

Monitoring what matters to the City and her Citizens
Bridging the gap between monitoring frameworks and the
lived experiences of citizens

Laura van der Linden

August 2024
MSc. Strategic Product Design
Faculty of Industrial Engineering
Delft University of Technology

In collaboration with
Amsterdam Institute for Advanced Metropolitan Solutions

**Supervisory team
Chair**

Assistant Professor Faculty of Industrial Design Engineering
Delft University of Technology
Dr. A. (Achilleas) Psyllidis

Mentor

Assistant Professor Faculty of Industrial Design Engineering
Delft University of Technology
Dr. C.J. (Carissa) Champlin

Company Mentor

Program Developer at AMS Institute
A.L.P. (Arnout) Sabbe

Executive Summary

As the digitization of society has bestowed cities with an immense amount of data, cities are using data to inform, monitor, evaluate and measure their performance towards policy objectives. However, it was found that monitoring frameworks are biased by the perspectives of monitor developers, making their viewpoints and opinions dominant in shaping policies and public perception. Next to this, the aggregated metrics of monitoring frameworks overlook the experience of outliers thereby masking and excluding local differences and issues. These limitations lead to a gap between monitoring systems and the reality of lived experiences of citizens. With data-driven decision making being increasingly adopted by policymakers, it is imperative to investigate how these disparities can be minimized.

Literature suggests including citizens in the development of urban monitoring systems can positively contribute to aligning monitoring frameworks with the lived reality of citizens. The goal of this thesis was therefore to explore how citizen engagement with monitoring frameworks can be effectively achieved. In doing so this thesis explored two main components, being 1) how citizens can be effectively engaged with monitoring frameworks and 2) how their local knowledge can be incorporated in monitoring frameworks. This was done through a case study for the Ideal(s) City monitoring framework, developed by the AMS Institute and the City of Amsterdam.

The project took a participatory research-through-design approach where through the testing and evaluation of design interventions practical learnings about citizens' local knowledge and participative capabilities were combined with theory. Besides, expert interviews and interviews with municipal

stakeholders, such as a policymaker and a monitor developer, were conducted to gain a better understanding of the context of urban monitoring and policymaking. By combining the insights of these design interventions, interviews and literature, a process for citizen engagement with accompanying guidelines were developed and the potential role of local knowledge was identified.

It was found that local knowledge of citizens can play three roles in monitoring frameworks: 1) Identifying missing indicators in the current monitoring frameworks to minimize disparities between citizen perspectives and urban monitors, 2) providing new connections among (existing) indicators and 3) assigning weight of importance to indicators to reflect the diverse concerns and experiences of citizens. Including this local knowledge can support policymakers in making more informed policy decisions and trade-offs, considering the diverse needs of the local context.

The thesis concludes with presenting a guidebook depicting a process for citizen engagement with monitoring frameworks targeted at monitor developers. Through actionable steps and guidelines, this guidebook aims to support AMS and other monitor developers to set the first steps in aligning urban monitors with the lived experiences of citizens. To ultimately monitor what matters to the city and her citizens.

Table of Contents

0. Introduction	9	6. Discussion & Conclusion	80
0.1 Introducing the problem space & scope	10	6.1 Implications and points of consideration for monitoring frameworks and policy decisionmaking	82
0.2 Project Approach	13	6.2 Recommendations	86
0.3 Project Process & Chapter overview	16	6.3 Conclusion	88
1. Understanding the Context	18	Personal Reflection	91
1.1 Monitoring in Policymaking	20	References	92
1.2 Ideal(s) City framework	22	Appendix	96
1.3 Stakeholders for this project	26	A: Design brief	
2. Exploring the problem	30	B: Wellbeing Dashboard	
2.1 Introducing the system and local context	32	C: Designed Guidebook	
2.2 Limitations of (current) Monitoring Frameworks	33		
2.3 Analyzing the Ideal(s) City framework	38		
2.4 Identifying the Needs of Policymakers and Citizens	39		
3. Reframe	44		
3.1 Reframe	46		
4. Researching through Design	48		
4.1 Expert interviews on Citizen Participation	50		
4.2 Street interviews with citizens	53		
4.3 Insights street interviews	55		
4.4 Co-Creation workshop: Identifying factors for Safety	59		
4.5 Insights Co-Creation workshop	61		
4.6 Comparing the results of the co-creation workshop and the Ideal(s) City framework	64		
5. Conceptualizing a process for citizen engagement	70		
5.1 Synthesizing insights into a process for citizen engagement with monitoring frameworks	72		
5.2 Presenting the process for citizen engagement with monitoring frameworks	75		
5.3 Presenting the guidebook	77		

0.



Introduction

In this chapter an introduction to the problem space, the scope describing the research question and design goal, and the project approach and methodology are discussed.

- > 0.1 Introducing the problem space & scope
- > 0.2 Project Approach
- > 0.3 Project Process & Chapter overview

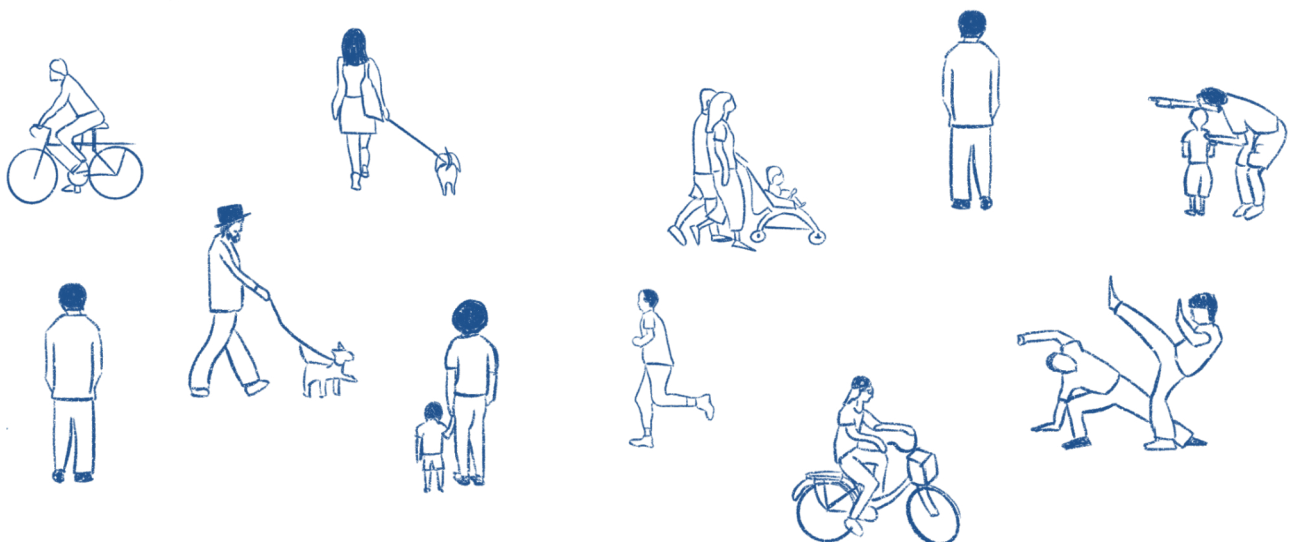
0.1 Introducing the problem space & scope

Amidst the urgent challenges posed by climate change and the rapid advancement of digitization, the concepts of the sustainable city and the smart city are converging (Bibri, 2021). The digitization of society has bestowed cities with an immense amount of data, ranging from information about energy consumption and air quality in public spaces to the well-being of their citizens. Through this wealth of 'urban data', cities can monitor, evaluate, and measure their performance towards sustainability targets, enabling them to make more informed decisions in policy and urban planning. With this data, an overview of the city can be created allowing us to take a holistic and integrated approach to the challenges of the city. As these new technological forms of monitoring and management are implemented, Cities are empowered to manage more efficiently and effectively on a dynamic basis rooted in strong evidence (Bibri, 2021).

While this abundance of data holds significant value for cities, there is a need to guard against viewing the city as a "giant optimization machine" (Helbing, et al. 2021; Mattern, 2017). Decisions made by cities must reflect all facets of society, requiring considerations of what is best for the city and its citizens. Given the complex and intertwined nature of urban challenges, decisions may encounter conflicting values. Therefore trade-offs need to be made. And to do so deliberately, monitors should enable cities to make these trade-offs explicit and visual (Massaro et al., 2020; Pouw et al., 2021). Furthermore, urban data often focus on input-

oriented metrics rather than output-oriented outcomes, measuring basic interventions without sufficiently addressing the human implications of the information (Jain, 2022). For instance, while data may quantify the amount of lampposts in a street or the amount of traffic, it might not assess how these factors are related to the perceived safety of citizens. Additionally, urban data are unevenly distributed across social groups and urban spaces, making it challenging to formulate crucial indicators to investigate disparities between groups or neighborhoods (Robinson et al., 2023; Jain, 2022).

Thus, while there are significant opportunities for utilizing data in urban decision-making processes within city, there is also a risk of fostering a form of technocratic governance that exacerbates inequalities within society. To address these disparities in the city, it is crucial not to lose sight of its citizens. Ensuring that governance and decision-making processes in the city remain democratic, reflecting the needs of society, requires shaping the use of (information) technology accordingly (Bibri, 2021; Helbing et al., 2021). As stated by Hachem et al., "In democratic political systems, optimization in cities also means being responsive to the observations, attitudes, and demands of their citizens" (Hachem et al., 2014). However, the idea of citizen participation in the design and control of these systems has been missing. As Bibri argues the top-down model of smart urbanism is unable to address people-oriented agendas and respond to the needs of citizens (Bibri, 2021). Pouw et al. (2021) also state that the voice



With this framework the team of AMS researchers aim to 'monitor what matters' for the City of Amsterdam by using Amsterdam's values and aspirations in the form of ideals. With these ideals as objectives to measure city performance, such as 'Be a safe and healthy city', the Ideal(s) City framework focuses on the human implications of urban data. While this focus on values (in the form of city ideals) is already a step towards a less input-oriented monitor, the AMS researchers recognized that to truly 'monitor what matters', they also need to identify what matters to Amsterdam's citizens. Up until now, the citizen perspectives on the Ideal(s) City framework have been lacking. This provides an interesting case for this thesis to explore how the Ideal(s) City framework can be aligned with the diverse experiences of Amsterdam's citizens.

At the moment, the City of Amsterdam is collaborating with the AMS institute to implement this framework within the municipality's organization. This will significantly change the approach of monitoring within the municipality. Where the current monitors of the municipality still often exist independently and operate in the silos of the departments, soon the entire organization will use the framework of the Ideal(s) City team. This integral approach to monitoring enables policymakers to make policy decisions and trade-offs that span multiple departments of the organization explicit.

The prominent role that the Ideal(s) City framework will play within the municipality and its holistic and integrated approach of measuring the progress of the city offer an interesting case. When the framework is able to better reflect the perspectives of citizens, the impact will be organization-wide.

Design goal

To effectively monitor what matters to the city and her citizens, AMS wants to identify how the Ideal(s) City framework can better align with citizens' perspectives. While AMS recognizes the importance of incorporating these perspectives, methods to achieve this remain underexplored.

To investigate how citizens can play an active role in the development and evaluation of urban monitoring frameworks, this research intends to create a practical approach to align the Ideal(s) City framework with the perspectives of Amsterdam's citizens. This involves transforming the insights gained from tested design interventions into a proposal for a process for citizen engagement described in actionable steps. This tailored process will serve as a practical tool to support AMS in making the Ideal(s) City framework more citizen-centric.

Furthermore, this study aims to use the Ideal(s) City framework as a case study, to inspire other monitor developers and civil servants to more actively include citizen perspectives in their urban monitors.

This leads us to the following design goal:

Develop an actionable process for monitor developers to incorporate citizen perspectives in monitoring frameworks through citizen engagement. With the overarching aim of aligning system and local context in urban monitoring systems to enable responsive policymaking.

0.2 Project Approach

This chapter outlines the approach and methodology used to address the design research question in this thesis. This project focuses on policymaking in the complex urban context of Amsterdam. Designing for policymakers in a city like Amsterdam is challenging due to the vast number of stakeholders involved, each with unique interests. Furthermore, research by Kitchen (2014) state these stakeholder interests are often interconnected or conflicting and constantly

evolving which further add to the complexity of the problem. To address this complexity, it was decided to apply the systemic design process by the Design Council (2021) that is equipped for handling multifaceted systemic challenges such as this one. This approach outlines how small interventions have an ability to catalyze broader systemic change, for instance within the policymaking process.

Design Principles

The following four design principles are inherent to the systemic design process and are applied throughout this thesis:



Stakeholder involvement

Throughout this project, engagement with multiple stakeholders took place. Regular meetings with the team from AMS, interviews with stakeholders from the municipality, as well as design interventions to engage with citizens. By actively involving these stakeholders their diverse perspectives could be used to inform decision making in the project.



Iterative process

Going back and forth between design phases to allow the evaluation, refinement, and reframing of problem definitions and design interventions. By learning from discoveries and insights made throughout the project these could be used to iteratively test new design interventions. It is also recognized that the outcomes of this project are also non-static and should be iterated on further in the future.



Zooming in and out

Looking at a micro-level from personal interactions with citizens to the larger macro-level of the context of the system. For this project this meant exploring and testing concrete tangible tools with citizens as well as exploring the overarching strategy of monitor development and the role it can play in policymaking.



People-centred

Looking at the fundamental values of the people in contact with the system as these will be impacted by any design intervention that is deployed. This is in contrast to the current technology-driven approach and data-centered framework utilized by AMS. The focus in this project was primarily on the citizens and their perspective. Using these to build a bridge to the framework, rather than working from framework to citizen level.

Elements of systemic design

The systemic design process consists of several phases and elements. It is built off of the traditional design process by UK Design Council (2021) that they refer to as the double diamond model. As mentioned previously this process is built primarily around divergent and convergent thinking but in a systemic design process there are some additional elements. These include:

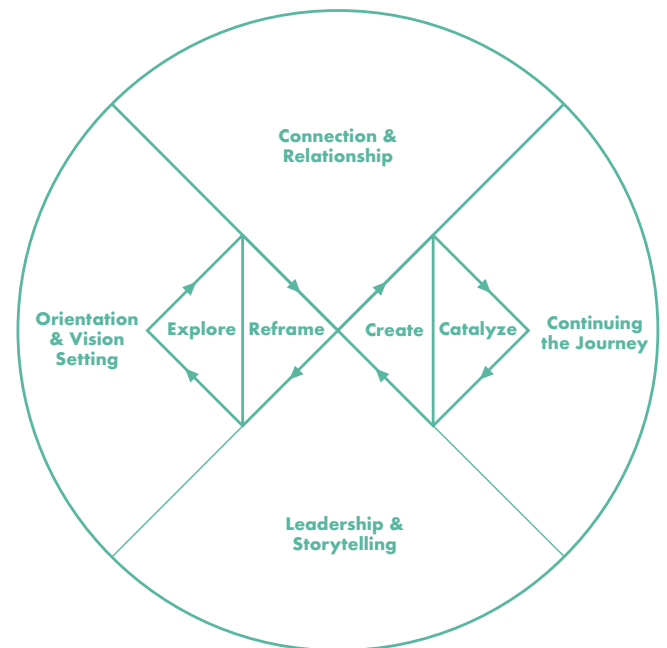


Figure 1: Systemic Design Approach (Design Council, 2021)

Orientation & vision setting

This is the first step. Complex problems are non-static and require a vision to give the project direction. In the initial phase of the project, fruitful discussions with the Ideal(s) City team resulted in a better understanding of the reasoning behind the creation of the framework and AMS' aim to make the monitor more value-driven. This led to the formulation of the design goal presented in chapter 0.1.

