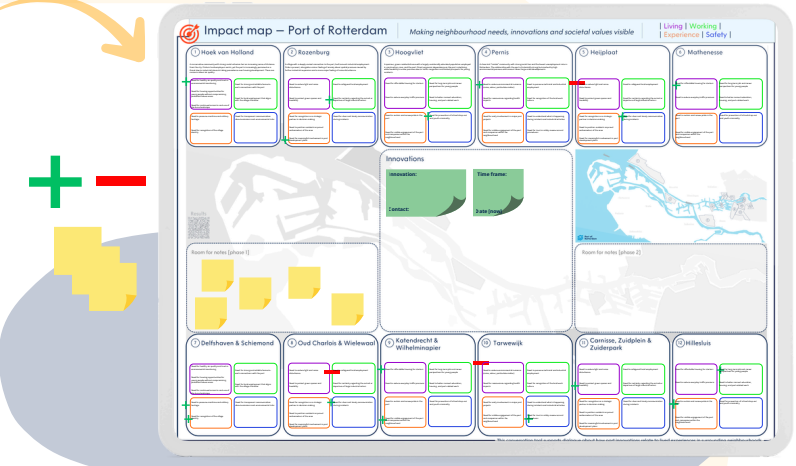
Step 1 — Positioning the innovation and timeframe

Place the innovation (sticky note) at the centre of the board. Alongside the innovation, the estimated timeframe for when first tangible results are expected and the date of the session is added (sticky note).



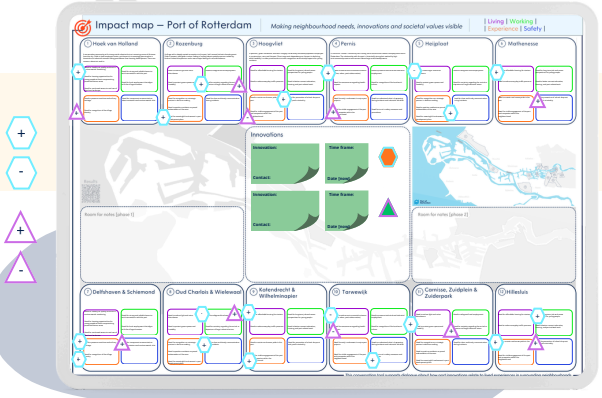
Step 2 — Linking needs to innovation

With the session group, you go through each neighbourhood need and discuss whether the innovation has an impact on that need. If the impact is positive, you stick a green plus marker next to that need, if it is negative, you stick a red minus marker next to that need, if there is no impact, you do nothing. If there are any questions during the linking process, write them down on the yellow sticky notes and stick them next to “room for notes [phase 1]".



Result — After the session

All impact marks (shown in the pictures) must be replaced by the corresponding innovation shape with plus and minus signs. Former green plus signs are replaced by the innovation shape with a plus sign (+), while red minus signs are replaced by the same shape with a minus sign (–). Leave the board on the wall as a dynamic tool.

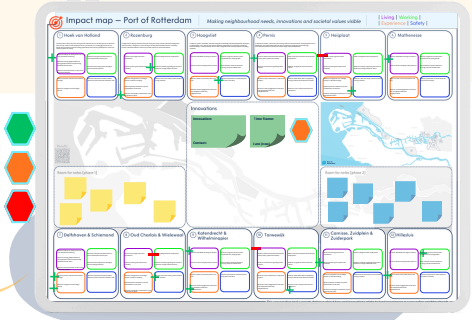


Step 5 — Taking picture

Take a clear picture of the complete impact map to use for digitalisation (QR-code). After this clear the whole impact map for the next innovation. Go back to step 1.

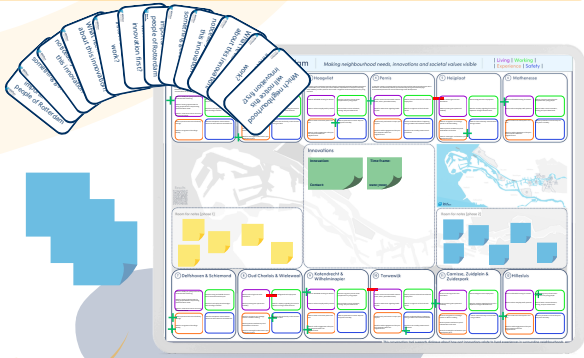
Step 4 — Assigning complexity

Each innovation is assigned a specific shape, with a green, orange or red colour that represents its implementation complexity level. Place this magnet next to the innovation.



Step 3 — Improving with question cards

The facilitator takes the 12 question cards and starts the brainstorming discussion by asking the first question. These points for attention and improvements are documented using blue sticky notes in the "room for notes [phase 2]".



10.8 Implementation

The system aims to make social value at neighbourhood level discussable and trackable within the innovation team. It links port innovations to neighbourhood needs in four dimensions. This provides a shared interpretation framework and assessment framework that supports decision-making, see appendix I for the implementation roadmap. The output is a substantiated layer of argumentation that helps to prioritise, adjust or stop innovations based on their impact on the neighbourhood.

10.8.1 Roles and responsibilities

The facilitator is responsible for the process and continuity. This includes initiating each cycle, sending reminders, collecting innovation input, organising and supervising sessions, managing the physical Impact Map, maintaining the digital version in Miro, and providing feedback. The facilitator monitors the rules of the game, the clarity of the input, and consistency between sessions.

The innovation team is responsible for the substantive application of the system. Team members contribute innovations, participate in the sessions, and jointly assess the relationships between innovations and neighbourhood needs. The innovation team uses the results as a reflection and as input for follow-up actions such as further research, stakeholder dialogue or redesign.

District managers provide input on neighbourhood needs. They do not participate structurally in the internal sessions. Their role is to periodically update the needs basis so that the innovation team has an up-to-date frame of reference.

Innovators provide input (pitch video) about the innovation itself and the expected timeline for initial effects. They do not participate in the internal sessions on a structural basis. This choice was made deliberately in order to first embed the system as an internal learning tool in the current organisational context. The outcomes are sensitive and, without a shared context, may be perceived as an assessment. As a mitigation measure, it is recommended to periodically organise a separate feedback session with innovators (and district managers) in which the results are shared and there is room for explanation, questions and connection.

10.8.2 Rhythm and triggers

The system operates at a fixed rhythm with two linked cycles. Neighbourhood needs are updated every six months. Innovation input is collected every three months and discussed in a session.

To keep the threshold low for district managers, they receive a reminder every six months with a online survey (tool) that takes about five to ten minutes to complete. In the survey, the district manager sees the existing needs per dimension and is asked whether these are still current and whether there are any new needs. A maximum of three new needs can be added per dimension to keep the information compact, usable and it turns out that no more than three needs are often needed. More on this tool (neighbourhood needs check-in) in chapter 10.8.3.

For innovation input, the facilitator requests a brief explanation of each innovation every three months, including the expected timeline for initial effects. This is preferably done via a short pitch (video), so that the session does not depend on verbal explanations at the time and that everyone understands the innovation in a few minutes without having any questions.

As a light safeguard, a short MS Teams check-in with district managers is scheduled every six months. The aim is not to debate the content, but to check whether the survey (tool) has been completed, whether there are any ambiguities and whether there are any notable developments that could influence the needs basis.

10.8.3 Artefacts and functions

The physical Impact Map supports dialogue and joint interpretation during the session. Needs are displayed as magnetic cards per neighbourhood and dimension.

Updates can be carried out by reusing existing magnetic carriers and providing them with a new printed label layer, so that maintenance remains practical and inexpensive.

Furthermore, to facilitate the collection and updating of neighbourhood needs, a digital ''neighbourhood needs check-in'' has been developed, see appendix J. This is a short, guided update process that district managers go through every six months. The aim is to keep the needs database up to date without additional administrative pressure and with minimal effort for and from the facilitator. In the check-in, the district manager sees the most recently recorded needs per neighbourhood and per dimension. The district manager can then indicate for each item whether it is still correct, needs to be adjusted or has expired, and a maximum of three new needs can be added per dimension. The output is stored in a structured manner so that the facilitator can create the updated needs cards and use them in the next session and in the digital record.

Miro acts as a memory and transfer tool. It records the stable outcome after each session and makes it possible to share and retrieve the results without physically being present at the board.

Question cards structure the discussion and ensure depth. They are intended to make assumptions explicit,

explore variants and ensure context. Complexity shapes make output complexity visible in a simple way. They prevent the session from focusing exclusively on desirability and force a discussion about feasibility, dependencies and adoption risk.

Finally, shapes on innovations ensure continuously visible outcomes. After the session, impact markers are removed and replaced by permanent shapes with a plus or minus for each linked need. This keeps the map readable outside the session and makes it clear which innovations address which needs.

10.8.4 Failure scenarios and recovery actions

If neighbourhood input is not provided, a reminder is sent, followed by a short check-in. If input remains absent over multiple cycles, the needs basis for the respective neighbourhood is temporarily marked as outdated. This allows the innovation team to account for uncertainty during the session.

If innovations are submitted in a too abstract or insufficiently developed form, the facilitator intervenes through a fixed intake step. Innovations are only placed on the Impact Map if at least a concise description and an expected timeline towards first effects are available. If this condition is not met, the innovation is postponed to a subsequent cycle.

If sessions are experienced as unclear, overly demanding, or inconsistent, the session protocol is adjusted. The facilitator actively collects feedback on elements that cause confusion, steps that require disproportionate effort, and prompts that do not function as intended. Based on this feedback, the script and artefacts are refined. The facilitator remains responsible for the process, while substantive judgments and decisions remain with the participants.

If distrust arises because the tool is perceived as an evaluation or assessment instrument, its positioning is explicitly reiterated and clarified. Outcomes are communicated as interpretations and hypotheses rather than as factual conclusions. In addition, aggregation of positive and negative markers is avoided. If this risk persists, impact markers are only placed after explicit consensus on their underlying reasoning, and additional contextual explanation in Miro becomes mandatory to prevent loss of meaning.
If the tool is unintentionally used as a KPI or ranking instrument, for example by counting positive and negative markers or comparing neighbourhoods or innovations, this is immediately corrected by the facilitator. In such cases, no overviews or totals are produced and it is explicitly documented that outcomes are not intended for benchmarking. If this behaviour recurs, the output format is temporarily reverted to relational arrows with written explanations, shifting the focus back to meaning, assumptions and uncertainty rather than scores.

If the number of neighbourhood needs or innovations becomes too large, readability decreases and session duration increases, undermining the low-threshold nature of the system. For this reason, strict caps are applied. Per dimension, a maximum of three new needs can be added per cycle, and the number of innovations discussed per session is limited to a predefined maximum. Innovations exceeding this cap are deferred to a subsequent cycle. Prior to each session, the facilitator performs a triage on completeness and relevance of innovation input to prevent sessions from being dominated by immature or duplicate items.

10.8.5 minimal viable governance

Governance is deliberately kept minimal to ensure the system remains executable in practice. Three elements are essential. There is a single owner, a fixed rhythm, and one stable physical location for the Impact Map. Additional governance increases maintenance effort and reduces the likelihood of continued use. Insufficient governance, on the other hand, increases the risk of decay and makes the system dependent on individual motivation rather than structural embedding.

Key takeaways

- The facilitator maintains continuity by running the cycle, collecting inputs, facilitating sessions, managing artefacts, and providing feedback.
- The fixed cadence keeps the system current without creating a high maintenance burden.
- The digital neighbourhood needs check-in keeps updates lightweight by confirming existing needs and allowing up to three new needs per dimension.
- The physical board supports joint interpretation, while Miro stores a stable record for sharing and retrieval.
- Safeguards such as reminders, intake and triage, strict caps, and anti-ranking rules keep the system workable over time.

10.9 Validation

This chapter presents the validation of the Impact Map and the surrounding system. The goal of this validation is to assess whether the designed intervention is desirable, feasable and viable within its intended organisational context.

Validation activities were conducted iteratively throughout the design process and included structured feedback moments with district managers and a reflective discussions with an innovator. Insights from these moments were used both to test underlying design assumptions and to refine the system logic, visual language, and process structure.