Leading and storytelling

A successful project requires a champion, someone to give the project momentum. With this project the aim was to shine light on the power of including local citizen perspectives in city monitoring frameworks to increase the effectivity of policymaking. Additionally, the project sets out to encourage monitor developers to rethink their approach of developing monitors from a value-driven perspective.

Connections and relationships

Systemic design acknowledges that successful design interventions are not deployed alone and require effective collaboration to be effective. This thesis therefore prioritized participatory activities thereby aiming to involve and balance perspectives from the various stakeholders involved and impacted by this project.

Continuing the journey

This project is an initial step that provides guidance in changing the status quo of urban monitoring. With this project, the aim is to create a tool that supports monitor developers in taking the next steps to bridge the gap between the expert perspective and the local perspective in urban monitoring.

Next to systemic design, two other design methodologies were deemed valuable to this project and were used to further give shape to the design approach. These included Research through design and Participatory design. These methodologies are elaborated on here.

Research through design

This project makes use of research through design (RtD) methodology. Characterized by experimentation, iteration, and reflection, this methodology helps to understand complex issues (Godin & Zahedi, 2014). The exploration and execution of various design interventions throughout the project informs both research and design (Stappers & Giaccardi, 2017). Based on the definition by Stappers et al., a design intervention in the context of Research through Design, involves the strategic creation of prototypes and artifacts to provoke and observe sociocultural phenomena, thereby generating new knowledge from real-world context. The application of Research through Design aims to 1) gain a better understanding of the context and its stakeholders, 2) immerse as a researcher in the context, and 3) quickly gather insights or test design interventions. By testing and evaluating design interventions, the project bridges theory and practice, allowing for learning from citizen experiences and participative capabilities regarding the Ideal(s) City monitoring framework.

Participatory design

As this project focuses on providing a people-centric lens to urban monitoring, it is essential to actively involve relevant parties in the process. To achieve this, a participatory design methodology is used. Tomasini & Mulder (2022) define Participatory design as “a collaborative process that democratizes innovation by involving community members in decision-making, ensuring that the final design reflects their needs and values”. In this methodology, relevant stakeholders are engaged at various stages of the design process to achieve results that are valuable and meaningful to citizens, researchers, and municipal stakeholders (Design Council, 2021). In this project, this involvement takes various forms, including:

- Design interventions that lead to citizen engagement
- Regular meetings with the Ideal(s) City Lab to share knowledge, validate findings, and brainstorm ideas.
- Interviews with a monitor developer and policymaker from the municipality of Amsterdam.

0.3 Project Process & Chapter Overview

For completeness, the elements of the traditional double diamond design model are also explained below accompanied by the supporting design activities that were used for each element in this project.

Explore

In the first phase of the systemic design process, the context is explored. This involves actively drawing in different perspectives to get a better understanding of the design context and to identify where there is potential for a new vision or design goal.

Activities that were conducted in this phase:

- desk research
- literature study
- interviews with municipal actors and external experts
- discussions with the Ideal(s) City team

Create

After framing the design problem, the Create phase focuses on developing interventions to reimagine monitoring development with citizen engagement. These exploratory interventions involve citizens in the monitoring process, influencing existing frameworks by incorporating their perspectives. Design interventions are implemented at various abstraction levels, ranging from direct individual interactions with citizens to system-level changes, where citizen input shapes current monitoring systems.

Activities that were conducted in this phase:

- explorative street interviews with citizens
- develop co-creation workshop
- co-creation workshop
- comparing results co-creation workshop with existing framework

Reframe

The following design phase revolves around synthesizing insights from the exploration of the context to identify opportunities for design. Framing the problem from multiple perspectives provides a springboard for new ideas and design opportunities.

Activities that were conducted in this phase:

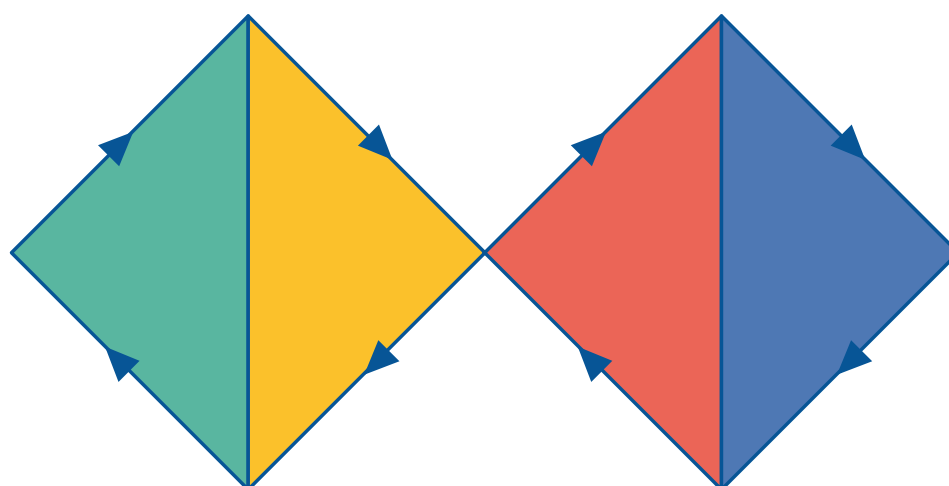
- literature study
- discussions Ideal(s) City team
- interview monitoring expert

Catalyze

In the last phase, insights from the previous phases are synthesized into a tangible outcome to communicate to stakeholders how these insights can be acted upon in practice. Additionally, an exemplary narrative shows how including citizen perspectives influences the use of urban monitoring systems.

Activities that were conducted in this phase:

- Synthesize process for citizen engagement
- Develop hands-on guide for monitor developers
- Discussions with Ideal(s) City team
- Validate manual with Ideal(s) City team



	Explore	Reframe	Create	Catalyze	
0. Introduction	1. Understanding the context 2. Exploring the problem	3. Reframe	4. Researching through design	5. Conceptualising a process for citizen engagement	6. Conclusion and discussion

Figure 2: Overview of the process and chapters, based on Design Council (2021)

Table 1: Overview of interviewees

Reference	Role expert	Aim
i1	Lead implementation Ideal(s) City framework (City of Amsterdam)	Understanding the role of the Ideal(s) City framework in the municipality, its stakeholders and implementation
i2	Citizen participation expert (AMS Institute)	Learning about the do's and don'ts of citizen participation in practice
i3	PhD researcher Wellbeing Dashboard (University of Amsterdam)	Learning from their practice in engaging citizens to develop local wellbeing indicators and a dashboard
i4	Senior Policy Advisor Circularity (City of Amsterdam)	Understanding the role of monitoring in policymaking & identifying needs for policymakers
i5	Monitor developer/researcher (City of Amsterdam)	Understanding the role of monitoring in policymaking and who is involved in the development of urban monitors.
i6	Monitoring framework expert (City of Amsterdam)	Understanding the limitations of monitoring frameworks and its role in policymaking.

1.



Understanding the Context

The context of this thesis is the development and use of urban monitors in the city of Amsterdam. To better understand the context, this chapter describes what monitoring is and what role urban monitors play within policymaking. In addition, background information on the Ideal(s) City framework and an overview of the various stakeholders that play a role within the context of this project are provided.

- > 1.1 Monitoring in Policymaking
- > 1.2 Ideal(s) City framework
- > 1.3 Stakeholders for this project

1.1 Monitoring in Policymaking

Monitoring in policymaking

As cities today face abstract challenges such as sustainability, citizen well-being, and livability, urban monitors need to evaluate these themes effectively. To measure progress in these areas, frameworks are being developed that break down these abstract challenges into quantifiable indicators.

For the monitoring of these large multifaceted challenges, several models already exist. Examples include the Doughnut Economy framework by Kate Raworth (2017), which focuses on human progress within social and ecological boundaries, and the global Sustainable Development Goals (SDGs)

of the United Nations, that suggest 17 targets to measure the state of developments concerning sustainability.

These frameworks facilitate a narrative that help cities better understand the world they govern, thereby providing guidance in urban planning and decision-making (McArthur & Robin, 2019; Magee, 2012). Attached to these frameworks are a set of indicators that set normative standards on how performance toward these concepts can be measured (Magee, 2012 & Massaro et al., 2020). These indicators provide a set of measurable dimensions that can be tracked to give insight into the state of the previously mentioned abstract challenges.



Indicators thus serve as communication tool of the status of a city, helping to identify possible policy directions. They can also aid in evaluating the success of current policies and strategies. Merino-Saum et al. (2020) therefore refer to indicators as “message-carriers” that reflect the various evidence-based paths within the policy-making process. Additionally, the quantitative property of indicators help to establish measurable goals and assess the city’s performance toward these goals (Shen et al., 2011).

Use cases for urban monitors

Monitors are used by various actors within the municipality from different decision-making levels (iX, iX). Through interviews within the municipality of Amsterdam, the following use cases were identified (i1, i4, i5, i6).



Monitor progress towards policy objectives

Information from these monitors can be used by policymakers to report back to the higher decision-making levels, like the Alderpersons on how ‘successful’ their interventions have been and give an update on the process of achieving the policy objectives (i1, i4, i5, i6). Through tracking trends with indicators, performance towards objectives can be measured.



Inform policy decisions and trade-offs

Furthermore, information from monitors is used to inform policy decisions (iX, iX). The information from the monitor can support policymakers in creating a trade-off framework. From this framework, policy directions can be made transparent and explicit and facilitate the discussion about which direction the City should take (i4, i5). The data of these monitors help policymakers in seeing the bigger picture and relations among policies (i6).



Gain support base for policy

Next to this, the information is used to create traction for certain policy themes (i4, i5). For example, data on the city’s carbon emissions can be used to put the need for policies that help reduce carbon footprints on the agenda. The data of monitoring frameworks can aid in emphasizing the urgency to tackle urban challenges.

1.2 Ideal(s) City framework

For this project, the Ideal(s) City monitoring framework is taken as a case study. This framework was created for and in close collaboration with the City of Amsterdam by the AMS Institute and Wageningen University.

Origin and foundation of the Ideal(s) City framework

The Ideal(s) City framework was developed as a response to two observations.

First, AMS Institute saw how in recent decades, new concepts of monitoring sustainability emerged, like the Sustainable Development Goals of the United Nations, the Broader Prosperity by Statistics Netherlands (CBS) and the Doughnut Economy of Kate Raworth. However, the efforts of creating a framework to assess sustainability in the urban context, led to different understandings of the dimensions, and a multiplicity of standardized indicator sets related to their normative perspective (Massaro, et al. 2020). With this lack of consensus and the resulting different standards, AMS recognized the need to establish a framework that promotes interoperability among the various existing sustainability frameworks by enabling comparisons and connections among existing indicator sets.

Secondly, AMS noticed how the development of monitors in the city is all done independently. The focus of these monitors varies from specific subjects, like the Circular Economy Monitor that records the raw material flows and recycling processes in the city, to wider trends like the Staat van de Stad report that contains information on aspects like employment, education, sustainability, livability, mobility, and more. As these monitors operate in isolation, valuable information about the city remains within the siloes of the departments of the municipality. While the complex and multi-faceted challenges of cities require approaches and solutions that monitor broadly and address challenges simultaneously (Massaro, et al. 2020).

Recognizing this siloed approach and the lack of consensus in the concept of sustainability, AMS initiated the Ideal(s) City project. In this project, they connect eleven existing monitoring frameworks of Amsterdam into one integral monitor, where links between the existing frameworks are made, and the interrelationships between indicators visible. Through connecting these monitoring frameworks, all the information of the frameworks can be found in one place, thereby enabling policymakers to access information outside of their department to make policy decisions and trade-offs that span multiple departments of the organization explicit.

Domain ontology

To connect these frameworks, a domain ontology was used. In simple terms, this means that by classifying indicators according to an explicit vocabulary, links are created between domains or indicators. AMS developed these classifications from the perspective of representing the underlying values and ambitions of Amsterdam, using the format of 'ideals.' To determine these ideals, program and coalition agreements from the last thirty years were analyzed, resulting in the seven ideals as depicted in figure 1.

By classifying indicators with these ideals, a network is created, making the relationships between the various domains of the existing frameworks visible. As visualized in the simplified illustration in figure 2.

This way, it can be seen how different indicators from varying frameworks are related to each other and to other domains within the frameworks. These connections therefore link the siloed departments of the municipality, making it clear that, for example, education is also related to the sustainability objectives of the city.



Figure 3: The seven ideals of the Ideal(s) City framework

Besides the ideals, three other ontological concepts are used. The spatio-temporal ontology of Raworth's Doughnut Economy measuring societal progress through the classifications of 'here and now', 'later' and 'elsewhere', referring to the type of impact in spatial terms ('here' as in Amsterdam or 'elsewhere' outside of Amsterdam) and time ('now' and 'later'). The sustainability dimensions of UNECE et al. (2014) referring to the social, environmental and economic capital. Next to these, the indicators were classified by AMS researchers according to themes and subthemes, such as 'safety' and 'crime'. In figure 3, an overview of the indicator base of the Ideal(s) City framework is depicted, where the classifications of the indicators according to these concepts can be found. These classifications increase the total amount of connections, thereby creating a stronger relational database for the framework.

This thesis focusses on the classifications 'Ideals' and 'themes', since these are in line with policy themes and relate more to the human implications of urban data.

- > the ideals are more abstract classifications focussing on values.
- > the themes are more concrete and aligned with policy themes.