10.9.1 Desirability

Desirability describes the extent to which the Impact Map aligns with a recognised need among its intended users and is perceived as helpful within existing work practices. In this project, desirability refers to the degree to which stakeholders recognise the problem framing and see value in the system as a tool for interpretation, communication, and follow-up.

Initial research and stakeholder conversations indicated that the main challenge is not a lack of innovations or ambition, but the ability to share and interpret societal value at neighbourhood level. Innovations and strategies are often discussed at an abstract level, while residents mainly experience concrete effects in daily life. This can complicate discussions about societal value, both within the innovation team and in communication with neighbourhoods.

The Impact Map was developed to support this translation by linking innovations to neighbourhood needs across four dimensions. For the innovation team, it provides a deliberation frame to reflect on potential societal effects and to discuss whether, and under what conditions, an innovation merits follow-up. The system is positioned as a conversation tool that makes assumptions explicit and allows multiple perspectives to be considered side by side.

Validation feedback supported this desirability. District managers indicated that the Impact Map can strengthen conversations with neighbourhood councils and residents by clarifying what the port is working on and how innovations relate to local needs, provided that the language remains accessible and outcomes are not presented as fixed conclusions. Innovators valued the map as a narrative aid and a way to better understand neighbourhood-level societal attention points, while emphasising that it should not become an accountability or evaluation instrument.

Finally, the innovation team expressed a desire to better track societal value over time. Although the Impact Map does not measure societal impact causally or quantitatively, it makes visible how needs and their links to innovations evolve. By periodically updating needs and repeating the mapping, the system introduces traceability that supports monitoring shifts and patterns in attention and interpretation over time.

10.9.2 Feasibility

Feasibility assesses whether the Impact Map and its surrounding system can be executed and maintained within the organisational context, given realistic constraints in time, attention and ownership. In this project, feasibility is defined by the extent to which the process is sufficiently lightweight, repeatable and role-based to function beyond individual enthusiasm.

A central feasibility risk identified during the project is that the Impact Map could remain a one-off workshop artefact rather than a recurring system. This risk is addressed by embedding the tool in a fixed system journey with clear responsibilities, constrained inputs and a limited number of repeated actions. The system is designed to reduce coordination and interpretation effort, while maintaining enough structure to ensure consistency across cycles.

Feasibility is supported through three mechanisms. First, ownership is explicitly assigned to a facilitator role responsible for running the cycle, collecting inputs, facilitating sessions, maintaining the physical board, updating Miro and ensuring feedback loops. By concentrating process responsibility, the system avoids fragmentation and prevents the work from being distributed across multiple stakeholders with competing priorities.

Second, the system uses a fixed cadence that matches the practical reality of stakeholder availability. Neighbourhood needs are updated every six months, while innovation inputs are collected and discussed every three months. This cadence is frequent enough to keep the map relevant, but slow enough to remain manageable and avoid excessive maintenance, see table 7 for the time burden per stakeholder.

Who	Time	Rhythm
Facilitator	12hrs	3 months
Innovation team	1hr - 2hrs for the session	3 months
District managers	5 - 10 minutes	6 months
Innovators	30 minutes	3 months

Table 7: Time burden for action

Third, the system reduces the burden on district managers through a guided digital neighbourhood needs check-in. Instead of repeating interview-style conversations, district managers

confirm or adjust existing needs and can add a limited number of new needs per dimension in five to ten minutes. Input from innovators is similarly standardised through a short pitch and an expected timeline to first effects, preventing sessions from relying on ad hoc explanations.

To keep sessions workable over time, the system includes safeguards against common failure modes. Innovations that are too abstract are postponed until minimum input requirements are met. The number of innovations per session and the number of new needs per dimension are capped to protect readability and session duration. Misuse as a scoring or ranking mechanism is explicitly corrected through facilitation rules, and outputs are framed as interpretations rather than facts.

Overall, feasibility is achieved by limiting complexity, making ownership explicit and embedding the tool in a repeatable rhythm with lightweight inputs and clear safeguards. The system is therefore designed to remain operational in practice rather than depending on exceptional motivation or continuous project-level support.

10.9.3 Viability

Viability describes the extent to which the Impact Map system can persist over time within the organisational and governance context in which it is applied. In this project, viability does not primarily concern financial feasibility, but organisational embedding, legitimacy, and the ability to function without generating unintended side effects such as resistance, misinterpretation, or politicisation.

A key risk to the viability of the system is that the Impact Map could be interpreted as a formal evaluation instrument or as a decision framework for investments. Validation with innovators made clear that such a positioning would undermine trust in the system and reduce willingness to engage in open reflection. To mitigate this risk, the Impact Map is explicitly positioned as a supportive conversation tool rather than an authoritative decision-making instrument. Outputs are presented as interpretations and points of attention, not as conclusions or scores.

The defined scope of use further supports viability. The Impact Map is designed for internal use by the innovation team and functions as an additional lens alongside existing strategic, financial, and technical assessment frameworks. By avoiding overlap with existing governance instruments and not replacing established processes, the system remains complementary rather than competitive. This increases the likelihood of acceptance and sustained use within the organisation.

Relational sensitivities are also explicitly addressed in the design. Innovations that are assessed as potentially negative or risky in relation to neighbourhood needs may be perceived as rejection when presented without context. By not structurally involving innovators in the internal sessions, while explicitly providing moments for feedback and dialogue at a later stage, the risk of escalation and defensive responses is reduced. This allows internal learning and reflection to take place, while external relationships are managed with care.

In addition, required capacity was considered explicitly. The facilitator role is estimated to require approximately twelve hours per three months, including preparation, input collection, session facilitation, documentation, and feedback. On an annual basis, this amounts to approximately 48 hours, corresponding to roughly 0.03 FTE.

This limited time investment is enabled by fixed rhythms, standardised inputs, and reusable artefacts, keeping structural effort manageable within existing roles.

Finally, viability is reinforced through the scalability and simplicity of the system. Adding new neighbourhoods or innovations does not require redesign, but only additional input within the same structure. At the same time, the deliberate limitation of governance, rhythm, and artefacts prevents the system from becoming bureaucratic or maintenance-intensive. As a result, it remains executable within existing capacity and organisational dependencies.

In summary, the Impact Map is viable because the system is intentionally limited in ambition and authority. By not claiming to measure societal value as an objective outcome, but instead treating it as a subject of ongoing interpretation and dialogue, the system aligns with the realities of public-sector innovation and remains usable without creating political or organisational friction.

Conclusions,
Recommendations,
Discussion,
Personal reflection,
References &
Appendices

Conclusions

This thesis concludes that the Port of Rotterdam operates as a fragmented innovation ecosystem in which strategic decisions are often made at a global scale, while societal legitimacy and the Social License to Operate are earned locally. Although societal value is frequently named as a strategic priority, it is rarely operationalised in the day-to-day practice of innovation teams. The core challenge is not a lack of technological invention, but limited regional absorptive capacity and the difficulty of translating abstract port innovations into the lived realities of surrounding neighbourhoods. This thesis therefore aimed to design a strategic orchestration approach that makes societal value explicit, legible, and traceable, in order to reduce the growing distance between port innovation and urban needs.

The final design outcome is the Impact Map Port of Rotterdam system. It functions as a boundary object that structures dialogue and shared interpretation around how innovations relate to neighbourhood needs. The system runs through a recurring cycle of input collection, facilitated mapping sessions, and digital consolidation in Miro. The approach is structured around four dimensions: living, working, experience, and safety. Importantly, the Impact Map is positioned as a conversation tool for shared sensemaking.

Validation indicates strong desirability among the intended users. District managers recognised value in the map as practical support for explaining port activities in a transparent and concrete way, while the Port of Rotterdam innovation team valued it as a method to make societal assumptions explicit and surface potential risks earlier. For innovators, the system provides clearer feedback on how an innovation is perceived beyond technical performance, including potential points of concern and unresolved questions linked to specific neighbourhood needs. This supports earlier adaptation of narratives, stakeholder engagement strategies, and design choices, without framing the feedback as a formal assessment or compliance check. Feasibility is supported by the lightweight design. The facilitator role is estimated at approximately 0.03 FTE on an annual basis, enabled by standardised inputs such as short pitch videos and a digital neighbourhood needs check-in. In terms of viability, the system is designed as a complementary layer alongside existing financial and technical frameworks. It does not replace current decision structures, but adds a structured interpretative lens.

In practice, this creates opportunities for district managers to move from reactive information recipients to more proactive connectors who can link innovations to local networks and needs.

The overall contribution of this thesis lies in the introduction of societal legibility as a design goal: making societal value understandable and discussable at the scale of everyday life. In contexts where orchestration cannot rely on hierarchical power alone, design functions less as optimisation and more as an instrument for interpretation and alignment between different worlds. This research shows that societal value in an industrial context becomes more actionable when innovations are made legible, credible, and traceable for local stakeholders. By providing the Port of Rotterdam with a structured way to fulfil its orchestration role through dialogue and shared insights, this thesis offers a foundation for a more proactive and sustainable embedding of the port in its urban environment. A key next step is to test geographical scaling, in order to strengthen the regional link between innovation activity and societal experience over time.

Recommendations

Ownership of the system should be formally embedded by assigning the facilitator role to a single person, can also be called: product owner. Formalising this responsibility reduces dependency on individual motivation and ensures continuity beyond the scope of this project.

Second, the geographical scope of the system can be expanded beyond the initial neighbourhoods to include Schiedam, Vlaardingen, Maassluis, Spijkenisse, and Brielle. Including these areas strengthens the regional perspective of the port-city relationship and makes the system more representative of the broader societal context in which port innovations operate.

To support this expansion and to strengthen mutual understanding, it is recommended to organise an initial session with all district managers. This session should focus on getting acquainted, jointly reflecting on neighbourhood needs, and explicitly discussing what district managers gain from participating in the system. In addition, periodic, separate feedback moments with district managers are advised to share insights and outcomes, and to reinforce their role as ambassadors, without politicising the internal innovation sessions.

For the operational process, the digital neighbourhood needs check-in should be implemented as the standard entry point for updating needs. Keeping this process short and structured, with clear caps per dimension, is essential to maintain low effort for district managers and to ensure consistent, usable input for the innovation team.

Similarly, innovation input should be standardised through a fixed template combined with a short pitch, including an expected timeline towards first effects. This reduces abstraction, improves comparability between innovations.

Finally, feedback should be treated as a mandatory part of each cycle. Each session should result in a fixed output recorded in Miro, accompanied by a short written summary and clear contact points. This ensures that insights do not remain internal, supports follow-up actions, and reinforces trust in the system as a meaningful and transparent intervention.

Together, these recommendations aim to embed the Impact Map as a stable yet lightweight system that supports learning, alignment, and dialogue without increasing bureaucratic burden.

Discussion

The Impact Map is designed as a boundary object that helps different stakeholders make societal value at neighbourhood level discussable. This boundary object quality is both a strength and a source of tension. Different parties can recognise different meanings in the tool, which enables collaboration and a shared language, but also increases the risk of misinterpretation. In particular, there remains a risk that the output is read as an evaluation instrument rather than as a conversation tool. This requires continuous safeguarding through framing, explicit rules of use, and facilitation.

A second discussion point concerns measurability versus meaning. The Impact Map makes the relationship between innovations and neighbourhood needs traceable over time, as needs are periodically updated and connections are repeatedly documented. This traceability supports monitoring of attention and alignment, but the system does not measure societal impact in a causal or quantitative sense. The claim therefore remains deliberately limited to making interpretations and discussions visible, rather than demonstrating effects.

In addition, the choice for an internal focus represents a clear trade-off. Not structurally involving innovators and district managers in the sessions increases workability and reduces relational risks within the current context, but limits direct co-interpretation. This may result in certain assumptions being corrected less quickly and resistance emerging when outcomes are communicated at a later stage. To mitigate this tension, separate feedback moments and clear communication about the purpose and status of the output are necessary.

A further limitation concerns the representativeness of needs. Updates via district managers are practical and align with existing roles, but remain a proxy for residents' perspectives. Insights may vary depending on the district manager's network, information sources, and personal interpretation. It is therefore important to make explicit where signals originate and to acknowledge that certain voices may be underrepresented.

The normativity of the plus and minus markers also remains a relevant issue. Even without KPIs, a plus or minus is always an interpretative judgement. Legitimacy therefore depends on transparent explanation, explicitly addressing uncertainty, and avoiding aggregation or ranking. The value of the system does not lie in the marker itself, but in the underlying argumentation developed and documented during the session.

Finally, there is a temporal mismatch between innovations and neighbourhood needs. Innovations often have long development timelines, while neighbourhood needs may shift more rapidly due to societal or local events. The chosen rhythm is therefore a compromise between timeliness and executability and may require adjustment in practice, for example through exception moments when sudden neighbourhood developments occur.

In summary, this discussion shows that the Impact Map is most robust as a socio-technical intervention when the interpretative nature of the system remains explicit, misuse is actively prevented, and the system is sufficiently anchored in ownership and process rhythm. The main limitations lie in representativeness, normativity, and dependence on effective facilitation, and therefore require deliberate governance choices and transparent communication.

Personal reflection

Looking back, I see this thesis process as a challenging and educational journey within a realistic innovation context characterised by a complex landscape of stakeholders. By working at the intersection of port, city and organisation, I have gained valuable insights into how social innovation takes shape in practice. At the same time, the process confirmed that an analytical design approach, as taught at Delft University of Technology, can provide structure and direction in such complexity and can lead to results that are meaningful to multiple stakeholders.

I began this process with confidence in my existing skills. I already had experience facilitating co-creation sessions, structuring design processes and developing concepts that go beyond theoretical research. In practice, however, these skills had to be constantly adapted to the context. The process involved moments of uncertainty about direction, positioning, and decision-making. These moments proved essential in forcing more conscious reflection, making assumptions explicit, and refining my role as a designer within an organisational setting.

Conducting this project within the innovation team of the Port of Rotterdam provided a particularly valuable learning environment. The topic was relatively new and there was room to contribute to the further development of the innovation ecosystem. At the same time, I gained first-hand experience of working within a large organisation, including its decision-making structures, political dynamics, and strategic considerations. This revealed that design decisions are shaped not only by content and quality, but also by timing, sensitivities, and organisational interests.

A key personal learning objective was to better understand and navigate these organisational and political dynamics. During the project, I encountered situations in which higher-level forces influenced the process and where not everything was fully controllable. Learning how to operate within these constraints, while still maintaining design ambition, became an important outcome of the project. It strengthened my ability to balance steering and acceptance, and to use design as a means to enable dialogue rather than to enforce outcomes.

An important observation throughout the project was the role of institutional context. Working from the Port of Rotterdam and Delft University of Technology provided visible legitimacy when engaging both internal and external stakeholders. This positioning made it easier to initiate conversations, organise interviews, and involve people in the research and design process. It highlighted for me that effective design work is not only about the quality of the concept, but also about consciously leveraging the context, mandate, and networks in which one operates.

The graduation process itself was not linear, but characterised by alternating phases of uncertainty and focus. There were periods in which direction and choices felt heavy and mentally demanding. Through reflection and discussions with supervisors and coaches, these phases gradually resolved, the coach meetings were especially very valuable. In contrast, there were also periods of momentum and flow, during which substantial progress was made in a relatively short time. This dynamic strengthened my ability to trust the process, even when progress was temporarily unclear.

Reflecting on the contribution of this project to the innovation team, I believe it demonstrated that engaging with diverse stakeholders does not necessarily slow down innovation, but can help create clarity, alignment, and support. Designing in such contexts is not only about analysis and planning, but also about acting, experimenting, and actively involving others. By doing so, space is created for shared interpretation and collective progress.