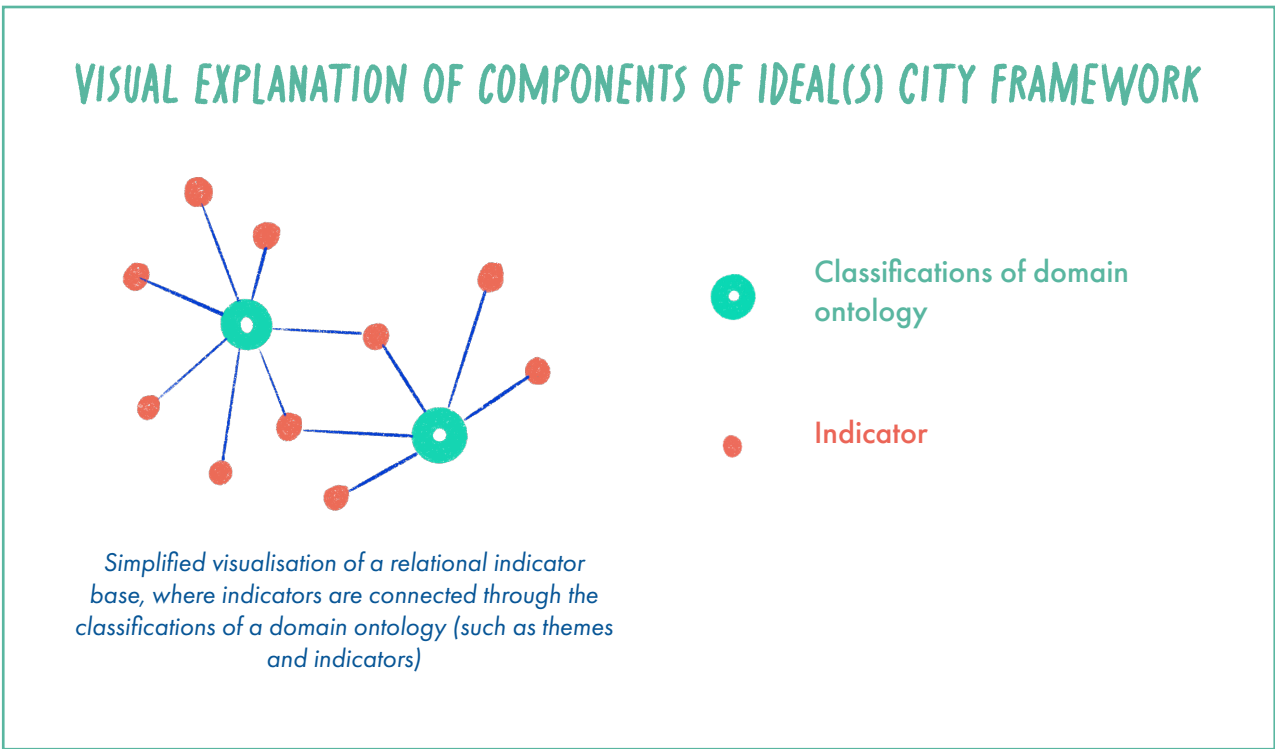


Figure 4: Visual explanation of domain ontology and framework components

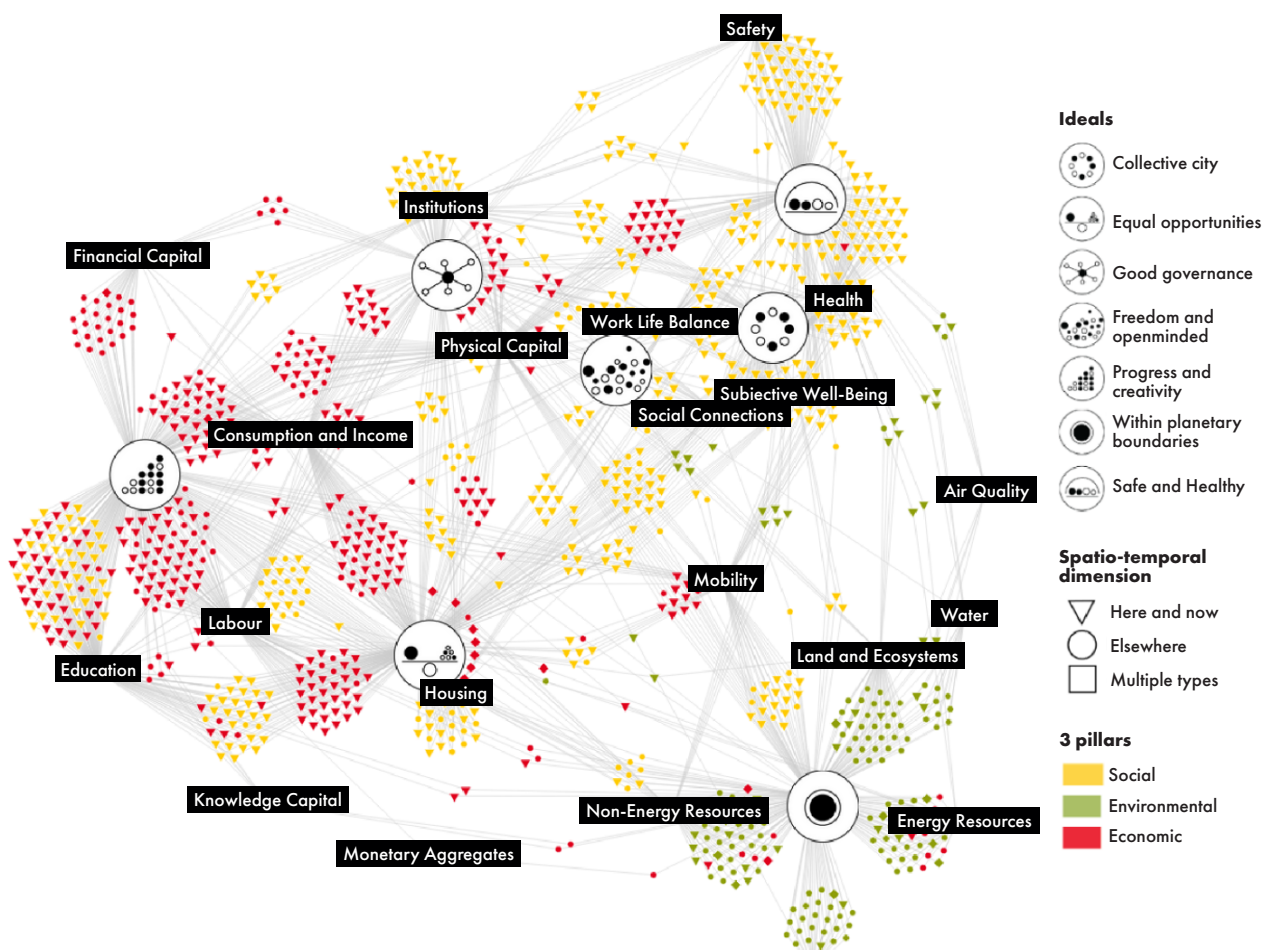


Figure 5: the relational indicator base of the Ideal(s) City framework depicting the several classifications and related indicators. Illustrating the overwhelming amount of indicators and the interconnectiveness of the framework.

1.3 Stakeholders for this project

This thesis takes the Ideal(s) City framework developed by the AMS institute as a case study. This monitoring framework will be implemented in the organization of the City of Amsterdam. Therefore, Amsterdam and the City's organization will be the context of this research.

In this context the following main stakeholders are identified:

Client for this project

This research is commissioned by the Ideal(s) City Lab of the AMS Institute in Amsterdam. The Ideal(s) City Lab developed the Ideal(s) City framework and is currently collaborating with the municipality of Amsterdam to implement the monitoring framework.



Policymakers as monitor users

The Ideal(s) City framework is being implemented across the City of Amsterdam's entire organizational structure, targeting various levels within the municipality, including policymakers, managers, department heads, directors, the Council of Mayor & Alderpersons, and the City Council. This thesis will specifically focus on policymakers as monitor users, given their proximity to execution practices over political practices, thereby allowing the Ideal(s) City to more directly influence their decision-making processes.

Policymakers must balance multiple stakeholder interests to meet the City's objectives. Monitors provide data that make various perspectives and potential policy directions explicit, aiding policymakers in making informed decisions. Additionally, there is a feedback loop to monitor developers, wherein policymakers can request new indicators or research in specific fields to better monitor or inform their policy objectives, granting them significant agency over the monitor's outcomes.



Monitor developers

Monitor developers in the City of Amsterdam can be both internal researchers from the municipality's research department and external researchers from institutions like the AMS Institute or Statistics Netherlands (CBS). Their role is to develop monitors that provide policymakers with the data necessary to inform their decisions.

A feedback loop exists between policymakers and monitor developers. In some instances, policymakers instruct developers on specific monitor requirements, while in other cases, developers independently provide monitors that reflect the current status quo.

Citizens

The information from urban monitors guides policymakers in developing policies that shape the city, directly affecting the lives of its citizens. This thesis emphasizes the importance of engaging citizens with urban monitoring systems to incorporate their local perspectives into the Ideal(s) City framework. By actively involving citizens, the framework aims to ensure that policies reflect the diverse needs and experiences of the local community.



CRITICAL NOTE

When considering 'citizens' as stakeholders, it is crucial to recognize that this represents a significant abstraction from reality, as there is no singular type of citizen. Urban populations consist of individuals from diverse social groups, each with different backgrounds, privileges, genders, norms, needs, and values.

By stating that this research aims to include citizen perspectives, it is important to acknowledge that there is no single 'citizen perspective'; instead, there are many varied perspectives.

Therefore, when reading the rest of this report, it is essential to keep in mind that the term 'citizens' refers to a heterogeneous group encompassing a wide range of perspectives.

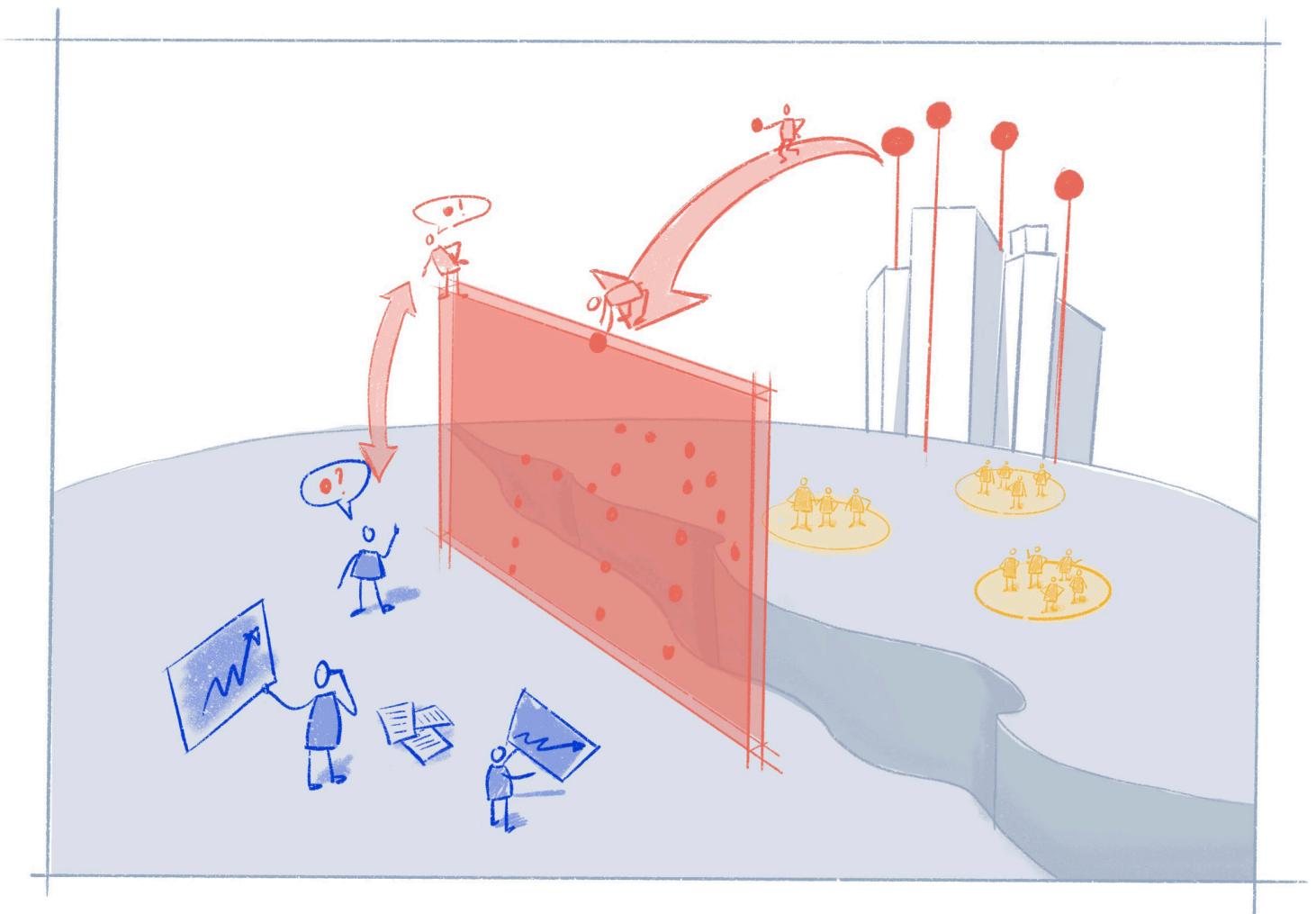


Figure 6: Stakeholder map showing how monitor developers (in red) retrieve indicators out of the city and integrating them into the monitoring framework. Through this monitoring framework, policymakers look at the city and her citizens. The visual illustrates the gap between policymakers using the urban monitors for policy decisionmaking and the citizens' lived experiences.

Key Take-Aways

Stakeholders

The main stakeholders for this project are:



Policymakers
(as monitor
users)



Monitor
developers



Citizens

Ideal(s) City framework

The Ideal(s) City framework is a composite of existing monitoring frameworks that are deployed by the City of Amsterdam.

The indicators of these frameworks are connected through a domain ontology. Resulting in a relational indicator base with four types of classifications. This thesis will mainly focus on the classifications 'ideals' (e.g. Safe & Healthy City) and 'themes' (e.g. Safety).

Monitoring frameworks

- Monitoring frameworks provide guidance for policymakers by dissecting the complexity of the multi-faceted urban challenges into quantifiable indicators.
- Indicators as 'message-carriers' reflect the various evidence-based paths within the policymaking process.
- The quantitative property of indicators help establish measurable goals and assess the city's performance toward these goals.

Main use cases of urban monitors

The three main use cases for the data of the urban monitors are to:



Inform policy
decisions



Monitor progress
towards policy
objectives



Gain support
base for policy
(themes)

2



Exploring the Problem

This chapter examines the current problem frame surrounding urban monitoring frameworks. It highlights the limitations of existing monitoring frameworks and explores the differences between the underlying needs and values of these systems and those of the citizens they are meant to reflect. By identifying these differences and limitations, we can refine the problem frame and explore potential design opportunities.

- > 2.1 Introducing the system and local context
- > 2.2 Limitations of (current) Monitoring Frameworks
- > 2.3 Analyzing the Ideal(s) City framework
- > 2.4 Identifying the Needs of Policymakers and Citizens

2.1 Introducing the System and Local Context

System Context vs Local Context

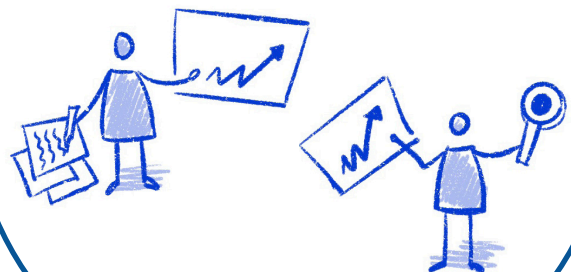
In the (urban) governance and social domains, the work of philosopher Habermas is often referenced, who highlighted the gap between the political-economic system of government organizations and the daily reality of citizens with the terms 'system world' and 'life world' (Habermas, 1987). According to him, the 'system world' is characterized by formalized and structured systems, technical rules, and procedures with a focus on efficiency and goal orientation. In contrast, the 'life world' refers to everyday 'lived experiences' and human interactions and relationships.

Urban monitors are systems that are developed and deployed by and for this 'system world'. And as part of this context, the same contrast can be seen with the 'life world' as described by Habermas. The following paragraphs will elaborate further on the characteristics of current monitoring systems and why they are unable to reflect the 'life world' of citizens. This thesis will refer to these two 'worlds' as 'system context' and 'local context'.

Citizens' lived experiences in the local context



System context of monitoring frameworks



2.2 Limitations of (current) Monitoring Frameworks

Frameworks as 'lens' to look at society

In dissecting concepts such as livability or sustainability with indicators in monitoring frameworks, an approximation is created to help the system context understand the complexity of the real world (Magee, 2012). Frameworks can be seen as a 'lens' through which to look at society, where specific indicators are chosen, and it is determined what aspects are important to monitor. When the monitor user looks at the city through this lens, they only see the information that has been mapped out by the framework's developer. As a result, only this incomplete version of reality (based on the data) can be taken into account in policy decisions.

Figure 7 gives a visual explanation of the monitoring frameworks as a 'lens'. This visual illustrates that the user of the monitor sees only a simplified version of reality as determined by the created frame of the monitoring framework.

Expert-driven urban discourse

In urban monitoring frameworks, abstract concepts such as sustainability or well-being of citizens are framed through a set of indicators. These indicators help define and guide urban policies and practices, they shape a narrative that help the city better understand the world they govern (McArthur & Robin, 2019). In the act of framing these narratives around such concepts, urban discourses are shaped. Discourse can be seen as 'practices that systematically form the objects of which they speak' (Foucault, 2002). Therefore urban discourse shapes how people understand and engage with urban issues, influencing public perception and policy decisions, thereby shaping the narrative around what constitutes a successful or livable city (McArthur & Robin, 2019).

This also applies to the Ideal(s) City framework, that is a composite of existing monitoring frameworks developed by actors of the system context and their perspectives on concepts such as sustainability. Thus,

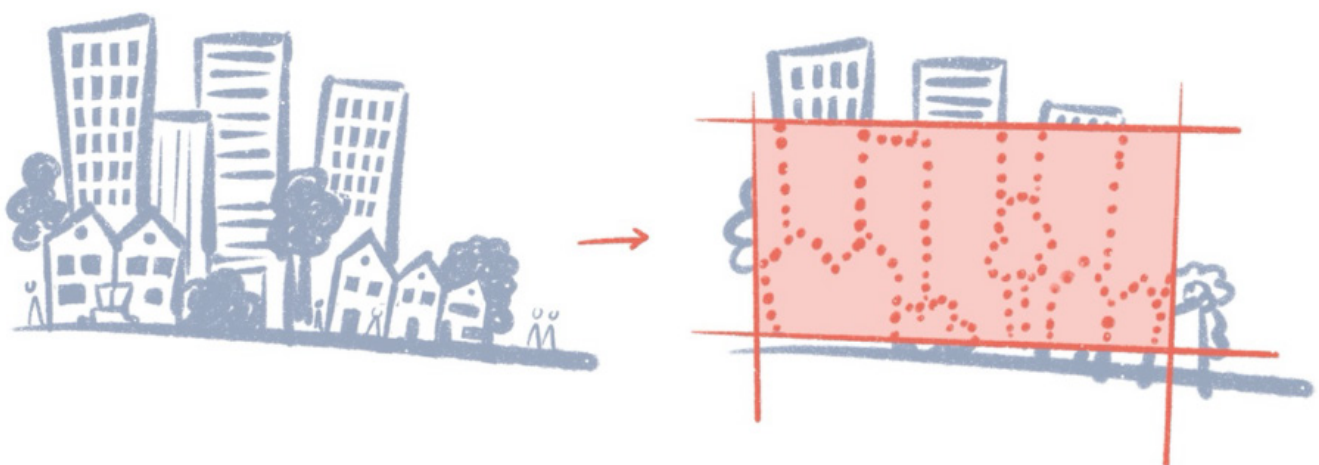


Figure 7: Visual metaphor for monitoring frameworks as 'simplified lens' to look at the city.

in the development of these frameworks, the urban discourse is mainly shaped by the normative goals of these experts. This also involves a form of power, where their normative image becomes a kind of accepted wisdom about what policymakers should prioritize in policy and public investments. It gives authority to certain viewpoints and expert opinions, making them dominant in shaping policies and public perception, and thereby holding discursive power (McArthur & Robin, 2019). In other words, these experts get to determine what matters to the city. As these experts are generally from a relatively privileged class of citizens (McCann, 2007), the cultural-political perspective and interests of these privileged experts are emphasized in the current urban discourse (Scerri & James, 2009).

These experts therefore 'color' the lens of the monitoring frameworks with their perspectives (figure 6). As a result, it is important to note that urban data is not as objective as it seems at first sight. Rather, it is influenced by the perspectives of its human, technological and institutional creators (Mattern, 2017).

Need for a local narrative

The current expert-driven discourse of the system context does not align with the experiences of many citizens (McArthur & Robin, 2019; Turcu, 2012). The metrics of these top-down developed monitoring frameworks are often at a uniform, city-wide level, simplifying and homogenizing the complexity of a people-centered approach into a single measure at the city level. The use of average values overlooks the experience of outliers, such as low-income or disadvantaged groups, thereby masking differences and inequalities within the city (McArthur & Robin, 2019). These aggregated metrics lead to the exclusion of issues that matter on a local scale (Magee et al., 2012; Turcu, 2012).

Therefore, there is a need for a new narrative that aligns with the actual daily life of citizens and indicators that are relevant at the local level (Pouw et al., 2021; Magee et al., 2012; McArthur & Robin, 2019; Turcu, 2012). Integrating these local perspectives into indicator frameworks requires involving local communities and their experiential knowledge in the development of indicators. From

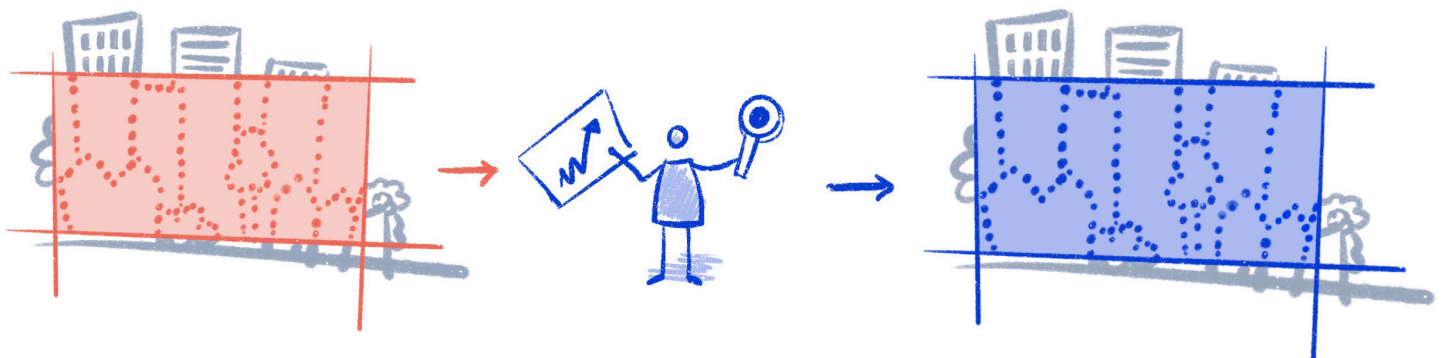


Figure 6: Visualising how the perspective of the expert 'colors' the lens of the framework

this bottom-up approach, it can be determined in co-development how the performance of the city should be monitored for stakeholders and which factors contribute to it. Such a bottom-up approach leads to indicators that are more local, partial, and specific and are capable of reflecting the qualitative and interpretative views of local actors (Magee, et al. 2012).

Interview monitoring framework expert of City of Amsterdam

The above findings from the literature were also confirmed in a conversation with a monitoring expert from the City of Amsterdam. He emphasized that the incomplete 'lens' that frameworks form requires new narratives to approximate the complex reality as closely as possible. According to him, indicator diversity is key.

To genuinely gain new insights, it is necessary to involve individuals with different perspectives in the development of these frameworks. To achieve this on the scale of the city, it would be beneficial to include neighborhood participation in the design process of indicator frameworks.

*“SO I’M A STRONG PROPONENT OF
CONSTANTLY INTRODUCING NEW INSIGHTS,
NEW PERSPECTIVES THAT ENRICH THE
FULLER BODY OF INDICATORS.”*

Local knowledge vs expert knowledge

Involving citizens in development introduces a new type of knowledge compared to the expert knowledge of the system context. To understand how we can incorporate this knowledge into the development of monitoring frameworks, we need to zoom in on what characterizes the local knowledge of citizens and how it differs from the expert knowledge in the current monitoring systems. Table 2 summarizes the findings of research done by Corburn (2003) on this matter.

As also previously mentioned, expert knowledge from the system context is characterized by aggregated information at the city-wide level that

is typically formalized, standardized, and derived from systematic methods and technical rationality. In contrast, local knowledge is characterized by more practical, context-specific understandings of the city that are acquired through experience, intuition, stories, and observations.

By juxtaposing these two types of knowledge, it becomes clear that there is a gap between the abstract, quantitative expert knowledge and the more qualitative, specific, and partial knowledge of citizens.

Therefore, to bridge the gap of the ‘system’ urban monitors and the day-to-day experiences of citizens, the Ideal(s) City framework should integrate both expert and local knowledge.

Table 2: Insights from research by Corburn (2003) on the differences between local and expert knowledge.

	Local Knowledge	Expert Knowledge
Type of knowledge	Practical, context-specific understanding rooted in common sense, everyday observations, and immediate experience, highlighting the importance of local settings, characteristics, and relationships.	Aggregated information that is typically formalized and standardized and derived from systematic methods and technical rationality.
Who holds the knowledge?	Members of the local community, either geographically located (e.g. neighborhood) or contextual to specific identity group (e.g. group with shared culture, religion, interests, etc.)	Members of the government, researchers, universities or industrial associations
How is the knowledge acquired?	Drawn from own life experience. It originates from tactile and emotional experiences, as well as intuition, images, oral storytelling, and tacit awareness through historical experience	Drawn from causal models, universal principles and theories, and instruments like risk assessments
How is the knowledge tested?	Through public narratives and community stories	Through peer review, media and in courts

TO SUM UP:

System context

Monitoring frameworks are developed to map the system context. Focused on monitoring broad city objectives.

Expert knowledge

- Standardized
- Formalized
- Universal
- Systematic



Monitor developers & Policymakers

Local context

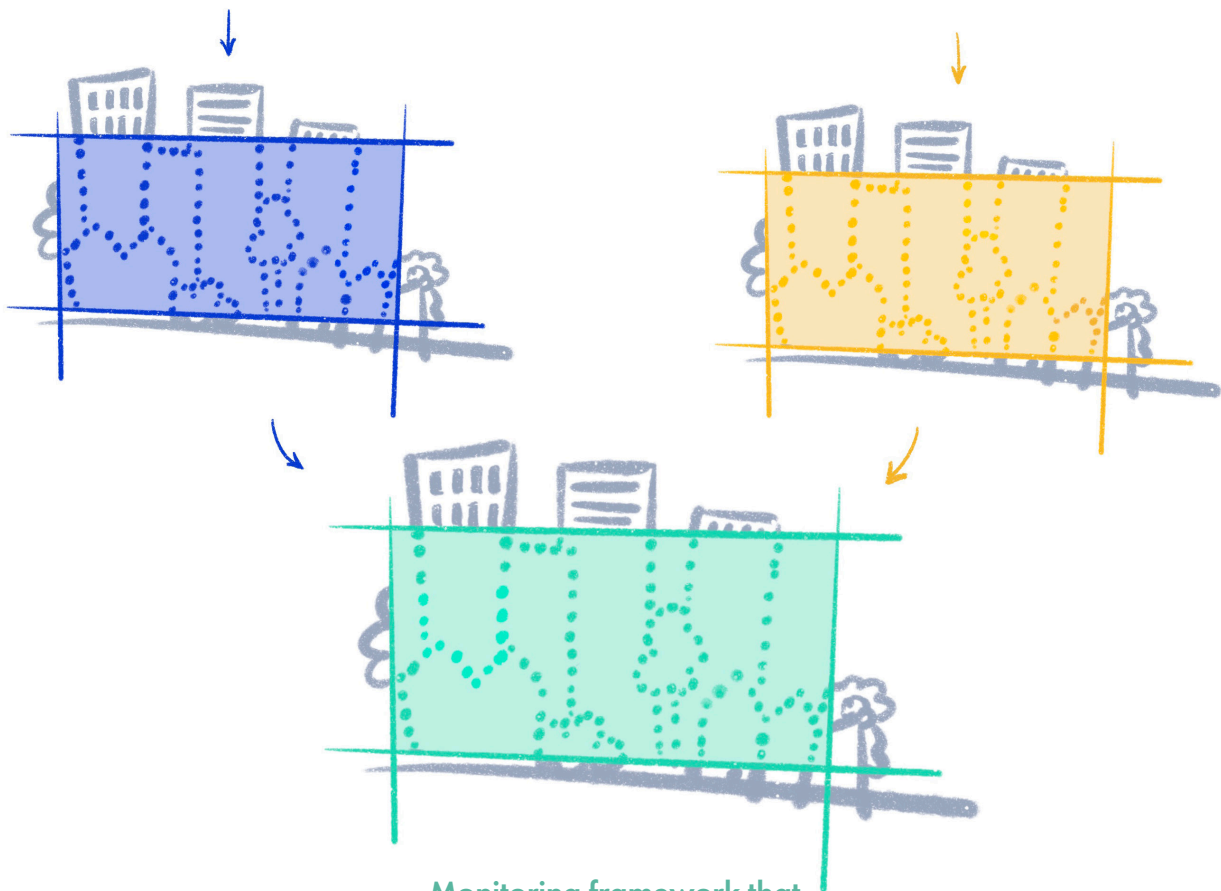
Citizens' lived experiences take place in the local context. Focused on local nuances and issues.