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Appendices

Appendix A: Themes and indicators ideas

Wijkvisie	Dimensie	Thema	Citaat	Indicator
Dorpsvisie Hoek van Holland 2023-2026	Wonen / Werken / Beleving	Werkgelegenheid, Woningkwaliteit, Trots/imago	"Door demografische ontwikkelingen (vergrijzing), afnemende werkgelegenheid in de haven, (gedeeltelijk) een verouderde woningmarkt en een onaantrekkelijk imago, sijpelt de vitaliteit uit de lokale gemeenschappen langzaam weg."	Vitaliteit (Vergrijzing, Werk, Wonen)
Dorpsvisie Hoek van Holland 2023-2026	Wonen	Voorzieningen	"Het voorzieningenniveau in het dorp loopt achter op dat in de wijken binnen de stad Rotterdam, waardoor bewoners van Hoek van Holland aangewezen zijn op hun omgeving."	Voorzieningenniveau
Dorpsvisie Hoek van Holland 2023-2026	Beleving	Cohesie	"De cohesie staat volgens het wijkprofiel onder druk en kan beter worden ondersteund door het benutten van de lokale media en De Hoekstee als Het Huis van de Wijk."	Sociale Cohesie
Dorpsvisie Hoek van Holland 2023-2026	Beleving	Trots/imago / Evenementen	"Hoek van Holland wordt steeds aantrekkelijker als vierseizoenenbadplaats en jaarrond neemt het aantal bezoekers toe."	Toeristische Aantrekkelijkheid
Dorpsvisie Hoek van Holland 2023-2026	Wonen	Woningkwaliteit, Betaalbaarheid	"Voor een goed functionerend dorp is het van belang dat inwoners binnen het dorp wooncarrière kunnen maken zowel voor jongeren, als gezinnen en ouderen."	Wooncarrière
Dorpsvisie Hoek van Holland 2023-2026	Wonen	Verkeer/OV, Verkeersveiligheid	"Een goed verkeerscirculatieplan is voor de bewoners van groot belang om het dorp onder de toenemende toeristenstroom bereikbaar te houden bij topdagen."	Verkeerscirculatie/Bereikbaarheid
Dorpsvisie Hoek van Holland 2023-2026	Beleving	Bereikbaarheid werk, Voorzieningen	"De gevolgen van de veranderde bereikbaarheid zullen ook in het dorpscentrum merkbaar zijn; een goede analyse hiervan helpt bij gesprekken over de gewenste opknapbeurt."	Impact Bereikbaarheid
Dorpsvisie Hoek van Holland 2023-2026	Wonen	Voorzieningen	"Daarnaast zijn er zorgen nu het dorp groeit qua inwoneraantal of de maatschappelijke voorzieningen wel toereikend zijn."	Toereikende Voorzieningen
Dorpsvisie Hoek van Holland 2023-2026	Veiligheid	Luchtkwaliteit, milieu-incidenten	"Milieucontouren onder andere uitstoot van de haven en industrie"	Milieudruk
Dorpsvisie Rozenburg 2023-2026	Wonen/ Veiligheid	Milieu-incidenten	"De ligging in de Rotterdamse haven vraagt om extra aandacht voor gezondheid en veiligheid."	Gezondheid en Veiligheid
Dorpsvisie Rozenburg 2023-2026	Wonen	Luchtkwaliteit	"Belangrijk is deze steeds te blijven monitoren en hierover transparant te zijn."	Luchtkwaliteit monitoring
Dorpsvisie Rozenburg 2023-2026	Wonen	Luchtkwaliteit, Overlast	"De luchtafvoer van de nieuwe Maasdeltatunnel (of Blankenburgverbinding) moet zodanig worden ingericht dat de inwoners van Rozenburg hiervan geen last ondervinden."	Fijnstof Tunnelmond
Dorpsvisie Rozenburg 2023-2026	Beleving	Overlast, Afval	"Inwoners ondervinden meer overlast van hondenpoep."	Hondenpoep overlast
Dorpsvisie Rozenburg 2023-2026	Veiligheid	Vertrouwen, Veiligheidsbeleving	"Inwoners in Rozenburg voelen zich relatief vaak veilig."	Veiligheidsbeleving (Subjectief)
Dorpsvisie Rozenburg 2023-2026	Wonen	Voorzieningen	"Het percentage huishoudens dat tevreden is met het aanbod van voorzieningen (51%) ligt net boven het gemiddelde van Rotterdam (48%)."	Voorzieningenaanbod (Tevredenheid)
Dorpsvisie Rozenburg 2023-2026	Veiligheid	Verkeer/OV, Bereikbaarheid werk	"In 2022 was zowel de Calandbrug als het Veer naar Maasluis gestremd wat niet alleen ergernis opwekt maar ook een verminderd veiligheidsgevoel geeft (men voelt zich opgesloten)."	Bereikbaarheid/Gevoel van Opsluiting
Dorpsvisie Rozenburg 2023-2026	Veiligheid	Handhaving	"Mogelijk minder inzet T&H als andere wijken meer vragen door hun ontwikkeling (bijvoorbeeld Metro Lijn naar Hoek van Holland)"	Handhaving capaciteit
Dorpsvisie Rozenburg 2023-2026	Wonen	Woningkwaliteit, Betaalbaarheid, Voorzieningen	"kunnen ouderen prettig wonen, met: passende en betaalbare huisvesting; adequate zorg- en welzijnsvoorzieningen in de buurt;"	Ouderenhuisvesting en Zorg
Dorpsvisie Rozenburg 2023-2026	Beleving	Vergroening	"Op het gebied van duurzaamheid liggen er grote kansen voor Rozenburg."	Duurzaamheid Kansen
Wijkvisie Delfshaven-Schiemond 2023-2026	Veiligheid / Wonen	Overlast, Cohesie, Woningkwaliteit	"De deelwijk Schiemond kent bijvoorbeeld veel sociale, financiële en veiligheidsproblematiek."	Sociale en Veiligheidsproblematiek
Wijkvisie Delfshaven-Schiemond 2023-2026	Veiligheid	Overlast, Geluid	"In het Lloydkwartier gaan meldingen vooral over auto's die aan de kade staan, geluidsoverlast en drugsoverlast."	Geluids- en Drugsoverlast
Wijkvisie Delfshaven-Schiemond 2023-2026	Beleving	Cohesie	"Daarnaast pleiten wij voor een betere inrichting van de openbare ruimte waardoor de sociale cohesie kan worden bevorderd."	Verbetering Sociale Cohesie
Wijkvisie Delfshaven-Schiemond 2023-2026	Beleving	Vergroening, Groen	"We pleiten er dan ook nadrukkelijk voor dat het bestaande groen in onze wijk kwalitatief flink wordt verbeterd."	Groen Kwaliteitsverbetering
Wijkvisie Delfshaven-Schiemond 2023-2026	Wonen / Beleving	Groen, Geluid, Luchtkwaliteit, Licht	"Het College dient een helder referentiekader op te stellen voor verhouding tussen vergroenen en bouwen, waarbij ook aspecten worden meegenomen als geluid, lucht-, water-, bodemkwaliteit, hitte en zonlicht (schaduw door hoge gebouwen)."	Bouw- en Groennormen (Milieufactoren)
Wijkvisie Delfshaven-Schiemond 2023-2026	Beleving	Cohesie, Participatie, Groen	"In deze deelwijk is de Stichting Tuin op de Pier een belangrijke trekker, maar ook een verbindende factor als het gaat om het groen in de deelwijk."	Groen als Sociale Verbinder
Wijkvisie Delfshaven-Schiemond 2023-2026	Beleving	Voorzieningen, Cultuur/Sport, Groen	"Bewoners hebben daarnaast ook behoefte aan een ander type buurttuin, waarin naast groen en tuinieren ruimte is voor ontmoeting, urbansport, spel, luieren en een tuinfeestje."	Multifunctionele Buurttuinen
Wijkvisie Delfshaven-Schiemond 2023-2026	Veiligheid / Wonen	Verkeersveiligheid, Geluid	"Er is geregeld sprake van racende auto's en (geluids)overlast."	Racende auto's Overlast
Wijkvisie Delfshaven-Schiemond 2023-2026	Veiligheid	Handhaving, Verkeersveiligheid	"Wij zien graag dat er opnieuw, al dat niet tijdelijk, camera's worden teruggeplaatst."	Cameratoezicht Verkeer
Wijkvisie Delfshaven-Schiemond 2023-2026	Wonen	Betaalbaarheid, Cohesie	"Wanneer blijkt dat de parkeerkosten bijdragen aan de drempel om bezoek te ontvangen, is het belangrijk dat de mogelijkheden onderzocht worden om de bezoekerspassen gratis te maken."	Parkeerkosten Drempel
Wijkvisie Heijplaat 2023-2026	Wonen / Werken / Beleving	Werkgelegenheid, Woningkwaliteit, Trots/imago	"Afnemende werkgelegenheid in de haven, (gedeeltelijk) een verouderde woningmarkt en een onaantrekkelijk imago, sijpelt de vitaliteit uit de lokale gemeenschappen langzaam weg."	Afnemende Vitaliteit
Wijkvisie Heijplaat 2023-2026	Wonen	Voorzieningen	"Niet alle voorzieningen zijn op Heijplaat aanwezig. Voor het merendeel van de dagelijkse zaken moeten de bewoners naar Charlois reizen."	Beperkt Voorzieningenaanbod
Wijkvisie Heijplaat 2023-2026	Wonen	Luchtkwaliteit, Geluid	"De luchtkwaliteit en geluidsoverlast in Heijplaat is gestegen van 75 in 2020 naar 101 in 2022."	Objectieve Milieukwaliteit
Wijkvisie Heijplaat 2023-2026	Wonen /Beleving	Geur, Geluid, Overlast	"Echter de subjectieve beleving van stank-, geluid-, en wateroverlast laat een verslechtering zien ten opzichte van 2020 en ligt onder het gemiddelde van Rotterdam."	Subjectieve Milieuoverlast
Wijkvisie Heijplaat 2023-2026	Veiligheid	Veiligheidsbeleving, Vertrouwen	"Heijplaat komt in vergelijking met de andere kleine kernen en Rotterdam goed naar voren op de veiligheidsindex."	Veiligheidsindex Score
Wijkvisie Heijplaat 2023-2026	Veiligheid	Overlast	"Een aandachtspunt is het aantal inbraken: 6,1 per duizend inwoners. Dat ligt boven het Rotterdams gemiddelde (3,5)."	Inbraakcijfers (Objectief)
Wijkvisie Heijplaat 2023-2026	Wonen / Werken	Verkeer/OV, Bereikbaarheid werk	"Een ander groot punt van achteruitgang betreft het openbaar vervoer over water."	OV over Water Achteruitgang
Wijkvisie Heijplaat 2023-2026	Werken	Ondernemers, milieu-incidenten	"Het is dan ook van belang dat de verstandhouding met de omliggende bedrijven en het Havenbedrijf goed is en blijft."	Relatie Havenbedrijf
Wijkvisie Heijplaat 2023-2026	Beleving /Wonen	Overlast, Geur	"Ook blijft er ingezet worden op verdere terugdringing van de vliegenoverlast."	Vliegenoverlast
Wijkvisie Heijplaat 2023-2026	Wonen/ Werken/ Veiligheid	Verkeer/OV, Verkeersveiligheid	"Op de enige toegangsweg wordt verkeershinder van vrachtwagens ondervonden met steeds vaker verstopping van deze toegangsweg."	Verkeershinder vrachtwagens
Wijkvisie Hoogvliet 2023-2026	Beleving	Trots/imago	"Hoogvliet ligt niet alleen ruimtelijk ver van het centrum van Rotterdam, maar ook in de beleving en identificatie van bewoners bestaat een grote afstand tot de rest van de stad."	Afstand tot Stad (Beleving)
Wijkvisie Hoogvliet 2023-2026	Beleving	Vertrouwen, Participatie	"Veel bewoners zijn ontevreden over de betrokkenheid van het stadsbestuur bij Hoogvliet, of liever gezegd de ervaren afwezigheid hiervan."	Vertrouwen in Overheid
Wijkvisie Hoogvliet 2023-2026	Veiligheid	Overlast, Criminaliteit	"De Lampreibuurt is de laatste twaalf jaar een belangrijk aandachtsgebied ten aanzien van veiligheid."	Veiligheidsaandachtsgebied
Wijkvisie Hoogvliet 2023-2026	Wonen/ Werken/ Veiligheid	Verkeer/OV	"Hoogvliet wordt volgens bewoners als 'doorgang' gebruikt voor omliggende gebieden, waardoor files aan de orde van de dag zijn."	Verkeersdrukte (Doorgang)
Wijkvisie Hoogvliet 2023-2026	Veiligheid	Verkeersveiligheid, Veiligheidsbeleving	"De ontsluitingsproblemen worden niet alleen ervaren als hinderlijk, maar hebben ook impact op het veiligheidsgevoel van bewoners."	Ontsluitingsproblemen Impact
Wijkvisie Hoogvliet 2023-2026	Wonen	Betaalbaarheid, Cohesie	"In Hoogvliet is het prima wonen. Maar Hoogvliet heeft ook grote uitdagingen met name op het gebied van armoede, gezinnen met multiproblematiek en taalachterstand."	Multiproblematiek/Armoede
Wijkvisie Hoogvliet 2023-2026	Beleving	Groen, Vergroening	"Veel klachten van bewoners gaan over het onderhoud van groen."	Groenonderhoud Klachten
Wijkvisie Hoogvliet 2023-2026	Beleving	Participatie, Cohesie	"Hoogvlieters zijn betrokken bij hun woonplaats en denken graag aan de voorkant mee."	Bewonersbetrokkenheid
Wijkvisie Hoogvliet 2023-2026	Wonen / Veiligheid	Woningkwaliteit, Verkeer/OV, Overlast	"In de toekomst wil Hoogvliet een dorp zijn met de volgende kenmerken: Woningen voor alle doelgroepen. Geen overlast van het doorgaande verkeer door Hoogvliet."	Toekomstbeeld Wonen/Verkeer
Wijkvisie Hoogvliet 2023-2026	Beleving	Cohesie, Participatie	"De sociale index daalt in Hoogvliet meer dan in de rest van Rotterdam."	Sociale Index Daling
Wijkvisie Katendrecht-Wilhelminapier 2023-2026	Wonen	Woningkwaliteit, Overlast	"Bewoners maken zich zorgen over de grootsheid en snelheid van het vele bouwen, en het voortduren ervan."	Bouwoverlast/Snelheid Ontwikkeling
Wijkvisie Katendrecht-Wilhelminapier 2023-2026	Wonen	Milieu-incidenten, Luchtkwaliteit	"Daarnaast legt de toename van cruiseschepen op de Wilhelminapier extra (milieu)druk op de buurt."	Milieudruk Cruiseschepen
Wijkvisie Katendrecht-Wilhelminapier 2023-2026	Veiligheid	Veiligheidsbeleving	"Ook op de Wilhelminapier wordt de situatie voor vandalisme en diefstal negatiever beoordeeld dan meldingen en registraties aantonen."	Subjectieve Onveiligheid
Wijkvisie Katendrecht-Wilhelminapier 2023-2026	Beleving	Ondernemers, Trots/imago	"Vooral het Deliplein heeft nu te weinig dag-horeca, waardoor het plein 's avonds levendig is, maar overdag 'doods' aanvoelt."	Dag- vs Avondhoreca Balans
Wijkvisie Katendrecht-Wilhelminapier 2023-2026	Wonen	Voorzieningen	"Er is op Katendrecht-Wilhelminapier nu al een tekort aan winkels voor de dagelijkse boodschappen."	Tekort Dagelijkse Winkels
Wijkvisie Katendrecht-Wilhelminapier 2023-2026	Beleving	Vergroening, Groen	"Meer groen kan risico op hittestress in stedelijke gebieden flink verlagen."	Hittestress mitigatie (Groen)
Wijkvisie Katendrecht-Wilhelminapier 2023-2026	Wonen	Verkeer/OV	"De snelle ontwikkeling van Katendrecht-Wilhelminapier leidt tot meer verkeer in onze wijk."	Verkeerstoename
Wijkvisie Katendrecht-Wilhelminapier 2023-2026	Veiligheid	Verkeersveiligheid	"Zeker bij calamiteiten zijn de risico's van de beperkte ontsluiting van het gebied groot."	Calamiteitenrisico Ontsluiting
Wijkvisie Katendrecht-Wilhelminapier 2023-2026	Veiligheid / Beleving	Overlast, Afval, Handhaving	"Daarnaast wordt er overlast ervaren van de avondhoreca (orde & veiligheid, opruimen afval)."	Horeca Overlast
Wijkvisie Katendrecht-Wilhelminapier 2023-2026	Wonen	Voorzieningen	"Bewoners ervaren een gebrek aan voorzieningen voor gezondheidszorg (apotheek, tandarts, fysiotherapeut) in de wijk."	Tekort Zorgvoorzieningen
Wijkvisie Mathenesse 2023-2026	Beleving	Trots/imago	"Mathenesse heeft de potentie om in 2033 zo'n wijk te zijn."	Toekomstpotentie
Wijkvisie Mathenesse 2023-2026	Wonen	Woningkwaliteit	"Nu (begin 2023) bestaat Mathenesse uit drie subwijken met ieder een eigen karakter, dynamiek en problematiek: Oud-Mathenesse met de vooroorlogse portiekflats, Het Witte Dorp met de laagbouw en de Merwe-Vierhavens (M4H)."	Woningdiversiteit
Wijkvisie Mathenesse 2023-2026	Beleving	Cohesie	"De urgentie is groot, maar de schaalgrootte te overzien."	Sociale Opgave Urgentie
Wijkvisie Mathenesse 2023-2026	Wonen	Verkeer/OV, Bereikbaarheid werk	"De Tjalklaan die nu een barrière vormt."	Barrière in Wijk
Wijkvisie Mathenesse 2023-2026	Wonen	Voorzieningen, Vertrouwen	"Een volwaardige wijkhub, van waaruit gemeentelijke diensten en andere professionals samenwerken, wordt gemist."	Wijkhub behoefte
Wijkvisie Mathenesse 2023-2026	Veiligheid	Verkeersveiligheid, Overlast	"Naast de verkeersonveiligheid (te hard rijden op met name Schiedamseweg Beneden en Franselaan) wordt aandacht gevraagd voor de overlast van dronken mannen die rondhangen en het gebruik van en de handel in drugs."	Verkeers- en Drank/Drugs-overlast
Wijkvisie Mathenesse 2023-2026	Werken	Werkgelegenheid, Betaalbaarheid	"Het gemiddelde inkomen ligt in Oud- Mathenesse en het Witte Dorp lager dan het Rotterdamse gemiddelde en het gemiddelde opleidingsniveau is relatief laag."	Laag Inkomen/Opleidingsniveau
Wijkvisie Mathenesse 2023-2026	Beleving	Voorzieningen, Cultuur/Sport, Cohesie	"In Oud-Mathenesse en het Witte Dorp is echter een groot tekort aan ontmoetingsplekken en aan ruimtes met een maatschappelijke functie geschikt voor onder meer culturele activiteiten."	Tekort Ontmoetingsplekken
Wijkvisie Mathenesse 2023-2026	Wonen	Woningkwaliteit, Vergroening	"De hele wijk is verzakt en alle straten worden tegelijk met de rioleringsaanpak opgehoogd en opnieuw ingericht."	Riool/Verzakking Aanpak (Woningkwaliteit)
Wijkvisie Mathenesse 2023-2026	Werken / Wonen / Beleving	Cohesie, Participatie, Voorzieningen	"Er komt een vast inlooppunt voor EU-arbeidsmigranten met tolken, taalaanbod, ruimte voor ontmoeting, spreekuur en de juiste informatie."	Integratie Arbeidsmigranten
Wijkvisie Oud-Charlois-Wielewaal 2023-2026	Beleving	Vergroening, Groen	"Meer inzetten op vergroening en met name gevarieerd groen dat ook goed is voor de bijen wordt heel breed gedeeld in de wijk."	Biodiversiteit Groen
Wijkvisie Oud-Charlois-Wielewaal 2023-2026	Wonen	Verkeer/OV, Verkeersveiligheid	"Door het inzetten op een verkeerscirculatieonderzoek in combinatie met de Tarwewijk en Carnisse kunnen de wijken slimmer ingericht worden."	Verkeerscirculatieonderzoek
Wijkvisie Oud-Charlois-Wielewaal 2023-2026	Wonen	Verkeersveiligheid, Verkeer/OV	"Oud Charlois moet een woonwijk zijn waar de straat in dienst staat van voetgangers, fietsers en bestemmingsverkeer."	Prioriteit Voetgangers/Fietsers
Wijkvisie Oud-Charlois-Wielewaal 2023-2026	Wonen/ Werken/ Veiligheid	Verkeersveiligheid, Luchtkwaliteit, Overlast	"De Dorpsweg-Groene Kruisweg staat dagelijks vast. Daardoor is het sluipverkeer, de verkeersonveiligheid en de luchtvervuiling ernstig toegenomen."	Sluipverkeer/Luchtvervuiling
Wijkvisie Oud-Charlois-Wielewaal 2023-2026	Wonen	Woningkwaliteit, Betaalbaarheid	"Een gevaar is dat er de laatste jaren veel huisjesmelkers in het gebied actief zijn, hun (tijdelijke) bewoners bevinden zich vaak in kwetsbare posities."	Huisjesmelkers/Kwetsbare Bewoners
Wijkvisie Oud-Charlois-Wielewaal 2023-2026	Wonen	Woningkwaliteit	"Daarnaast laat de kwaliteit van de woningen her en der te wensen over. Dit zie je vooral bij de particuliere verhuur."	Kwaliteit Particuliere Verhuur
Wijkvisie Oud-Charlois-Wielewaal 2023-2026	Veiligheid	Geluid, milieu-incidenten	"Ook de nabijheid van industrie en havengebieden zorgen voor grote aantallen klachten met betrekking tot overschrijding van de geluids- en milieunormen."	Geluids-/Milieunormen Overschrijding
Wijkvisie Oud-Charlois-Wielewaal 2023-2026	Veiligheid	Veiligheidsbeleving, Overlast	"In de afgelopen jaren is er met regelmaat sprake geweest van geweldsincidenten, wat bijdraagt aan een ervaring van onveiligheid."	Geweldsincidenten
Wijkvisie Oud-Charlois-Wielewaal 2023-2026	Beleving	Cultuur/Sport, Voorzieningen	"Voldoende kansen voor jongeren en genoeg te doen voor jongeren is een uitdaging."	Jeugdvoorzieningen/Kansen