Local knowledge

- Specific
- Contextual
- Local
- Partial



Citizens



Monitoring framework that incorporates both expert and local knowledge

Figure 8: Vision for the Ideal(s) City framework that integrates both expert and local knowledge

2.3 Analyzing the Ideal(s) City framework

As found in the literature, current monitoring frameworks are designed to monitor for the system context and are not able to depict the local context of citizens. To get an idea of how this manifests, the current Ideal(s) City framework was examined, consisting of a composite of 'system' monitoring frameworks. Given the enormous size of the Ideal(s) City framework with 1140 indicators, the decision was made to look at the indicators linked to the theme of safety for illustration.

In the current Ideal(s) City framework, safety is measured by 59 indicators, see appendix C. Examples of these indicators are:

Selection of safety indicators from the Ideal(s) City framework

- Number of juveniles with delinquency in court
- Number of warnings given by police
- Violent crimes (number per 1,000 population)
- Number of reports for shoplifting
- Thefts from home (number per 1,000 population)
- Number of victims of crimes
- Destruction and damage (in public places)
- Number of incidents Fire Department
- Number of GRIP situations (where multiple emergency services are involved)
- Number of reports of domestic violence
- Occupancy rates at shelters for domestic violence
- Risk of flooding
- Heat stress elderly
- Street lighting
- Feelings of unsafety
- Safety Index (recorded crime, perceived nuisance, perceived victimization, perceived unsafety.)

Looking at these indicators it can be seen that safety is primarily tied to objective indicators that deal with the number of crime reports such as theft or violence, or the number of people who have been in contact with the police or other organizations like youth care. Two indicators refer to the perception of safety by citizens; 'Feelings of unsafety' and the 'Safety index' that includes: recorded crime, perceived nuisance, perceived victimization, perceived unsafety.

So the framework incorporates perception of safety, only to condense the entire experience of safety into a single index figure. Consequently, the different factors contributing to, for example, 'perceived nuisance' or 'perceived unsafety' are no longer clearly distinguishable.

Furthermore, these indicators predominantly focus on aspects that compromise safety; the list lacks indicators that demonstrate what contributes to improved safety.

2.4 Identifying the needs of policymakers and citizens

As found in previous sections, there is a gap between the system context that monitoring frameworks are designed for and the local context of citizens. This section will zoom in on this gap and define the needs and requirements for monitoring frameworks for policymakers and citizens.

Needs of policymakers

To identify the needs of policymakers regarding monitoring frameworks, two interviews were conducted with a policymaker and monitor developer of the City of Amsterdam. Next to this, the findings of interviews done by Pouw et al. (2021) in the City of Amsterdam were consulted.

Conducted interviews

In Amsterdam, there is a strong focus on data-driven policymaking, with data being considered the cornerstone of policy development.

“WITHOUT DATA, WE HAVE ABSOLUTELY NOTHING. I HAVE NO FOUNDATION TO WORK WITH.”

- Policymaker

The data from the used monitors is utilized in various ways. The ultimate aim is to monitor the impact and effectiveness of policy. In practice, however, this turns out to be difficult. In many cases, it is challenging to trace back whether a specific intervention has had an impact because many other factors also play a role. Additionally, monitors are used to inform policy decisions, emphasize urgency, and create support for certain policy themes. In this regard, the data of the monitors should align with their policy questions and objectives.

However, it is not the factual data itself that is central to policy, but the perspective for action it provides.

The goal is to explain choices and possibilities using data, enabling informed decision-making. The data from the monitors should support policymakers by making the reasoning behind considerations transparent, thereby facilitating opportunities for a debate on how decisions should be made. Abstract data, such as the city's CO2 emissions, primarily serves to emphasize urgency and create support and awareness. However, such abstract data says little about the impact of specific projects or policies. To support policymakers in making policy decisions, more specific data is needed. For example, regarding CO2 emissions, data on Amsterdam's consumption is required, with indicators on different types of consumption, such as food or clothing. Such data can then reveal that food is a significant focus for policy. At the implementation level, a more detailed examination is needed to determine where food waste occurs, for instance, in households or hotels.

Therefore, for a monitor to be useful and relevant to policymakers, it must provide a clear insight into what is happening in the city. The policymaker must be able to zoom in and out at various levels, from city to neighborhood, and from abstract data to detailed information.

“FOR ME, IT IS NOT ABOUT THE FACTS, BUT ABOUT SUPPORTING PEOPLE IN MAKING THE RIGHT CHOICES.”

- Policymaker

Literature study based in Amsterdam

Pouw et al. (2021) conducted research into the needs of policymakers in the use of monitors and interviewed nine policymakers from the municipality of Amsterdam.

They found that the relevance of indicators for policymakers lies in the alignment with their policy goals. In this way, they can effectively monitor whether their actions contribute to the desired goals or where there is a need for new policy.

Moreover, policy issues that transcend specific departments, such as sustainability strategies, benefit from a framework that shows the interrelationships and effects of interventions. As this provides policymakers with a basis for evaluating and visualizing trade-offs, thereby facilitating the opportunity for a debate, and a better understanding of the reasons behind decisions. Policymakers indicated that they need insight into separate indicators instead of hiding them in a single figure or index.

Next to this, monitoring frameworks could be of added value to policymakers when they are able to select relevant indicators and dimensions that fit their municipal department or policy theme. In making this selection it becomes explicit and transparent which factors are taken into account, but also which the factors that are not considered. This increases the accountability for policymakers.



Monitor needs for policymaker

Based on the interviews and the research conducted by Pouw et al. (2021) in Amsterdam, the following need and requirements for urban monitors for policymakers.

MAIN NEED FOR POLICYMAKERS

The monitoring framework should enable policymakers to track broad city objectives and support them in making policy decisions.

MONITOR REQUIREMENTS

- The indicators of the monitor should align with their policy questions and objectives.
- The monitor should provide the possibility to zoom in and out on different levels of the city (city to neighborhood) and between detail of information (from index to subcomponents).
- The indicators should provide policymakers with the opportunity to make trade-offs explicitly and ideally provide perspective for action. To be able to do so the indicators of the monitor should be substantively connected.
- The monitor should allow policymakers to select relevant indicators and dimensions that fit their municipal department or policy themes, thereby making explicit which indicators are taken into account, and which are factored out.

Needs for citizens

For citizens, indicators are meaningful when they align with their 'lived experiences' (Turcu, 2012; McArthur & Robin, 2019; Pouw et al. 202).

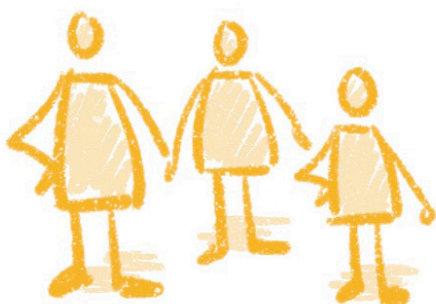
Experiences of citizens are diverse, context-specific, subjective and highly personal. Therefore, citizens need indicators that are able to show the diverse and nuanced local realities on district or neighborhood level.

The diversity of citizens and their experiences also leads to different interests and priorities, in the pursuit of democracy it is important that these different interests are included in the monitor (Pouw et al. 2021). Therefore, it should be possible to assess the degree of importance of the indicators for the local context. To ensure this diversity, diverse perspectives are also needed in the development of indicators (i6).

In including citizens in the development of indicators relevant for the local context, it is essential that these indicators are connected to the 'system' indicators, since local communities rely on the economic and political support of the City (Magee, 2012).

Next to this, values of citizens change over time, it is important to note that indicator development is not a linear process, but rather a continuous process where evaluation should take place (Stone, 2021).

This leads us to the following requirements.



MAIN NEED FOR CITIZENS

The monitoring framework should show what is important to local communities and local issues to better connect with citizens' local experiences that are diverse and context-specific.

MONITOR REQUIREMENTS

- Need for more local indicators on neighborhood or district level to show local differences
- Acknowledgement of nuanced and subjective perceptions of citizens
- Local assessment of importance of indicators to monitor what matters to the local context
- The perspectives involved in monitoring development require an inclusive representation of the population of the city
- The co-developed indicators should be connected to the 'system' indicators
- Evaluation of indicators should take place, since values and priorities change over time

KEY TAKE-AWAYS

Limitations of monitoring frameworks

- Monitoring frameworks are a simplified and incomplete approximation of reality, and can be regarded as a “lens” through which the city can be analyzed.
- Monitoring frameworks are biased by the perspectives of (often privileged) experts as monitor developers. Thereby making their viewpoints and opinions dominant in shaping policies and public perception.
- The aggregated metrics of monitoring frameworks overlook the experience of outliers thereby masking and excluding local differences and issues.

Policymaker vs Citizen needs

- **policymaker** > indicators support policy decisionmaking and aligns with city objectives
- **citizen** > indicators are able to show local nuances and issues

Expert vs Local knowledge

The gap of monitoring frameworks and citizen experiences can be illustrated by the contrast of expert knowledge (in monitoring frameworks) and the local knowledge of citizens.

Expert knowledge is characterized by aggregated, standardized and information. Local knowledge is characterized as context-specific, partial and is shared through stories and narratives.

To bridge the gap of the ‘system’ urban monitors and the day-to-day experiences of citizens in the local context, the Ideal(s) City framework should integrate both expert and local knowledge.

In order to integrate local knowledge into monitoring frameworks, a way needs to be found to translate this type of experiential knowledge into quantitative metrics that fit the format of the monitor. The further sections of this thesis will elaborate on this further.

3.



Reframe

After exploring the context, this chapter refines the initial problem frame and design research questions by breaking down the problem further and by taking into consideration the new insights gained.

3.1 Reframing the research question

As of now, the Ideal(s) City framework consists of a composite of expert-driven monitoring frameworks. The indicators within this framework provide policymakers with guidance in navigating the data of Amsterdam and in monitoring their broad objectives. However, as found in literature, the current expert-driven monitoring frameworks are not capable of reflecting the local experiences of citizens.

The literature reveals a critical need to integrate local narratives into current monitoring frameworks, which are primarily designed for the system context of the City's organizations.

Now we have a better understanding of the gap between the system and the local context, and the needs of the stakeholders within those frameworks, we come back to our research aim of bridging the gap between the 'system' urban monitors and the day-to-day realities of citizens.

The main research question for this thesis was:

How can we actively involve citizens in monitor development in order to align urban monitors with the lived experiences of citizens?

To address this issue, two main elements are crucial.

First, we must explore how to engage citizens with these technocratic frameworks, enabling them to convey their perspectives effectively.

Second, to be able to align urban monitors with the lived experiences of citizens, it is essential to investigate how local knowledge, which diverges significantly from standardized, systematic indicators, can be incorporated into monitoring frameworks. This integration will ensure that local contexts are considered in policy development.

This leads to the following reframed research questions:

1. **How can we engage citizens with monitoring frameworks to effectively convey their perspectives?**
2. **How can we incorporate local knowledge in monitoring frameworks?**

KEY TAKE-AWAYS

To be able to bridge the gap of current monitoring frameworks and the lived experiences of citizens, two key elements need to be addressed:

1. *How can we engage citizens with monitoring frameworks to effectively convey their perspectives?*
2. *How can we incorporate local knowledge in monitoring frameworks?*

In the following chapters this thesis aims to find an answer to the above-mentioned research questions.

4.



Researching through Design

To explore how citizens can be engaged with monitoring frameworks, and how local knowledge can be integrated in the Ideal(s) City framework, several design activities were executed. Through these design interventions, the local knowledge of citizens is explored, guidelines for citizen engagement are derived, and the role for local knowledge in monitoring frameworks is explored.

- > 4.1 Expert interviews on Citizen Participation
- > 4.2 Street interviews with citizens
- > 4.3 Insights street interviews
- > 4.4 Co-Creation workshop: Identifying factors for Safety
- > 4.5 Insights Co-Creation workshop
- > 4.6 Comparing the results of the co-creation workshop and the Ideal(s) City framework

4.1 Expert interviews on Citizen Participation

In exploring how citizens can be engaged with monitoring frameworks, two expert interviews were conducted to learn more about citizen participation in practice. Firstly, a living lab coordinator with expertise in citizen participation (i2). In this interview, the various facets and conditions for effective and meaningful citizen participation were discussed. Additionally, a PhD researcher who contributed to the development of the Wellbeing Dashboard for the Venserpolder neighborhood in Amsterdam was interviewed (i3). For this dashboard, the researchers engaged with the citizens of Venserpolder and, together with the citizens, developed a set of indicators that measure local wellbeing in Venserpolder. The co-created outcomes of this participatory research were eventually displayed in the local Wellbeing Dashboard, see Appendix B.

Citizen participation

According to participation expert of AMS living lab, key aspects of facilitating effective participation are being transparent about the goal of the project, and providing feedback to citizens about the outcome of the participatory activity. Without clear outcomes, participants may feel their efforts are directionless and ultimately a waste of time. This uncertainty causes citizens to drop out.

To prevent this, it is essential to involve citizens from the beginning (i2 & i3). Citizens should have a say in what they consider important to discuss. This contributes to the feeling that the focus is on topics that matter to the citizens. Financial compensation is also an important means to recognize the valuable time and effort of citizens. Additionally, it is crucial that citizens have the opportunity to respond and contest if the results do not align with their perspectives. In the Wellbeing Dashboard project, for example, there was a feedback session at the end where the outcomes of the research were validated with the citizens of Venserpolder themselves (i3).

Furthermore, it is important to clarify where the efforts are directed and what the actual influence of the participation project is (i2). This ensures that participants have realistic expectations of the project and are not disappointed afterward and drop out. This way, trust is built, and legitimacy of the process is fostered.

Building Participative Capacity

For effective participation, citizens require the knowledge and skills to share their experiences and collaborate. One way to build this participative capacity is by breaking down the final objective into parts (i2). In the Wellbeing Dashboard, they did this by starting from the citizens' lived experiences and asking them what important themes play a role in the neighborhood. They then discussed with the citizens what these themes mean and how their experiences are influenced by them. Finally, the researchers explained to the citizens how these factors could be measured and converted into variables. This ultimately formed the basis for setting up the indicators.

Moreover, it is crucial that the communication to the citizens is in the local cultural language (i2 & i3). This means using the local spoken language and avoiding difficult jargon. The results of the sessions must also be shared in recognizable and understandable language to enable citizens to respond and contest if the outcomes do not align with their perspectives.

Next to this, the presence of researchers and their perceived expertise can intimidate citizens, making them hesitant to share their knowledge. Therefore, it is crucial to clearly demonstrate to citizens that their local knowledge is genuinely valued (i2). This requires a mindset of thinking together with the community about what matters to them, rather than approaching it as a way for citizens to simply provide information to the researcher.

Getting in contact with local communities

Neighborhood platforms, like local community centers, present a valuable connection for participatory activities, as they are already integrated into the community and maintain good relationships with citizens (i2 & i3). For the set-up of the Wellbeing Dashboard project, they also interviewed several people who have strong connections within the neighborhood at the start of the project. Through them, contact can be made with various citizens of the neighborhood. Besides it can also provide initial insights into what is at play in the local context.

Additionally, the locations of these centers are accessible for citizens and provide a familiar setting that makes participation more comfortable. Going into the local context, instead of asking citizens to come to a location of the municipality or research institute, allows the researcher to immerse themselves more in the local context and demonstrates genuine interest in the local community.