Wijkvisie Pernis 2023-2026	Wonen	Geluid, milieu-incidenten, Overlast	"Geluidsoverlast, maar ook andere milieuoverlast vanuit de omgeving is een constant zorgpunt."	Milieu/Geluidsoverlast
Wijkvisie Pernis 2023-2026	Wonen	Geluid, Woningkwaliteit	"In Pernis bevindt 78% van de woningen zich in een geluidscontour vanaf 55 decibel (55% in Rotterdam)."	Wonen in Geluidscontour
Wijkvisie Pernis 2023-2026	Wonen/ Beleving	Geur, Overlast	"19% van de huishoudens geeft aan zelf veel overlast te ervaren van stank veroorzaakt door bedrijven en/of industrie."	Stankoverlast Industrie (Subjectief)
Wijkvisie Pernis 2023-2026	Wonen	Woningkwaliteit, Betaalbaarheid	"Voor een goed functionerend dorp is het van belang dat inwoners er een wooncarrière kunnen maken."	Wooncarrière Faciliteren
Wijkvisie Pernis 2023-2026	Wonen	Verkeer/OV, Bereikbaarheid werk	"Ook het doortrekken van de waterbus draagt bij aan deze ontwikkeling."	Waterbus
Wijkvisie Pernis 2023-2026	Wonen	Woningkwaliteit	"Als sluitstuk in de wooncarrière zijn voldoende ouderenwoningen en levensloopbestendige woningen nodig, zodat Pernissers die hun hele leven in Pernis hebben gewoond niet alsnog het dorp moeten verlaten."	Levensloopbestendig Wonen
Wijkvisie Pernis 2023-2026	Wonen	Woningkwaliteit	"Voor een aantrekkelijker Pernis zal naast nieuwbouw (grotere en diverse eengezinswoningen) ook een plan gemaakt moeten worden hoe wordt omgegaan met de kleine (< 75 m2) eengezinswoningen."	Kleine Eengezinswoningen
Wijkvisie Pernis 2023-2026	Werken	Verkeer/OV, Bereikbaarheid werk	"Het behouden van de spitslijn blijft wel een aandachtspunt."	OV Spitslijn Behoud
Wijkvisie Pernis 2023-2026	Beleving	Cohesie, Participatie	"Uitgangspunt voor de bewonersinitiatieven is dat een bewonersinitiatief bijdraagt aan de sociale samenhang en binding in het dorp."	Participatie focus Cohesie
Wijkvisie Pernis 2023-2026	Veiligheid	Overlast, Handhaving	"Toch worden door het jaar heen zaken gemeld in verschillende overleggen over jongeren- en drugsoverlast."	Jongeren- en Drugsoverlast
Wijkvisie Tarwewijk 2023-2026	Wonen/ Beleving	Afval, Overlast	"We constateren verschillende afvalproblemen. Zo is er bovengemiddeld veel grofvuil, op willekeurige momenten in de week en op de meest willekeurige locaties."	Grofvuil en Afvalproblemen
Wijkvisie Tarwewijk 2023-2026	Wonen/ Beleving	Afval, Overlast	"Ook vinden er veel zogenoemde naastzettingen van afvalzakken plaats omdat de afvalcontainers onvoldoende worden begrepen of te snel vol zitten."	Naastzettingen containers
Wijkvisie Tarwewijk 2023-2026	Wonen/ Beleving	Overlast, Geur	"Dit zorgt met name in de zomer voor ongedierte die op de vuilniszakken afkomt."	Ongedierte/Ratten (zomer)
Wijkvisie Tarwewijk 2023-2026	Wonen	Voorzieningen, Vertrouwen	"We willen een sterke koppeling zien in de informatievoorziening en idealiter komt er 1 fysiek loket in de wijk waar bewoners op een discrete manier terecht kunnen met een integrale aanpak van hun problemen."	Integraal Hulp Loket
Wijkvisie Tarwewijk 2023-2026	Wonen/ Veiligheid	Overlast, Handhaving	"In gesprekken met bewoners komt naar boven dat er bezorgdheid is over groepen personen in de gehele Tarwewijk die vaak op straat verblijven en van tijd tot tijd voor overlast zorgen op verschillende locaties in de wijk."	Overlast Personen (Intimidatie)
Wijkvisie Tarwewijk 2023-2026	Veiligheid	Veiligheidsbeleving, Vertrouwen	"Een duidelijker beeld van de lokale situatie moet beter bewezen inzicht geven in welke acties gewenst zijn."	Veiligheidsbeleving inzicht
Wijkvisie Tarwewijk 2023-2026	Beleving	Cultuur/Sport, Voorzieningen	"Voor sporten is in de Tarwewijk weinig tot geen ruimte, wel willen we het maximale uit de ruimte halen en zien dan ook kansen voor zelfontwikkeling."	Ruimte voor Sport
Wijkvisie Tarwewijk 2023-2026	Wonen	Verkeer/OV	"We zien daarom veel kansen in een nieuwe verbinding tussen ons Balkon aan de Maas en Katendrecht, een nieuwe schakel in een fijnmaziger (fiets)netwerk."	Fietsnetwerk verbinding
Wijkvisie Tarwewijk 2023-2026	Beleving	Voorzieningen, Cohesie	"Het is te veel ingericht als masculiene speelplek en te weinig voor andere doelgroepen."	Inrichting Speelplekken Diversiteit
Wijkvisie Tarwewijk 2023-2026	Beleving	Groen, Voorzieningen	"Het Mijnsherenplein en het plantsoen van de Zwartewaalstraat worden in 2023 opnieuw ingericht. Deze twee plekken leveren een grote bijdrage aan het verbeteren van buitenspelen."	Herinrichting Speelplekken
Pernis 2023-2026	Werken	**Innovatie**	"Voor de haven zorgen we dat de Rijksambities voor voldoende reductie in 2030 worden ondersteund door onze inzet op innovaties."	Inzet Innovaties Haven (Rijksambities)
Katendrecht-Wilhelminapier 2023-2026	Beleving	**Innovatie**	"De cruiseschepen aan de Wilhelminakade zijn een iconisch beeld van de wijk en onze stad. Een icoon dat we graag behouden, tegelijk moet dit icoon toekomstbestendig en schoner worden gemaakt door de aanleg van walstroom."	Aanleg Walstroom Cruiseschepen
Rozenburg 2023-2026	Wonen	**Innovatie**	"De waterstofleiding die langs Rozenburg gaat lopen, moet niet belastend zijn voor eventuele (uitbreiding van) woningbouw."	Waterstofleiding (Energietransitie)
Rozenburg 2023-2026	Beleving	**Innovatie**	"Over walstroom en verduurzaming scheepvaart is wel participatieruimte voor de wijkraden."	Participatie Walstroom Scheepvaart
Pernis 2023-2026	Werken	**Innovatie**	"Ook liggen er kansen in de omgeving om walstroom uit te breiden/aan te leggen."	Kansen Uitbreiding Walstroom
Mathenesse 2023-2026	Wonen/ Werken/ Beleving	**Innovatie**	"De komende 10 jaar wordt M4H herontwikkeld tot een dynamische plek waar wonen en werken worden gecombineerd. Met duurzaamheid en circulariteit als belangrijke pijlers."	M4H Duurzaamheid en Circulariteit
Mathenesse 2023-2026	Werken	**Innovatie**	"In de derde toren zijn diverse innovatieve bedrijven en startups gevestigd."	Vestiging Innovatieve Bedrijven
Pernis 2023-2026	Wonen/ Werken/ Beleving	**Innovatie**	"Voor Pernis biedt de duurzaamheid(stransitie) van de directe omgeving kansen."	Duurzaamheidstransitie Kansen

Appendix B: Interview questions

Doel & output

Doel: Ik wil kunnen uitrekenen hoeveel een innovatie bijdraagt aan het leven in de stad. Bijvoorbeeld: maakt het wonen fijner, zorgt het voor meer werk, voelt de buurt zich prettiger en wordt het veiliger? Dat wil ik in cijfers kunnen laten zien.

Waarom: Als bedrijven nieuwe ideeën hebben, kijken ze vaak alleen naar geld: levert het winst op? Maar zulke ideeën kunnen ook iets goeds doen voor mensen en de stad. Dat noemen we maatschappelijke waarde. Het is belangrijk dat we dat ook meenemen als we beslissen of een idee de moeite waard is.

Proces: Door gesprekken te voeren kunnen we samen bedenken welke dingen belangrijk zijn voor wonen, werken, beleving en veiligheid. Daarna geven we die dingen een cijfer. Vervolgens vragen we wijkmanagers om te zeggen wat zij het belangrijkst vinden voor hun wijk. Met dat overzicht kan ik later zien hoeveel een nieuwe oplossing (innovatie) kan bijdragen aan het leven in de wijk.

Output: Met deze informatie (via de antwoorden op de vragen) wordt een afwegingskader ontwikkeld om innovaties te beoordelen op hun maatschappelijk toegevoegde waarde voor Rotterdamse wijken. Neem bijvoorbeeld de walstroom: deze innovatie heeft een positieve milieu-impact doordat fijnstof en schadelijke emissies worden verminderd. Bovendien zorgt het uitschakelen van motoren voor minder geluidsoverlast, wat de leefkwaliteit in omliggende wijken verbetert.
Opening

Mijn afstudeeronderzoek richt zich op het zichtbaar en meetbaar maken van de maatschappelijke waarde van innovatietrajecten. Het Havenbedrijf ontwikkelt samen met partners een afwegingskader om in te schatten welke maatschappelijke waarde innovaties kunnen toevoegen, zoals het bijdragen aan de leefbaarheid en het versterken van de toekomstbestendigheid van Rotterdam.
Als wijkmanager weet u wat er leeft en speelt in uw wijk, ik zou daarom graag aan u vragen hoe u innovaties op een maatschappelijke manier zou waarderen en of beoordelen. Ik ben benieuwd naar uw inschatting van innovatie impact op uw wijk,

haar bewoners en haar ondernemers. Verder ben ik ook benieuwd naar de behoeften, randvoorwaarden en indicatoren die u als wijkmanager ziet.