Diversity

Reaching a diverse audience with participation has proven to be very difficult. It typically attracts people who have the time and can participate for little or no compensation (i2). This strongly influences the outcomes of the participatory activities, as the 'usual suspects' gain greater influence and thereby reinforce existing inequalities. While financial compensation creates an extra incentive, it is not a guarantee that the desired diverse audience will be reached. Active efforts must be made to engage citizens from diverse backgrounds, especially marginalized communities. This can be done by approaching local organizations or people that are involved with the local community (i2 & i3). These people have stronger connections with citizens, through them you will reach people beyond your own contacts. Besides, these local

actors are already trusted by the local community. Next to this, different forms of communication can be used to reach as many participants as possible (i3). Think of digital communication channels like social media, whatsapp, website of the local community center, or providing information in physical places such as supermarkets, community centers and sport clubs. In the Wellbeing project in Venserpolder, they tried to ensure diversity by holding sessions at different times during the week (i3). For example, in the evenings or on weekends. This way, they could reach people who are busy during the week or had to work on weekends as well.

TAKE-AWAYS EXPERT INTERVIEWS

Through the expert interviews it became apparent that citizen engagement should start from their perspective. Looking at the technical indicators in the current Ideal(s) City framework, it would be interesting to start from the ideals that depict the values of the city and are already more related to the human implications and therefore citizens' experiences. To see if this is a good approach a design intervention needs to be conducted. This will be elaborated on in the next section.

Next to this, guidelines were created for citizen engagement based on the insights from these interviews, see next page.

GUIDELINES FOR CITIZEN ENGAGEMENT

Diversity in group composition

- The participating group should be as diverse as possible. Diversity in perspectives will result in a more complete and fitting image of the experiences of the local community.
- Actively involve marginalized communities, to prevent reinforcement of existing inequalities with participation.
- Provide a compensation for the valuable time that participants are contributing.
- Connect with neighborhood platforms, like local community centers, as they are already integrated into the community and maintain good relationships with citizens.

Effective participation

- To facilitate effective and meaningful participation, the following factors should be considered:
 - Involve citizens from the beginning of the process.
 - Be transparent about the goals and outcomes of the participatory activity.
 - Have a clear outcome in mind from the start, otherwise participants may feel their efforts are directionless and ultimately a waste of time.
 - Provide feedback to participants about what is done with the outcomes of the participatory activity.
 - Give citizens the authority to discuss what they find important

Building participative capabilities

- Break the final goal down into smaller subtasks to take participants by the hand.
- Start from the perspective of their experience. Acknowledge the subjective perception and experience of citizens, be genuinely interested in what they have to share about their experience.
- Use simple and local language in communication. Avoid using jargon.

Mindset & attitude

- Show genuine interest in citizens' perspectives. Emphasizing and demonstrating that local knowledge from citizens is highly valued.
- Be aware of the power dynamics within the group and yourself caused by intimidation through authority or expertise). Create a safe space where everyone feels that they can openly share their experiences.

4.2 Street interviews with citizens

The aim of this design intervention was to test the extent to which the ideals of the Ideal(s) City framework resonate with citizens, and if they can provide specific examples from their own lived experiences with the potential to be translated into indicators. Notably, the discussion did not start from the indicators of the Ideal(s) City framework but from the experiences of the citizens, as derived from the formulated guidelines of the expert interviews (Chapter 4.1).

To facilitate this, a design probe was first created to be used as a conversation starter. Citizens of Amsterdam were then approached on the street at a local market and in a public library. These locations were deliberately chosen due to their diverse audience and to reach people outside the network of the AMS Institute, the municipality, or the designer of this project.

Creating a design probe to discuss the seven ideals of the framework

To approach the framework from the citizens' lived experiences, the ideals of the Ideal(s) City framework were adapted. The ideals defined by the researchers of the AMS team were formulated from the municipality's perspective, such as "A city of freedom, that is open-minded to all kinds of people." To better align with the local context, the ideals were rewritten from the perspective of Amsterdam citizens, as derived from the set guidelines. Simple language and illustrations were used to support the text and enhance understanding. For example, the ideal of the "city of freedom" was transformed into "In my dream Amsterdam, we can be who we want to be."

The complete design probe can be seen in Figure 9. In designing the illustrations, an effort was made to visually explain the ideal without overly directing the citizen's interpretation of what the ideal might mean. This was done to minimize steering the answers as much as possible.



Figure 9: Design probe developed to discuss the ideals of the Ideal(s) City framework with citizens on the street.

Procedure street interviews

In total 16 interviews with citizens (8 m/8 f) were conducted from varying age ranges (18-25 to 70+ years). First, citizens were approached and asked if they would like to vote on the three ideals they found most important by placing three stickers on the poster. These ideals were then discussed one by one. The citizen was asked why they chose these ideals and what they meant to them, based on specific examples. This was done to determine the extent to which citizens can identify specific factors that align with their experiences, which could ultimately be transformed into indicators.

Factors are defined here as elements that influence people's perception or experience, where indicators refer to measurable metrics.



Figure 10: Set-up of the street interviews with citizens in a public library

4.3 Insights street interviews with citizens

Local knowledge of Amsterdam citizens

As found in literature, local knowledge is 'Practical, context-specific understanding rooted in common sense, everyday observations, and immediate experience, highlighting the importance of local settings, characteristics, and relationships.' (Corburn, 2003).

Context-specific local knowledge

This was found to be reflected in the type of answers that citizens gave during the conversations. When asked for their personal interpretation of the ideals with an example, answers were context-specific and related to their everyday experiences. Next to this the ideals were described on neighborhood level, relating to specific locations in their street or experiences they had around their homes. Even though the question was initially about their 'ideal Amsterdam' ('Droom Amsterdam' in figure 9).

Quotes of citizens giving their interpretation for the ideal 'Safe and Healthy City':

"FOR ME, IT IS IMPORTANT TO HAVE A PARK NEARBY WHERE I CAN GO RUNNING TO STAY HEALTHY."

"THE YOUTH WHO HANG AROUND THE FIELD IN FRONT OF MY HOUSE AFTER THEIR TRAINING MAKE ME FEEL LESS SAFE."



Figure 11: Set-up of the street interviews with citizens on the market

Relationships in local knowledge

Next to this, it was found that the ideals were not seen as separate themes. Citizens noted that they saw relationships among ideals of the framework, or mentioned factors that related to multiple ideals.

“CONNECTION ALSO CONTRIBUTES TO SAFETY, AS YOU CAN TRUST EACH OTHER. IF SOMETHING HAPPENS, PEOPLE WILL COME TO HELP YOU.”

This connects Collective City to the Safe & Healthy City.

“GREEN SPACES IN THE CITY SHOULD BE ACCESSIBLE TO EVERYONE. INVEST IN CREATING PARKS OR PLANTING TREES IN THE STREETS WHERE EVERYONE CAN BENEFIT.”

This refers to both Equal Opportunities & Within Planetary Boundaries.

“FAMILY IS VERY IMPORTANT. WE MUST BE THERE FOR EACH OTHER AND TAKE CARE OF EACH OTHER.”

This connects a factor of the Collective City to the Safe & Healthy City by referring to family as a safety net.

As Corburn states, local knowledge highlights the importance of relationships. These relationships were also found in how citizens connect factors of the Ideal(s) City framework. The connections they make are personal and context-dependent. Their local knowledge is therefore not only in the specific examples they provide but also in how themes and factors are interconnected from their perspective.

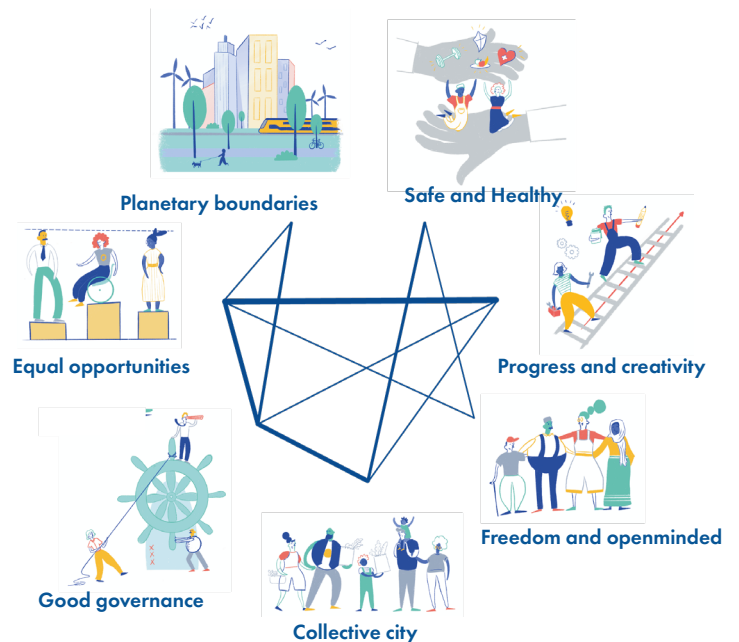


Figure 12: Depicting the relations among ideals as found in the interviews with citizens. The line thickness indicates the number of relations found

Diversity in local knowledge

The personal aspect of the local knowledge also stood out, as the interpretations of the ideals varied. For example, where for some, the feeling of “collectivity” is linked to a good relationship with neighborhood citizens, others found connection in religious communities. Besides, ‘safety’ was described as related to violence in the neighborhood, but also to the conditions of the roads when cycling. The individual conditions of citizens were also reflected in their answers. Where for instance, a person in a wheelchair strongly valued the ideal for ‘equal opportunities’, since “I experience in my daily life that I don’t have the same opportunities as people who do not have a disability”.

Potential for integration of local knowledge

The specific examples that the citizens mentioned to influence their experience of the ideal, showed potential to be linked to indicators. Some examples of the given answers:

“HAVING GREEN SPACES LIKE PARKS AND SQUARES NEAR MY HOUSE.”

Possible indicator: ‘Amount of green spaces per home’ or ‘Amount of public parks per home/neighborhood.’

“EXPATS WHO LEAVE AFTER 1 TO 2 YEARS REDUCE MY SENSE OF COMMUNITY IN THE NEIGHBORHOOD.”

Possible indicator for Collective City: ‘Amount of temporary citizens in a neighborhood’ or ‘Amount of years that people live within one neighborhood.’

But in order to identify related indicators, more questions should have been asked. Such as: Is it only about the temporary nature of their stay or does this also relate to other things about expats, like their different nationality or their efforts to integrate in Dutch society?

Citizen engagement

Capability of citizens to give their interpretation of the ideals

Citizens were capable of expressing which ideals were the most important to them. However, when asked to explain why these were chosen and how they would describe this ideal, some people were not able to give this specific interpretation right away. Especially the ideal of the ‘eco-friendly city’ turned out to be difficult. When the citizens were guided with some examples of themes that could fall within an ideal, they were able to suggest an example from their own perspective. This showed that the level of abstraction of the ideals was sometimes too high to engage for some citizens.

Next to this, it was found that the visualizations helped in guiding the citizens and giving their answer. Some of the interviewed citizens had difficulties with reading the text on the poster, then the images served as a visual explanation. Besides, some citizens referred to specific details of the images when sharing about their experience. For instance, a citizen who pointed to the wheelchair when explaining that the Equal opportunities ideal resonated with him, because he was in a wheelchair himself. Or someone who explained about access to healthy food for citizens by pointing to the fruit on the visualization of the Safe & Healthy City. The visualizations supported their capability to contribute their perspective, but also steered their answers. Visualizations can be a useful tool, but it is important to note it also influences the answers people give.

TAKE-AWAYS STREET INTERVIEWS

Regarding the two reframed questions, the following take-aways were gathered from the street interviews.

Incorporating Local Knowledge of Citizens

The specific examples that the citizens mentioned to influence their experience of the ideal, showed potential to be related to indicators. And with that the potential to be incorporated in the monitoring framework.

Local knowledge emphasizes:

- Connections among ideals of the framework, or mentioned factors that related to multiple ideals.
- Context-specificity and diversity, as the interpretations of the ideals varied among the interviewees.

Citizen Engagement

Based on the street interviews, insights on how citizen engagement should be done, were derived. It was found that dialogue with citizens is valuable to get to the underlying values of their experiences. Next to this, extra guidelines were formulated.

GUIDELINES FOR CITIZEN ENGAGEMENT

- The level of abstraction of the ideals was too high for citizens. Citizens need guidance in dissecting the topic in question to be able to come up with specific factors related to their experience.
- The value of dialogue became apparent. To identify the right factors you have to keep asking, to understand the reasoning behind the example. Why does that contribute to ideal X for you? During the street interviews this has not been done enough.
- Visualizations can support citizens in understanding the ideals and sharing an example of their experience. Especially for people that were less language proficient.

WHAT'S NEXT?

Now we have found that there is potential to relate local knowledge to indicators, it would be interesting to see how this could be done.

Therefore, the next design intervention should take the formulated guidelines to set up a design intervention that tries to translate knowledge and experiences of citizens into indicators that can be used for the monitoring framework.

4.4 Co-Creation workshop: Identifying factors for Safety

To investigate how the local knowledge of citizens can contribute to the identification of locally relevant indicators, a co-creation workshop was designed. In this session, one theme and one ideal from the Ideal(s) City framework were addressed: 'Safety' and 'Equal opportunities for all'. These topics were deliberately chosen to compare how participants would react to different levels of abstraction (Safety being more concrete and Equal Opportunities more abstract and high level).

For both topics, participants explored which factors play a role in their experiences of these concepts within their own neighborhoods. These themes were thus discussed based on their local experiences and neighborhoods, starting close to the citizen, as highlighted in the guidelines of chapter 4.1. The focus was therefore not on the indicators within the current Ideal(s) City framework.

Limitations of the co-creation workshop

- The workshop was conducted with four students of the TU Delft. This resulted in a group with little diversity.
- Due to the short time frame of the workshop, there was not enough time to go in-depth for both selected themes. Therefore, the focus of the outcomes is mostly on the initial theme 'safety'.



Figure 13: Photos of the co-creation workshop to identify factors related to the perception of safety

The process and steps of the workshop for the theme Safety are shown in Figure 14. It can be seen that the first step took place before the co-creation session: a sensitizing exercise. By asking participants to take photos of places or situations in their neighborhood that reminded them of the theme of safety before the workshop, they were already preparing for the theme and reflecting on their experiences in their neighborhood.

In the session, participants first got to know each other and shared their perceptions of their neighborhoods by sharing stories through the photos they had taken beforehand. They then delved deeper into the theme of safety. After gaining a better understanding by discussing the theme, participants brainstormed on which factors influenced their perception of safety. This was done through a brainwriting exercise, where participants wrote down various factors on sticky notes. It was emphasized that there were no wrong answers. All factors were then clustered into related categories and discussed within the group. This also gave participants a better understanding of how others experience safety and whether any factors were missing. Finally, participants voted using stickers on the factors they found most important.

before the workshop



Figure 14: schematic overview of the steps of the co-creation workshop

4.5 Insights Co-Creation Workshop

4.4.1 Local knowledge of participants

Local & Context-Specific

The workshop showed how the participants experiences were really focused on their local surroundings. A lot of the experiences they shared were related to their own street and not beyond. This emphasizes how context-specific the knowledge of citizens is.