In dit gesprek wil ik ook met u reflecteren op innovaties die binnen of rondom de haven plaatsvinden. Denk bijvoorbeeld aan Walstroom (stroom aan de kade voor schepen), U-space airspace (een luchtruim voor drones), drone-inspecties van infrastructuur. Dit zijn ontwikkelingen die niet alleen economisch van waarde zijn, maar ook maatschappelijke impact hebben, bijvoorbeeld op wonen, werken, veiligheid en beleving in de stad.

Opname-toestemming:
Mag ik het gesprek opnemen/transcriberen om nauwkeurig te kunnen samenvatten? De opname wordt alleen door mij gebruikt, geanonimiseerd verwerkt en daarna gewist. Gaat u daarmee akkoord?

Vragen

Binnen en rondom de haven vinden talloze innovaties plaats, met impact op onze havenstad. Denk aan nieuwe technologieën, die luchtvervuiling aanpakken, de kwetsbaarheid voor overstromingen aanpakken of de ruimtelijke ordeningen aanpakken voor meer woningen.

- Wat verstaat u onder innovatie? Wat betekent innovatie voor u in de context van uw wijk?
- Leven ideeën in de wijk, waarvan u zegt: dit kan onze wijk vooruit helpen? Noem er eens een paar en wat doet u daarmee, als u zoiets hoort?
  - Doorvragen: waarom wel of niet iets mee doen? Heeft u een voorbeeld?
- En als u nu expliciet aan de haven denkt en aan uw wijk, wat zijn dan de behoeften en ideeën die er leven?

Bespreking context maatschappelijke afwegingskader innovatie: het kader zal innovaties waarderen in 4 verschillende dimensies/thema's: wonen, werken, beleving en veiligheid.

Binnen wonen wordt vooralsnog verstaan het beoordelen van het woongenot, wat zijn bijvoorbeeld aspecten die belangrijk zijn binnen de wijk om woongenot te verbeteren. De vraag is dan hoe kunnen innovaties van de haven, in haar algemeenheid, daaraan bijdragen.

- Hoe definiëren bewoners in uw wijk woongenot?
- We kennen geluid, geur, vuil op straat, groenvoorzieningen en eventuele overstromingen. Wat zou nog meer naast dit belangrijk zijn voor uw wijk om woongenot te verbeteren?
  - Denk aan nieuwe technologieën, die luchtvervuiling aanpakken of de kwetsbaarheid voor overstromingen aanpakken of in ruimtelijke ordeningen aanpakken voor meer woningen.

Beleving gaat vooralsnog over hoe mensen zich verbonden voelen met de stad en bedrijven. Voelen ze zich betrokken, trots of juist buitengesloten? Dit helpt om te begrijpen wat participatie en community-gevoel stimuleert.

- Wat geeft bewoners in uw wijk een gevoel van verbondenheid of waardering?
  - Zijn er bijvoorbeeld initiatieven die de beleving in uw wijk in combinatie met de haven verbeteren?
  - Is hier behoefte aan? Wat zou dat kunnen zijn?.... Denk bijvoorbeeld aan krijgen/geven van rondleidingen of open dagen en/of media informatie/ events? Zou daar behoefte aan zijn? zou dat de beleving van de haven verbeteren?
- Is uw wijk trots op de Rotterdamse haven? (Ja) kunt u 3 dingen zeggen waaraan u nu aan denkt, wat door uw hoofd schoot? Wat waardeert uw wijk aan de haven? Hoe kan de haven mensen nog trotser maken? Denk aan, bedrijven, gebouwen, industrie. voorbeeld kop van zuid (75% trots (iconen)). Wat kunnen indicatoren in uw wijk zijn die hiermee te maken hebben?

Innovaties kunnen naast kansen ook bedreigingen inhouden, zo kunnen er nieuwe banen gecreëerd worden, maar andere banen zouden daardoor ook in de toekomst overbodig zijn geworden.

- Wat zijn populaire banen in uw wijk van mensen (man en vrouw en jongeren) die in de haven werken?
- Wat voor soort werk in de toekomst moet de haven bieden om mensen (man en vrouw) in uw wijk fijn werk te laten hebben?
  - Of wat zou de haven uw wijk moeten bieden om werkloosheid te voorkomen?
  - Welke indicatoren zouden dat kunnen zijn? Bijvoorbeeld om zwaar werk te verlichten met een technologie (tilhulp), ziekteverzuim door haven (hoog)

De haven werkt aan veel projecten om de haven veilig te maken, niet alleen op scheepsverkeer en milieu maar bijvoorbeeld ook op weerbaarheid en criminaliteit.

- Wat voor gevoel voor veiligheid overheerst hier? (sociaal, industrieel, ondermijning)

- Welke onveilige dingen ontstaan in uw wijk, die door de haven worden veroorzaakt?
- Met wat voor innovaties of ideeën zou de haven moeten komen om uw wijk veiliger te maken? Bijvoorbeeld, is de weg van haven naar uw wijk veilig?

Dan kom ik bij mijn laatste vraag en nog even concluderend, u heeft al heel veel gezegd:

- Hebben jullie nog ideeën hoe we uw wijk kunnen verbeteren met haven innovaties?

Dank voor uw inzichten! Uw input helpt ons om innovaties beter af te stemmen op wat belangrijk is voor de stad en haar wijken.

Appendix C: Prompts for interview analysis (Notebook LM)

Prompt:
Je analyseert interviewtranscripten met wijkmanagers in Rotterdam.
Doel: identificeer terugkerende BEHOEFTES van bewoners, niet oplossingen of innovaties.
Werkwijze:

1. Lees alle interviews volledig.
2. Extraheer uitspraken waarin een behoefte, zorg of wens van bewoners wordt beschreven.
3. Negeer concrete oplossingen, projecten en innovaties, behalve als ze expliciet een onderliggende behoefte uitleggen.
4. Label elke uitspraak met één dimensie:
    - Wonen
    - Werken
    - Beleving
    - Veiligheid
5. Cluster inhoudelijk vergelijkbare uitspraken tot behoefte-thema's.
6. Tel hoe vaak elke behoefte voorkomt over alle interviews.
7. Formuleer elke behoefte als een korte, neutrale zin vanuit bewonersperspectief.

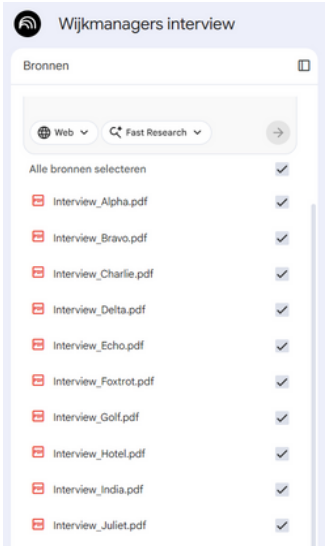
Output:

- Tabel met kolommen: Dimensie | Behoefte | Aantal interviews genoemd | Representatieve citaten
- Sorteer per dimensie op frequentie (hoog → laag).

Prompt:
Welke behoeften van [wijk] wordt hier benoemd en in welke dimensie van wonen, werken, beleving en veiligheid? en welke ideeën spelen hier? en welke behoeften zijn het belangrijkst? en wat is de nulmeting? kan je dit schematisch neerzetten?

Important note:
NotebookLM was used to identify and cluster needs. The tool suggests relevance based on repetition and emphasis in language. This is sensitive to interview length and speaking style. Therefore, each need is manually traced back to specific transcript fragments by the author and certain criteria are examined, namely frequency across respondents, explicit urgency and expected impact on daily life. Only statements that can be substantiated with quotes are included.

All interviews were uploaded to NotebookLM, which was used to extract statements about the neighbourhood's needs. The transcripts were processed in a single batch, among other things. NotebookLM then identified recurring needs by analysing how often topics were mentioned in the entire series of interviews. This was characterised according to how often a need was mentioned and could be found via the quotes provided. The comments made in each neighbourhood were also examined to see which needs were mentioned in each neighbourhood.



Appendix D: Interview findings, neigbhourhood level

Hoogvliet

In the past, many residents worked at Shell, which even built housing locally, but today most work as freelancers in care or cleaning. The area has many low-educated residents and youth who struggle with technological change. Suggested actions include early exposure to the port through annual school excursions to Portlantis and financial support for local initiatives, as many projects fail due to cost. More port-related jobs and attention to housing and accessibility could strengthen connection and trust.

Katendrecht & Wilhelminapier

Katendrecht has changed significantly: the port has largely disappeared and younger residents lack awareness of its history. The area is now urbanized and “gentrified.” Accessibility to port jobs is poor; without transport options, many youths cannot afford cars, increasing risks of illegal work. There is a need for better visibility of the port and early career orientation in schools, plus improved transport. On Wilhelminapier, cruise ships cause nuisance and little greenery drives residents away, though icons like Hotel New York remain valued.

Pernis

People in Pernis really live and work around the port. They sometimes know what is going on faster than civil servants and enjoy being able to share that information. This demonstrates solidarity and participation, but also a clear need to work in the vicinity of Pernis, so that they are the first to know. Living, working and experience are inextricably linked here. There is a wealth of knowledge in Pernis, which residents are happy to share with the port. Because they have been working and involved there for so long, they often have solutions to problems.

Rozenburg

At first glance, the problems in Rozenburg seem minor. Some residents complain about loitering youths and safety, but their concerns are often based on perception rather than facts. Former dock workers still live in Rozenburg, but their connection to the port has faded. Strengthening this connection, for example by organising guided tours for the local population, could help. Residents also want to be informed about innovations at an earlier stage and feel that they have influence, which promotes pride and legitimacy.

Carnisse, Zuiderpark & Zuidplein

There is a high poverty and a large group (30%) of Eastern European labour migrants, often working in the port or elsewhere. Safety concerns relate to possible illegal activities linked to the port. The area aims to attract higher-educated residents, requiring suitable housing and jobs. Cultural tensions and neighbour conflicts highlight the need for more participation. For youth, proximity to the port offers opportunities for work and development, creating potential for stronger engagement and improved social cohesion.

Hoek van Holland

Health and safety concerns arise due to nearby industry, with residents seeking more transparent data. The village faces aging population and housing shortages, limiting opportunities for youth. Locals feel overlooked as housing projects prioritize Rotterdam and the port. Many work in the port, but migrant workers from Westland sometimes cause nuisance when unemployed and unhoused. Despite good metro links, Hoek van Holland still feels distant from Rotterdam and its connection to the city remains weak.

Delfshaven & Schiemond

Faces poverty, unemployment and organized crime, with youth often drawn into illegal activities as their only perceived option. Overcrowded living conditions and limited opportunities worsen the problem. Initiatives to connect generations exist but have short-term impact. Surrounded by water, the area seeks ways to use it for cooling, despite safety restrictions. Local groups like Buurt Bestuurt foster connection. Proximity to M4H offers job potential and dialogue with residents could strengthen ties.

Mathenesse

Struggles with poor housing and low living comfort, but its proximity to M4H offers opportunities for improvement and hope. Residents value the port's historic identity and want to keep its visible icons. However, access to port jobs is limited; a local center showing career options and buddy programs could help. Open hiring days already spark interest. Sustainability is also key: affordable solutions like heat pumps are needed. A local educational hub, similar to Portlantis but within the neighbourhood, would strengthen engagement and visibility.

Heijplaat

New residents are moving to Heijplaat who appreciate the area for its robust and raw character, despite the lack of amenities and the high cost of housing. At the same time, there are people who have lived there for a long time and enjoy talking about what is happening, for example by giving guided tours at RDM. Often, generations – from father to son – work in this area. The history of this place must not be lost; the lives of its inhabitants unfold here and they wish to contribute based on pride and history.

Oud-Charlois & Wielewaal

Collaboration with the Port Authority feels new and promising. Residents mainly worry about nuisance from Waalhaven (noise, smell), with solutions like shore power and sound monitoring suggested. The area has strong cultural roots, heritage buildings and a large artist community, creating identity and pride. While the port is valued for jobs and economic impact, nuisance can overshadow this. The neighbourhood is diverse, with many vulnerable labour migrants facing fewer job opportunities, risking exploitation and social issues.

Hillesluis

A multicultural neighbourhood with a large Turkish community. There are EU labour migrants, who face poor working conditions and exploitation, especially in port-related jobs. There is a strong need for better employer practices and fair treatment. Mobility is another challenge: without cars, reaching the port is difficult and time-consuming, especially with irregular shifts. Migrants often live in poor housing and risk dismissal when sick, creating a harmful cycle where workers are easily replaced, reinforcing an unhealthy system.

Appendix E: Co-creation session presentation

Agenda

- Welcome & introduction
- Check-in
- Briefing (context)
- Problem finding
- Break
- Problem definition
- Break
- Idea finding
- Finished!

Code of conduct

Check-in

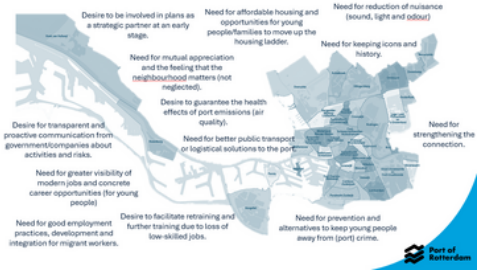
- Who are you?
- How are you feeling?
- What was the last time you heard someone (other than colleague) say something about the PoR?
- What do you expect?

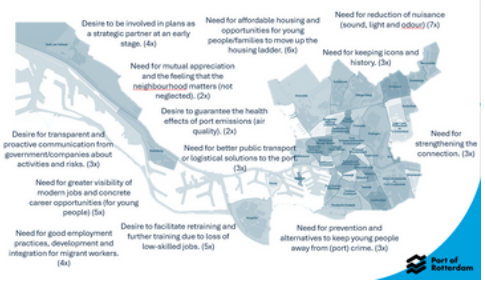
Briefing

- Why societal value for the port?
- Dimensions (living, working, experience and safety)
- What needs are there for neighbourhoods?

Energizer!!!

"Out of character"





What do you see as the biggest challenges in the relationship between the port and the neighbourhoods?

Break! (5 min)

Reverging & converging

- What do we see as pattern?
- Clustering
- Hits and dots

SPARK the Problem

- Restating the problem
  - Specific
  - Positive
  - Ambitious
  - Relevant
  - Keep it simple

How might we [PaP]

Break! (5 min)

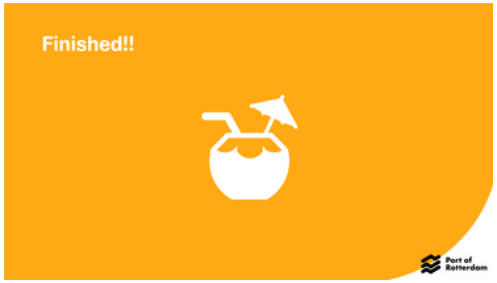
Energizer!!!

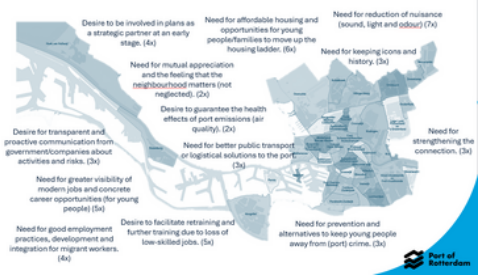
"Out of character"

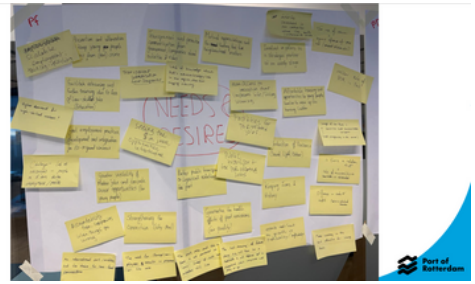
Parking lot

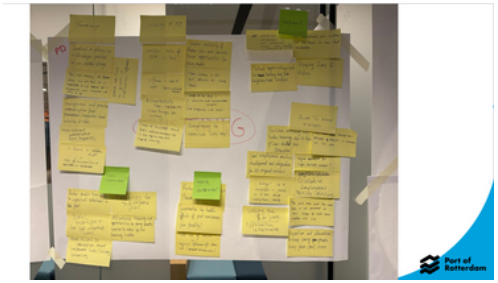
- Write down first thoughts
- Park them in the parking lot

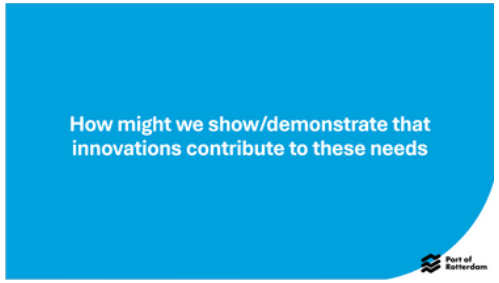
Appendix F: Co-creation results





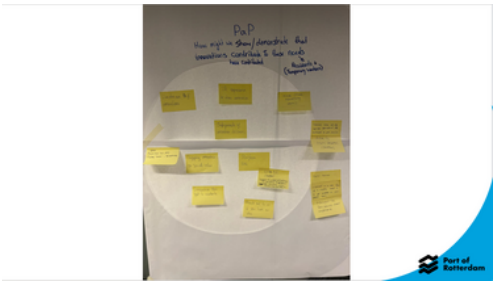






Parking lot

- Write down first thoughts
- Park them in the parking lot



Appendix G: Context stories of neighbourhoods

Hoek van Holland

A conservative community with strong social cohesion but an increasing sense of distance from the city. Pride in local employers exists, yet the port is increasingly perceived as a threat due to industrial interests taking precedence over housing development. There are concerns about air quality.

- Need for healthy air quality and trust in environmental monitoring
- Need for housing opportunities for young people without compromising protected nature areas
- Need for continued access to and use of the dune landscape

- Need for strong and reliable home-to-work connections with the port
- Need for local employment that aligns with the village character

- Need to preserve maritime and military heritage
- Need for recognition of the village identity

- Need for transparent communication about emissions and environmental risks

Rozenburg

A village with a deeply rooted connection to the port, built around industrial employment. Pride is present, alongside a minor feeling of anxiety about spatial pressure caused by further industrial expansion and a more major feeling of noise disturbance.

- Need to reduce light and noise disturbance
- Need to protect green spaces and liveability

- Need to safeguard local employment
- Need for certainty regarding the arrival or departure of large industrial actors

- Need for recognition as a strategic partner in decision-making
- Need to position residents as proud ambassadors of the area
- Need for meaningful involvement in port development plans

- Need for clear and timely communication during incidents

Hoogvliet

A spacious, green residential area with a largely vocationally educated population employed in construction, care, and the port. Direct economic dependence on the port is declining, while liveability is under pressure due to traffic congestion and limited prospects for young residents.

- Need for affordable housing for starters
- Need to reduce everyday traffic pressure
- Need for long-term job and career perspectives for young people
- Need to better connect education, housing, and port-related work
- Need to sustain and renew pride in the port
- Need for visible engagement of the port and companies within the neighbourhood
- Need for prevention of school drop-out and youth criminality

Heijplaat

A neighbourhood with a strong historical bond to the port through the RDM, increasingly divided between long-term residents and new "pioneers". Social and spatial contrasts are becoming more visible.

- Need to reduce nuisance of flies
- Need for better accessibility by water and land
- Need to strengthen connections between residents and surrounding port companies
- Need to preserve and celebrate industrial and maritime heritage
- Need to position residents as proud ambassadors of the area
- Need for clear communication about port-related activities

Pernis

A close-knit "village-like" community with strong social ties and the lowest unemployment rate in Rotterdam. The relationship with the port is historically strong but marked by high environmental pressure and concern about large-scale developments.

- Need to reduce environmental nuisance (noise, odour, particulate matter)
- Need for reassurance regarding health impacts
- Need to preserve technical and industrial employment
- Need for recognition of the local work culture
- Need for early involvement in major port projects
- Need for visible engagement of the port and companies within the neighbourhood
- Need to understand what is happening during incidents and industrial activities
- Need for trust in safety measures and procedures

Mathenesse

An ageing neighbourhood with limited housing mobility and visible socio-economic challenges. The port offers employment opportunities, but connections remain underdeveloped.

- Need to improve housing quality and insulation
- Need for housing provided by port companies
- Need to address waste and littering issues
- Need for fair access to employment for labour migrants
- Need for supported learning-and-working trajectories (buddy system)
- Need to reconnect with the rough industrial port heritage
- Need to have an experience center in the area
- Need for facilities that foster social interaction
- Need for social stability and future perspective

Delfshaven - Schiemond

A neighbourhood facing hidden poverty, where young people are vulnerable to criminal recruitment. Despite physical proximity, the port feels distant from daily life.

- Need to reduce night-time disturbance from shipping
- Need for safe recreational use of water spaces
- Need for accessible employment in nearby port areas (M4H)
- Need for meaningful programs for young people
- Need to make the relationship with the port more visible
- Need to prevent youth involvement in criminal activities

Katendrecht - Wilhelminapier

A neighbourhood transformed from a working-class port area into a gentrified district. Strong contrasts exist between long-term residents and newcomers.

- Need to mitigate heat stress and lack of green space
- Need to reduce environmental pressure from cruise shipping
- Need for locally embedded employment opportunities
- Need for programs to prepare youth for port-related work
- Need to strengthen social cohesion between old and new residents
- Need to redefine the future role of cruise shipping in the area
- Need to manage crowding and public safety

Oud Charlois & Wielewaal

A unique mix of artistic communities and EU labour migrants in historic housing areas. The port is deeply rooted in family histories but increasingly experienced as a source of nuisance.

- Need to structurally reduce noise and odour disturbance
- Need for suitable housing for elderly residents
- Need for future-proof employment for practically educated workers
- Need for programs to prepare youth for port-related work
- Need for more active engagement with nearby industrial zones
- Need to protect neighbourhood identity
- Need to address organized crime and undermining

Tarwewijk

A neighbourhood facing serious waste, vermin, and safety challenges, combined with complex social problems.

- Need to address waste and pest infestation
- Need for safe and inclusive play areas
- Need for integrated support in cases of multi-problem households
- Need for accessible neighbourhood facilities
- Need for places that encourage social interaction
- Need for clarity and safety in public space

Appendix H: Innovation ecosystem 2025

Carnisse, Zuidplein & Zuiderpark

A historically working-class area with high diversity and socio-economic pressure. Psychological distance to the port remains large.

- Need to improve housing quality
- Need for suitable housing pathways for diverse groups
- Need for employment integration for EU labour migrants
- Need for programs to prepare youth for port-related work
- Need to bring the port closer, both physically and mentally
- Need to prevent exploitation and criminal recruitment

Hillesluis

A highly diverse neighbourhood with strong internal bonds but limited access to opportunities in the city and the port.