Diversity in local knowledge

Per local context, what contributes to a sense of safety varies, as does the extent to which certain indicators play an important role.

"I THINK THAT DEPENDING ON YOUR AGE AND TYPE OF HOME SITUATION, YOU EXPERIENCE YOUR NEIGHBORHOOD VERY DIFFERENT."

"IT WAS ALSO NICE TO SHARE EXPERIENCES AND EXPLAIN THEM TO OTHERS IN THE SESSION. THEN YOU CAN SEE HOW SOMEONE ELSE VIEWS THE SAME NEIGHBORHOOD AND HOW YOU MIGHT EXPERIENCE IT DIFFERENTLY."

This was also found in the comparison of the insights about safety from the co-creation session with the insights from the street interviews. The white highly educated participants of the co-creation session did not mention discrimination as related to safety, where in the street interviews in Amsterdam this was multiple times suggested.

Need for assessing priorities of factors

The participants indicated that the degree of importance for the factors they selected differed. Not all factors influenced their perception of safety to the same extent. They expressed the need for voicing a prioritization of the co-created factors.

4.4.2 Citizen engagement

Level of abstraction

The workshop revealed that the abstraction level of the concept 'Equal opportunities' was too high. Participants found it challenging to identify concrete factors. According to the Ideal(s) City framework, 'Equal opportunities' encompasses eleven themes, including Labour, Work-Life Balance, Transport, Housing, Social Connections, Health, Education, and Consumption and Income. This broad scope results in numerous potential factors, which are so diverse that they became overwhelming for the participants to process.

Clustering

Clustering the factors into related categories to create an overview



Discussing the clusters

Getting a more detailed understanding of how others perceive safety.



Selecting the most important factors

Making a selection of the most important factors with an explanation why these are important



The theme of 'Safety' proved to be more manageable for the participants. This theme was more concrete and specific. When considering safety, participants could recall situations or aspects of their neighborhood that were relevant. This theme resonated with their daily lives, allowing them to come up with factors relating to the theme.

From this, it can be inferred that the classifications of the ideals in the Ideal(s) City framework are too broad and abstract, the themes for which factors need to be developed by citizens should be concrete and specific.

Approaching the theme

From the session, it became evident that participants found it challenging to immediately think of factors for the themes. Through reflection with the participants, it was concluded that the theme should be 'unpacked' first within the group. Together it should be explored what elements or subthemes are related to the theme. For example, for safety this could be related safety in traffic, social safety, etc.

Next to this the participants indicated that more guidance in explaining the purpose and providing examples of what a factor is can help.

Value of dialogue

Through the exercises and the presence of all participants and the researcher in the same room, a dialogue emerged. There was an opportunity to ask follow-up questions about what participants meant by what they had written down. As a result, all participants (including the researcher) gained a better understanding of what actually influences the perception of safety.

Additionally, this aligns well with the way local knowledge is expressed, namely through stories and narratives (Corburn, 2003). In a conversational setting, participants can naturally share their stories with other participants and researchers.

TAKE-AWAYS CO-CREATION WORKSHOP

Regarding the two reframed questions, the following take-aways were gathered from the street interviews.

Incorporating Local Knowledge of Citizens

- Local knowledge is diverse and dependent on personal situations.
- The participants indicated a need to assess priorities among the identified factors. They mentioned that not all factors had the same weight on their perception of safety.

Citizen Engagement

Based on the insights on how citizen engagement could be done, again new guidelines were formulated.

GUIDELINES FOR CITIZEN ENGAGEMENT

- The themes that will be used as starting point need to be concrete and specific, and understandable for citizens. Create for all the themes clear definitions in simple language that citizens will be able to understand.
- Explain the purpose of the session and provide examples of what a factor is take participants by the hand.
- Keep on asking, 'why?' to get to the core factor that influences the perception of the participants

WHAT'S NEXT?

To identify what role the local knowledge of the participants could play in the Ideal(s) City framework, the input of the participants needs to be compared to the current indicators related to safety, as described in chapter 2.3.

The outcome of the workshop was not yet on the level of measurable indicators, but did give an indication of the factors that play a role in influencing citizens experience. These factors show potential to be linked to indicators within the monitoring framework.

4.6 Comparing the results of the co-creation workshop and the Ideal(s) City framework

From the co-creation workshop, multiple factors were identified by the participants. In this section, these factors for Safety will be compared with the indicators of the Ideal(s) City framework to determine how integrating these local perspectives will change the now expert-driven framework.

As analyzed in Chapter 2.3, the current indicators of the Ideal(s) City framework relating to safety, primarily focus on objective indicators that deal with the number of crime reports such as theft or violence, or the number of people who have been in contact with the police or other organizations like youth care. The indicators related to the perception of safety remain limited. Besides, the indicators predominantly focus on aspects that compromise safety; the list lacks indicators that demonstrate what contributes to improved safety.

Co-created factors for Safety

In the workshop 27 factors related to safety were identified. These were clustered afterwards for similarities in co-creation with the participants. From this 11 factors emerged, as depicted in table 3.

At the end of the workshop, the participants were asked to select which five factors had the largest influence on their perception of safety. The top five factors that were selected are:

1. Connection with neighbors
2. Presence of people on the street
3. Loitering (groups of) people
4. Noise nuisance
5. Spatial openness & visibility

Table 3: Overview of co-created factors for safety

CO-CREATED FACTORS FOR SAFETY		
Identified Factor	Quote of Participant	Description Factor
Connection with neighbors	<i>"When I know my neighbors I trust they will help me whenever I'm in need."</i>	The presence of familiar individuals in a neighborhood, such as recognizing people on the street or knowing neighbors, enhances the perceived sense of safety among citizens.
Nuisance of loitering (groups of) people	<i>"I was recently intimidated by a group of men, which made me feel less safe."</i>	Loitering (groups of) people can lead to feelings of intimidation and discomfort among citizens, thereby reducing their sense of safety.
Presence of people on the street	<i>"I feel safe in the shopping center because it is lively and there are people on the street."</i>	Active and lively neighborhoods, characterized by the presence of people on the streets, contribute positively to the citizens' feeling of safety.
Perceived surveillance	<i>"The feeling of being watched over from windows, balconies, or shops, makes me feel safer."</i>	The perception of being watched over ('eyes on the street') by the presence of windows, balconies or open shops enhances the feeling of safety.

Perceived threat

*"Fear of having my bike stolen on the street."
"There have been some negative stories my neighborhood, that image makes me feel unsafe"*

The extent to which citizens fear becoming victims of crimes, such as theft, based on stories, or crime statistics within the area.

Spatial openness & visibility

*"I feel safe in a spacious street, so I can see if there is any danger and others can see me if something happens."
"In a dark and narrow street I do not feel safe at night."*

The degree to which public spaces provide unobstructed views, allowing for clear visibility of surroundings, this enables people to detect potential threats and to be seen by others.

Condition of building infrastructure

*"Well-maintained buildings show that the neighborhood is safe and cared for."
"Seeing broken windows and graffiti makes me worry about crime."*

The condition of buildings, including the absence of visible damage, decay, and maintaining cleanliness, contribute to the perceived safety of an area.

Noise nuisance

*"Loud explosions and 'bangs' make me feel unsafe."
"Roaring, honking cars create an unpleasant atmosphere."*

Excessive noise, including loud explosions or constant honking, can create a stressful environment and reduce the feeling of safety among citizens.

Aggressive traffic behavior

*"In my neighborhood, cars speed up and accelerate fast."
"The reckless driving and aggressive behavior of some drivers make me feel unsafe on the roads."*

Unsafe traffic behaviors, such as speeding and reckless driving, contribute to a heightened sense of danger and decreased feelings of safety among community members.

Modal diversity in streets

"Streets where cars, pedestrians, and bicycles share the road feel dangerous because people sometimes behave unpredictably and travel at different speeds."

Streets shared by cars, bicycles, and pedestrians can be unsafe due to unclear behaviour, speed discrepancies, visibility issues, and the limited space.

Presence of people on the street

"I feel safe in the shopping center because it is lively and there are people on the street."

Active and lively neighborhoods, characterized by the presence of people on the streets, contribute positively to the citizens' feeling of safety.

Condition of street infrastructure

*"Potholes in the road make cycling through the city unsafe."
"Construction work creates unclear and unsafe situations in traffic."*

The quality and maintenance of street infrastructure, including the presence of potholes, loose stones, and construction work, impact the safety and navigability of the urban environment.

Comparing the identified factors with Ideal(s) City framework

Next, the identified factors were compared with the indicators from the Ideal(s) City framework. For each factor, it was examined which indicators relate to the factors, as shown in Table 4.

Here, it can be seen that not all factors are represented in the current framework. For example, factors such as 'presence of people on the streets' or 'Perceived Surveillance' are not included.

For some factors, the present indicators do not cover the factor completely. 'Spatial Openness & Visibility' is an example of this. Where street lighting influences visibility at night, there are other indicators needed to relate to the participants' perceptions.

Some factors are implicitly part of the framework, such as 'Noise Nuisance', 'Perceived Threat', 'Nuisance by loitering (groups of) people', and 'Aggressive traffic behavior'. Within the 'Safety Index' indicator of the current framework, perceived victimization and perceived nuisance are subcomponents of this indicator. When examining which factors are included in this indicator (derived from the 'State of the City' monitor (Broekhuizen, 2024), it is observed that perceived nuisance, nuisance of noise, nuisance by people, and 'aggressive traffic behavior' are considered to determine this index.

The data is available at the municipality of Amsterdam, but it is not explicitly shown in the

current framework. As a result, users of the monitor cannot incorporate these subcomponents in their considerations.

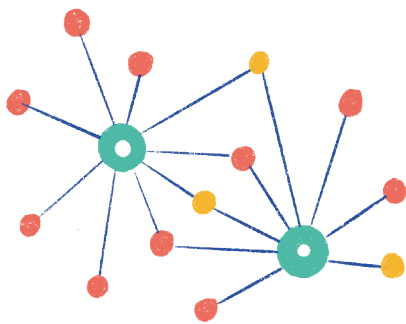
Furthermore, it can be observed that some indicators are present in the current framework but are not classified under 'safety'. For example, the factor 'connection with neighbors', which pertains to knowing and recognizing neighbors or people on the street. The degree of contact with and trust in neighbors are indicators within the Ideal(s) City framework but are not linked to the theme of safety. Additionally, factors related to traffic safety, such as 'Condition of the street infrastructure', are not categorized under safety but under the theme of transport.

Table 4: Comparing the identified factors with indicators from the Ideal(s) City Framework

Identified Factor	Description Factor	Related Safety Indicator	Related Safety Indicator
Connection with neighbors	<i>The presence of familiar individuals in a neighborhood, such as recognizing people on the street or knowing neighbors, enhances the perceived sense of safety among citizens.</i>		<ul style="list-style-type: none"> • Degree of contact with neighbors • Degree of trust in neighbors • Social cohesion
Nuisance of loitering (groups of) people	<i>Loitering (groups of) people can lead to feelings of intimidation and discomfort among citizens, thereby reducing their sense of safety.</i>	<ul style="list-style-type: none"> • Safety Index (recorded crime, perceived nuisance, perceived victimization, perceived unsafety.) 	
Presence of people on the street	<i>Active and lively neighborhoods, characterized by the presence of people on the streets, contribute positively to the citizens' feeling of safety.</i>		
Perceived surveillance	<i>The perception of being watched over ('eyes on the street') by the presence of windows, balconies or open shops enhances the feeling of safety.</i>		
Perceived threat	<i>The extent to which citizens fear becoming victims of crimes, such as theft, based on stories, or crime statistics within the area.</i>	<ul style="list-style-type: none"> • Safety Index (recorded crime, perceived nuisance, perceived victimization, perceived unsafety.) 	
Spatial openness & visibility	<i>The degree to which public spaces provide unobstructed views, allowing for clear visibility of surroundings, this enables people to detect potential threats and to be seen by others.</i>	<ul style="list-style-type: none"> • Adequate street lighting 	
Condition of building infrastructure	<i>The condition of buildings, including the absence of visible damage, decay, and maintaining cleanliness, contribute to the perceived safety of an area.</i>	<ul style="list-style-type: none"> • Destruction and damage (in public places) 	
Noise nuisance	<i>Excessive noise, including loud explosions or constant honking, can create a stressful environment and reduce the feeling of safety among citizens.</i>	<ul style="list-style-type: none"> • Safety Index (recorded crime, perceived nuisance, perceived victimization, perceived unsafety.) 	
Aggressive traffic behavior	<i>Unsafe traffic behaviors, such as speeding and reckless driving, contribute to a heightened sense of danger and decreased feelings of safety among community members.</i>	<ul style="list-style-type: none"> • Safety Index (recorded crime, perceived nuisance, perceived victimization, perceived unsafety.) 	
Modal diversity in streets	<i>Streets shared by cars, bicycles, and pedestrians can be unsafe due to unclear behaviour, speed discrepancies, visibility issues, and the limited space.</i>		<ul style="list-style-type: none"> • Satisfaction road safety • Perception of perceived road safety
Presence of people on the street	<i>Active and lively neighborhoods, characterized by the presence of people on the streets, contribute positively to the citizens' feeling of safety.</i>		
Condition of street infrastructure	<i>The quality and maintenance of street infrastructure, including the presence of potholes, loose stones, and construction work, impact the safety and navigability of the urban environment.</i>		<ul style="list-style-type: none"> • Satisfaction road safety • Perception of perceived road safety

Role of local knowledge

Based on the insights of the workshop, the following roles for local knowledge for the Ideal(s) City framework were identified:

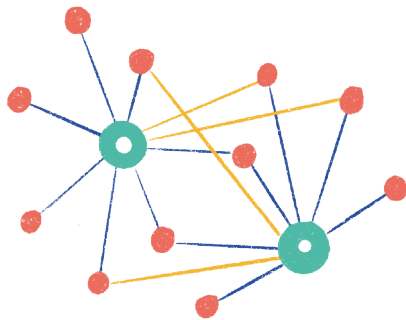


Identify gaps in indicator set for local context

From the co-creation workshop focusing on the theme safety, it was derived that not all factors that were identified by the participants were present. The identified factors can be translated into indicators to add to the framework. This can be done by splitting present index indicators that are currently present in the framework, like the Safety index that consists of several indicators, or by integrating new indicators that are not yet present.