- Need to address overcrowding and housing exploitation
- Need to reduce excessive commuting times
- Need for employer investment in language and skills development
- need to reduce long commuting times to work
- Need to strengthen connections between diverse communities
- Need to preserve local entrepreneurship
- Need to protect labour migrants from abuse and misinformation

Appendix I: Implementation roadmap

Phase 1: ownership & preparation

- Assign facilitator / Product Owner
- Prepare artefacts
- Frame system as dialogue

Phase 2: neighbourhood alignment

- Intro session with district managers
- Shared understanding
- Explicit value for them

Phase 3: needs update (every 6 months)

- Digital needs check-in
- Confirm/ adjust needs
- Limited new inputs

*This phase can be skipped once per 3 months

Phase 4: first innovation cycle (every 3 months)

- Standarised innovation input + pitch (video)
- Impact Map session
- Interpretation & dialogue

Phase 5: feedback & consolidation

- Stable output in Miro
- Summary + contact points
- Separate feedback moment with district managers and innovators

Phase 6: iteration & stabilisation

- Refine script & artefacts
- Address failure scenarios
- Run multiple cycles

Appendix J: Neighbourhood need check-in

Appendix K: Project brief

DESIGN FOR our future

TU Delft

IDE Master Graduation Project

Project team, procedural checks and Personal Project Brief

In this document the agreements made between student and supervisory team about the student's IDE Master Graduation Project are set out. This document may also include involvement of an external client, however does not cover any legal matters student and client (might) agree upon. Next to that, this document facilitates the required procedural checks:

- Student defines the team, what the student is going to do/deliver and how that will come about
- Chair of the supervisory team signs, to formally approve the project's setup / Project brief
- SSC E&SA (Shared Service Centre, Education & Student Affairs) report on the student's registration and study progress
- IDE's Board of Examiners confirms the proposed supervisory team on their eligibility, and whether the student is allowed to start the Graduation Project

STUDENT DATA & MASTER PROGRAMME

Complete all fields and indicate which master(s) you are in

Family name	[redacted]	IDE master(s)	IPD ☐ Dfl ☐ SPD ✔
Initials	[redacted]	2nd non-IDE master	
Given name	[redacted]	Individual programme *(date of approval)*	
Student number	[redacted]	Medisign	☐
		HPM	☐

SUPERVISORY TEAM

Fill in he required information of supervisory team members. If applicable, company mentor is added as 2nd mentor

Chair	[redacted]	dept./section	[redacted]
mentor	[redacted]	dept./section	[redacted]
2nd mentor	[redacted]		
client:	[redacted]		
city:	[redacted]	country:	[redacted]
optional comments	[redacted]		

! Ensure a heterogeneous team. In case you wish to include team members from the same section, explain why.

! Chair should request the IDE Board of Examiners for approval when a non-IDE mentor is proposed. Include CV and motivation letter.

! 2nd mentor only applies when a client is involved.

APPROVAL OF CHAIR on PROJECT PROPOSAL / PROJECT BRIEF -> to be filled in **by the Chair** of the supervisory team

Sign for approval (Chair) [redacted]

Name [redacted] Date [redacted] Signature

CHECK ON STUDY PROGRESS

To be filled in **by SSC E&SA** (Shared Service Centre, Education & Student Affairs), after approval of the project brief by the chair.
The study progress will be checked for a 2nd time just before the green light meeting.

Master electives no. of EC accumulated in total ____ EC

Of which, taking conditional requirements into account, can be part of the exam programme ____ EC

✓	**YES**	all 1st year master courses passed
	NO	missing 1st year courses

Comments:

Sign for approval (SSC E&SA)

Name [redacted] Date [redacted] Signature [redacted]

APPROVAL OF BOARD OF EXAMINERS IDE on SUPERVISORY TEAM -> to be checked and filled in by IDE's Board of Examiners

Does the composition of the Supervisory Team comply with regulations?

YES	✓	Supervisory Team approved
NO		Supervisory Team not approved

Comments:

Based on study progress, students is ...

✓	**ALLOWED** to start the graduation project
	NOT allowed to start the graduation project

Comments:

Sign for approval (BoEx)

Name [redacted] Date [redacted] Signature [redacted]

DESIGN FOR our future

TUDelft

Personal Project Brief – IDE Master Graduation Project

Name student [redacted] Student number [redacted]

PROJECT TITLE, INTRODUCTION, PROBLEM DEFINITION and ASSIGNMENT

Complete all fields, keep information clear, specific and concise

Project title Designing a strategic framework for ecosystem orchestration in the Port of Rotterdam

Please state the title of your graduation project (above). Keep the title compact and simple. Do not use abbreviations. The remainder of this document allows you to define and clarify your graduation project.

Introduction

Describe the context of your project here; What is the domain in which your project takes place? Who are the main stakeholders and what interests are at stake? Describe the opportunities (and limitations) in this domain to better serve the stakeholder interests. (max 250 words)

The Port of Rotterdam is Europe's largest port and a global hub for trade, energy, and industry. It operates as a complex innovation ecosystem with diverse stakeholders, including global corporations, SMEs, public authorities, knowledge institutes, branch organisations, and other societal stakeholders. These stakeholders are highly interdependent, yet organisationally autonomous, which makes coordination, legitimacy, and long-term value creation particularly challenging.

Although a roadmap towards 2030 exists, many innovation initiatives within the port remain isolated or short-lived due to unclear ownership, limited stakeholder alignment, and the absence of a shared long-term vision (fragmented). Innovation in this capital-intensive domain rarely originates from start-ups; instead, systemic change depends on large established firms ("Leaderfirms") such as Shell, Eneco, Rabobank, Deltares, Unit45, Fugro, BAM, and Damen. Yet these firms are often difficult to engage structurally. At the same time, societal stakeholders, such as residents, unions, municipalities, and NGOs, expect the port to prove its wider contribution to sustainability, inclusivity, and quality of life. This social license to operate (LTO) is under increasing pressure. The Port Authority aims to position itself as an orchestrator of this fragmented ecosystem. But faces 5 barriers: 1) infrastructural bottlenecks (e.g., grid congestion), 2) regulatory complexity, 3) talent shortages, 4) geopolitical uncertainties, and 5) the challenge of legitimacy. Next to that, orchestration is not only a strategic challenge of directions-setting and portfolio management, but also a relational challenge: building trust, legitimacy and aligning diverging interests (barrier 5). Success depends on connecting innovation efforts to broader economic, environmental, and societal value. This graduation project explores how the Port Authority can credibly strengthen its orchestration role by enabling a shared vision with leaderfirms and societal stakeholders, building conditions for trust, and linking innovation to long-term value creation and the port's LTO.

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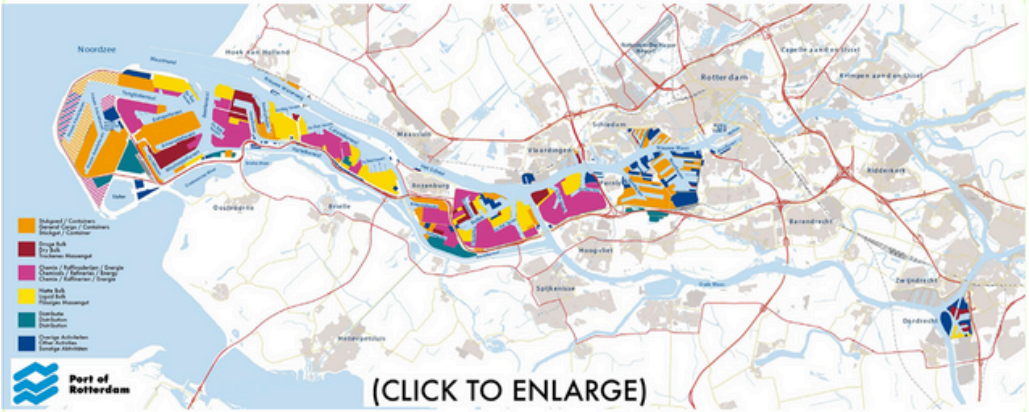

image / figure 1 Map of Segments at the Port of Rotterdam

image / figure 2 Leadingfirms (62) of the Port of Rotterdam

DESIGN FOR our future

TUDelft

Personal Project Brief – IDE Master Graduation Project

Problem Definition

What problem do you want to solve in the context described in the introduction, and within the available time frame of 100 working days? (= Master Graduation Project of 30 EC). What opportunities do you see to create added value for the described stakeholders? Substantiate your choice.
(max 200 words)

Despite being Europe's largest port, the port area struggles to realise systemic innovation within its fragmented innovation ecosystem. Many innovation initiatives are launched but remain isolated, lack strategic alignment, and fail to achieve long-term impact. This is particularly visible in capital-intensive sectors such as energy, smart logistics, and security, where large Leaderfirms play a decisive role but often lack awareness of eachother's innovation agendas. The result is duplication, missed synergies and limited systemic progress. At the same time, societal stakeholders, including institutional investors (pension funds), municipalities, regional and national governments, labour unions, branch organisations, knowledge institutes and local communities, feeling the urgency and are seeking broad value creation. This aligns with the ambitions of the Port of Rotterdam, whose two main shareholders (municipality and state) also emphasise legitimacy and accountability. Without stronger alignment, trust, and a shared long-term vision, targeting a 30% increase in innovation within 5 years, the Port Authority risks losing its Social License to Operate (LTO).

The core problem is therefore twofold: 1) Leaderfirms with their innovations do not contribute to broader societal value. 2) Leaderfirms are missing, within their innovation ecosystem, a systemic orchestration approach. So a solution is needed to connect innovation to LTO, thereby translating societal value creation into sustained shareholder value.

Assignment

This is the most important part of the project brief because it will give a clear direction of what you are heading for. Formulate an assignment to yourself regarding what you expect to deliver as result at the end of your project. (1 sentence) As you graduate as an industrial design engineer, your assignment will start with a verb (Design/Investigate/Validate/Create), and you may use the green text format:

Design a strategic framework for the Port of Rotterdam that enables alignment between Leaderfirms and societal stakeholders to increase innovation.

Then explain your project approach to carrying out your graduation project and what research and design methods you plan to use to generate your design solution (max 150 words)

This project will use a strategic design approach with three phases: Frame – Design – Apply.
Frame – Mapping interests & conditions
Analyse 3 case studies (Schiphol, Brainport and Rotterdam Maritime Board). Conduct interviews with leaderfirms to understand their motivations and value capture. In parallel, map/interview the priorities of societal stakeholders (knowledge institutes, branch organisations, NGOs, authorities) in terms of broad value creation and legitimacy.
Design – Creating orchestration concepts
Develop strategic frameworks, scenarios, and boundary objects that explicitly connect the value agendas of leaderfirms with those of societal stakeholders. Explore how the Port Authority can credibly position itself as orchestrator by linking innovation to broad societal value and LTO.
Apply – Testing & validation
Test the framework and roadmap (pilot) with both groups through co-creation sessions. Use visuals (value maps, scenario pathways) to align perspectives. Deliver a strategic framework that shows how the Port can orchestrate systemic innovation while building legitimacy and shared direction.

Project planning and key moments

*To make visible how you plan to spend your time, you must make a planning for the full project. You are advised to use a Gantt chart format to show the different phases of your project, deliverables you have in mind, meetings and in-between deadlines. Keep in mind that all activities should fit within the given run time of 100 working days. Your planning should include a **kick-off meeting**, **mid-term evaluation meeting**, **green light meeting** and **graduation ceremony**. Please indicate periods of part-time activities and/or periods of not spending time on your graduation project, if any (for instance because of holidays or parallel course activities).*

Make sure to attach the full plan to this project brief.
The four key moment dates must be filled in below

Kick off meeting	15 sept 2025
Mid-term evaluation	10 nov 2025
Green light meeting	19 jan 2026
Graduation ceremony	9 feb 2026

In exceptional cases (part of) the Graduation Project may need to be scheduled part-time. Indicate here if such applies to your project

Part of project scheduled part-time	
For how many project weeks	
Number of project days per week	

Comments:

Motivation and personal ambitions

Explain why you wish to start this project, what competencies you want to prove or develop (e.g. competencies acquired in your MSc programme, electives, extra-curricular activities or other).

Optionally, describe whether you have some personal learning ambitions which you explicitly want to address in this project, on top of the learning objectives of the Graduation Project itself. You might think of e.g. acquiring in depth knowledge on a specific subject, broadening your competencies or experimenting with a specific tool or methodology. Personal learning ambitions are limited to a maximum number of five.
(200 words max)

What drives me in this project is the opportunity to apply strategic design in a real, impactful context like the Port of Rotterdam. The Port's innovation ecosystem brings together many independent stakeholders with different goals, which makes designing for collaboration and long-term value extra meaningful. I see this project as an opportunity to contribute to systemic change, while also developing the strategic tools to guide it.

One of my main ambitions is to become more confident in dealing with stakeholder dynamics. I want to better understand how to deal with conflicting interests, power differences and different agendas, especially in complex, political environments. I am aware that in the real world, not all voices carry equal weight and I want to learn how to ensure that all relevant perspectives are heard and still work towards a shared vision.

I also want to enhance my ability to design strategic frameworks that are not only conceptually strong, but also implementable and accepted by various stakeholders. This includes learning how to apply orchestration theories in practice and how to use design tools to support alignment, negotiation and collective decision-making.

Port of Rotterdam

TU Delft

Faculty of Industrial Design Engineering