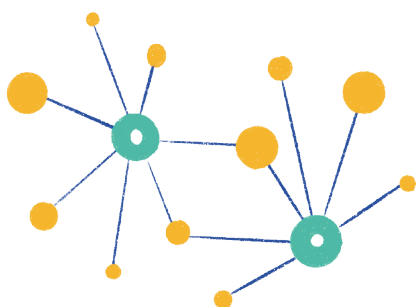
New connections among indicators and themes

Another implication is that the perspectives of citizens can derive new connections within the framework. In this case for safety, it was identified that the contact and connection of citizens with their neighbors contributes to an increased experience of Safety. In the Ideal(s) City framework, these indicators are classified under the theme Social Connections. Including this perspective of citizens creates a stronger relational database, and shows how themes are related according to the citizen perspective.



Assigned weight to the indicators

Combined with the finding that the participants expressed the need to voice prioritization of the co-created factors and the literature suggesting weighting the indicators to align with the local differences (Pouw et al. 2021), there is potential for assessing the degree of importance for the co-created factors. In doing so, the indicators of the framework will be weighted, visualizing for instance that the amount of loitering people affects the experience of safety more than the spatial openness and visibility in a specific local context.



KEY TAKE-AWAYS

Implications of incorporating citizen perspectives in monitoring frameworks

Through the design interventions, combined with the found requirements for the main stakeholders, three main roles were identified for local knowledge in the Ideal(s) City monitoring framework as visualized in figure 15:

1. Identifying missing indicators in the current monitoring frameworks to minimize disparities between citizen perspectives and urban monitors.
2. Providing new connections among indicators in the monitoring framework
3. Assigning weight of importance to indicators to reflect the diverse concerns and experiences of citizens

As mentioned in the beginning of this report, there is no single type of citizen. Citizens have different perspectives, norms and values based on background, privilege, gender, household composition, etc. It is therefore crucial to include diverse perspectives of citizens.

To be able to make conclusions on the selection and weighting of indicators on behalf of citizens, a quantitative study is suggested. By including demographic data in this quantitative study, the opportunity arises to see the relevant indicators and priorities per social group. For instance, it could be shown how the selection and priority of indicators for safety differs for an elderly person or that of a parent with young children. This is supported by Ballas (2013) who suggested that socio-economic and demographic information can be useful for identifying factors that influence citizen wellbeing.

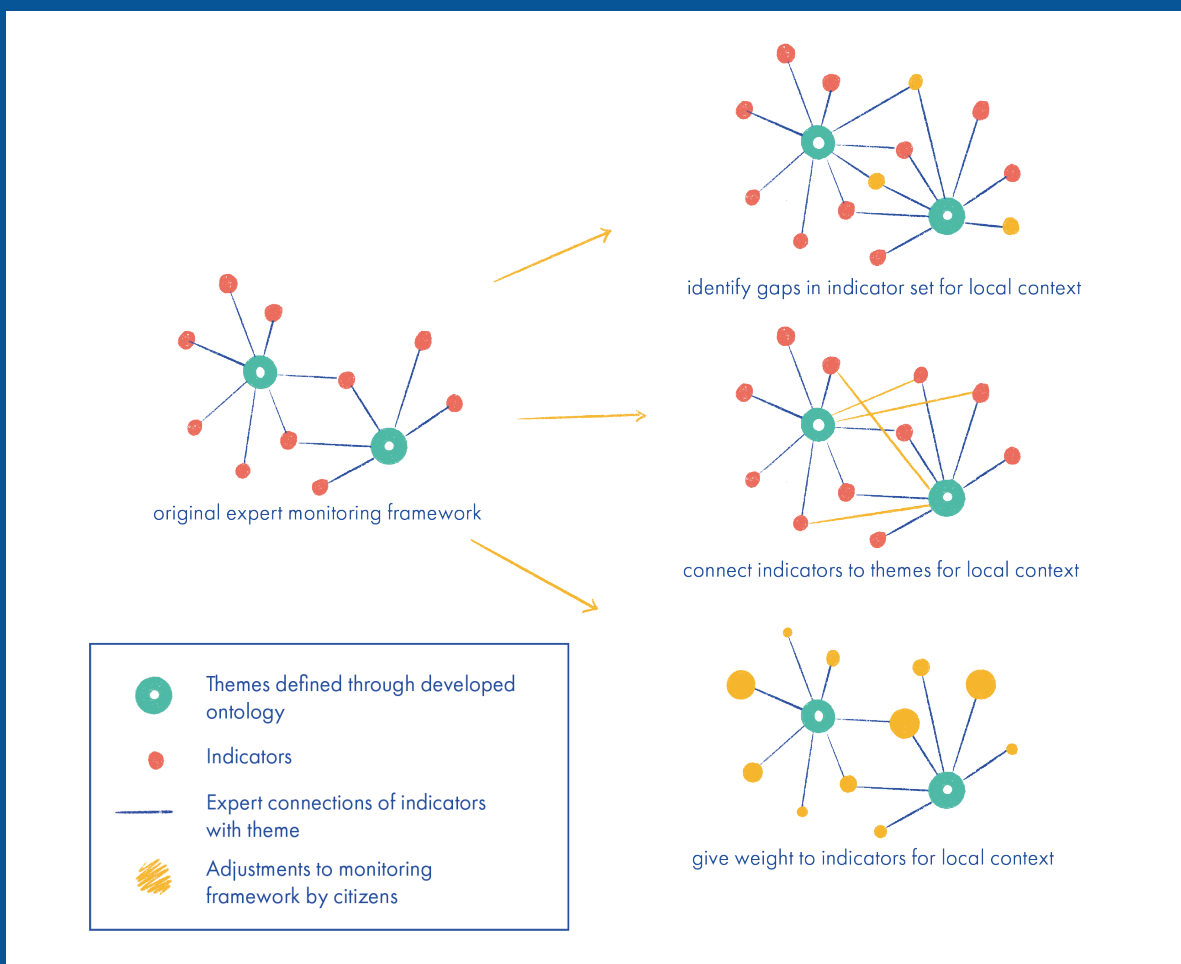


Figure 15: Roles of local knowledge for monitoring frameworks

5.



Conceptualizing a Process for Citizen Engagement

Building on the design research, this chapter presents a concept for an actionable process to effectively engage citizens and incorporate their local narratives into urban monitoring development. This concept is based on insights gathered in previous chapters, including design interventions with Amsterdam citizens, expert interviews with relevant monitoring stakeholders, and guidance from literature research.

The concept process is outlined in the form of a guidebook with practical guidelines for monitor developers to implement citizen engagement.

- >5.1 Synthesizing insights into a process for citizen engagement with monitoring frameworks
- >5.2 Presenting the process for citizen engagement with monitoring frameworks
- >5.3 Presenting the guidebook

5.1 Synthesizing insights into a process for citizen engagement with monitoring frameworks

Identifying Indicators for Local Context

In design interventions, it was observed that citizens cannot be immediately involved in monitoring frameworks. Their experiences and local knowledge were far removed from the technical indicators in these frameworks. To incorporate their perspectives, the identification of locally relevant indicators needed to be divided into several steps.

It was found that co-creating locally relevant indicators should begin from the perspective and lived experiences of the citizens. As Corburn (2003) described and as was evident from the design interventions with citizens, local knowledge is shared in the form of stories and experiences. The qualitative nature of local knowledge also requires a qualitative approach to extract this information. Engaging in conversations with citizens allows for the identification of factors that define their experiences and perceptions. For instance, in a co-creation session on safety, stories revealed that the liveliness of a street and the presence of people were contributing factors to a sense of safety. Spatial openness and visibility also appeared to influence safety perception. These are factors that as of yet are not measured or contained in indicators but could be used to develop new indicators. In the design intervention, this step was executed in a co-creation session with multiple participants, allowing them to complement each other and arrive at a diverse set of factors. However, this step can also be performed one-on-one with a citizen, for instance, in an interview.

Subsequently, these factors can be compared with the framework, as was done after the design intervention. This comparison can reveal gaps, i.e., factors that are currently not represented by indicators in the framework, see figure 15. New connections can also be formed as the factors might indicate that existing indicators in the framework, which are currently not linked to the relevant theme, are indeed connected from the citizens' perspective.

Weighing indicators to reflect the diversity of the local context

The research highlighted the importance of incorporating the diversity of the local context. For example, there was a noticeable difference between the insights from the co-creation session and the street interviews in Amsterdam. While the street interviews involved random pedestrians in Amsterdam, the co-creation session included a less diverse group of mainly young, white, university-educated individuals. The co-creation group did not mention discrimination as a component of the safety theme, whereas it was highlighted in the street interviews on the market.

The diversity in experiences leads to different interests among city citizens. To reflect these interests in the monitoring frameworks, research by Pouw et al. (2021) and observations from the design interventions suggested assigning weights to the identified indicators could be beneficial in order to illuminate potential differences in indicator priority to citizens. In the current Ideal(s) City framework, each indicator is weighted equally. However, by allowing citizens to indicate which indicators have the most significant impact on their experiences, these different interests can be made explicit. This prioritization can reveal where the interests lie for different neighborhoods or social groups. Assigning weights to the indicators adds a new dimension to the existing framework.

Assigning weights to indicators can be done by adding an extra step to the existing city-wide surveys conducted among citizens. In addition to asking citizens to score certain indicators, they can also be asked which indicators play the most significant role in their perception of a specific theme. Alternatively, an entirely separate study could be initiated per theme, asking citizens to prioritize a list of indicators based on their importance to their experience of that theme.

Diverse Pilot Group & Representative Study

To summarize, the previous subchapters identified two important components for gaining a better understanding of the needs and wishes of a city's citizens. These components are included in the conceptualized process and involve: first, identifying indicators relevant to the local context, and second, assessing the relevance and importance of these indicators for different local demographics by assigning weights to them.

For the first component, the aim is to deepen and broaden the current framework. A qualitative data-collection approach is most suitable for this purpose since local knowledge is characterized by stories and experiences, rather than quantitative indicators. This component should be carried out in collaboration with a small group of citizens, viewed as a pilot group. Diversity within this pilot group is essential to include a broad range of perspectives.

To make statements about the interests and preferences of the local context, a representative cross-sectional study of the city's population composition is needed. Research by Dimitris Ballas

(2013), states that "having detailed information on the socio-economic and demographic make-up of a city can help identify the city-level or regional factors that could affect (and possibly change, through policy) the happiness and well-being of its citizens." This can be attained through quantitative studies. This would enable indicators to be weighed against the demographic information of citizens to get a representative picture of needs and wishes of different demographics. Measuring indicators across these factors would enable more balanced consideration of the effects of policy and would also allow policymakers to better target policy to satisfy different demographics. Demographic factors that can be considered include: age, different neighborhoods, education and socio-economic factors to name a few.

In summary, the process of citizen engagement with monitoring frameworks necessitates qualitative research through a small pilot group to deepen and broaden the framework and a representative cross-sectional study for assigning weights to the indicators.

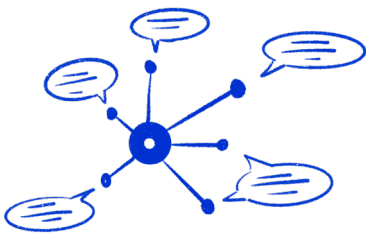
Citizen Engagement Process Outline

The insights from the previous sub-chapters led to the proposal of a process for citizen engagement with monitoring frameworks. The two previously identified components require preparation for their effective execution. This led to the inclusion of a preliminary component that focuses on sensitizing oneself to the context and (policy) theme (e.g. relevant demographic variables) in question as well as identifying any preconceptions around this that might be present. In total the designed process then consists of three distinct phases:



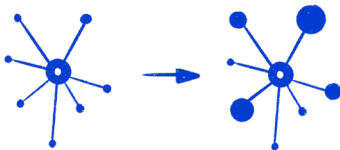
1. Prepare to Engage with the Local Context

This phase focuses on raising awareness of the system context perspective of the monitor developer and policymaker, and preparing for the citizen engagement process.



2. Identifying Relevant Indicators for Local Context

In this phase, relevant indicators for the local context are identified together with a pilot group for a specific (policy) theme.



3. Assigning Weights to Indicators

The final phase focuses on assigning weights to the identified indicators to elucidate the diverse perspectives within the local context.

5.2 Presenting the process for citizen engagement with monitoring frameworks

The steps for these components are outlined in the following section. For a detailed explanation of each step, see the compiled guidebook in Appendix D. Figure 17 depicts an overview of the process for citizen engagement.



Prepare to engage with the local context

1. Define the theme and reflect on own perspective

Creating an initial understanding of the theme from the perspective of the system context and reflect on this.

2. Determine citizen groups

Actively considering how the diversity of the population can be taken into account by determining which sociodemographic variables might influence the experience regarding the selected theme

3. Set up pilot group

Based on the identified sociodemographic variables, establishing a diverse pilot group



Identifying relevant indicators for the local context

4. Identifying relevant factors

Identifying factors that relate to the experience and perception of citizens with the pilot group.

5. Linking co-created factors to existing framework

Linking the identified factors to indicators in the framework to identify gaps and new connections within the framework.

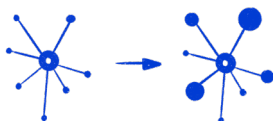
6. Validating indicators with pilot group

To make sure that the rationale of the participants was correctly understood the overview of related factors and indicators should be validated with the pilot group

Assigning weights to indicators

7. Selecting and prioritizing indicators

Allowing citizens to assess the degree of importance of the indicators in a representative study with a cross-section of the population



Monitor developing team

To go through this process properly, different forms of expertise are needed. First of all, the monitor developing team that will follow the proposed process, needs someone to act as a mediator between the technical framework and the experiences of citizens. The mediator's role is to facilitate an open environment where citizens are comfortable sharing their valuable potentially sensitive experiences. As this data-collection is qualitative, it is important that the mediator is able to approach and frame questions appropriately to ensure the essence of local knowledge is extracted.

Next to this, analyzing the insights from this process and integrating the co-created indicators requires knowledge of data analysis and quantitative research.

Furthermore, it is crucial to involve a policymaker throughout the proposed process to ensure alignment with policy themes and objectives, and to facilitate the implementation of the identified local indicators.

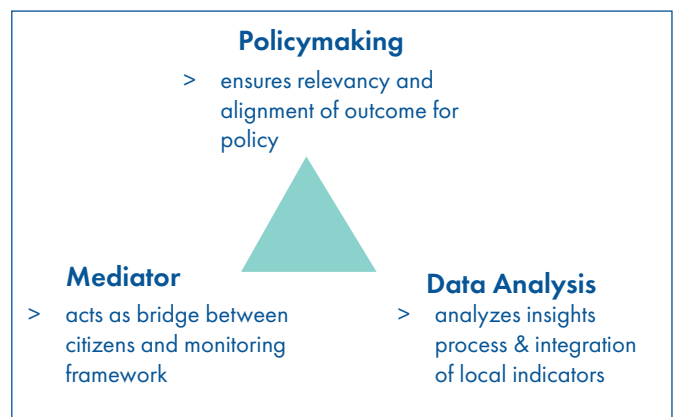


Figure 16: Visual overview for suggested monitor developing team

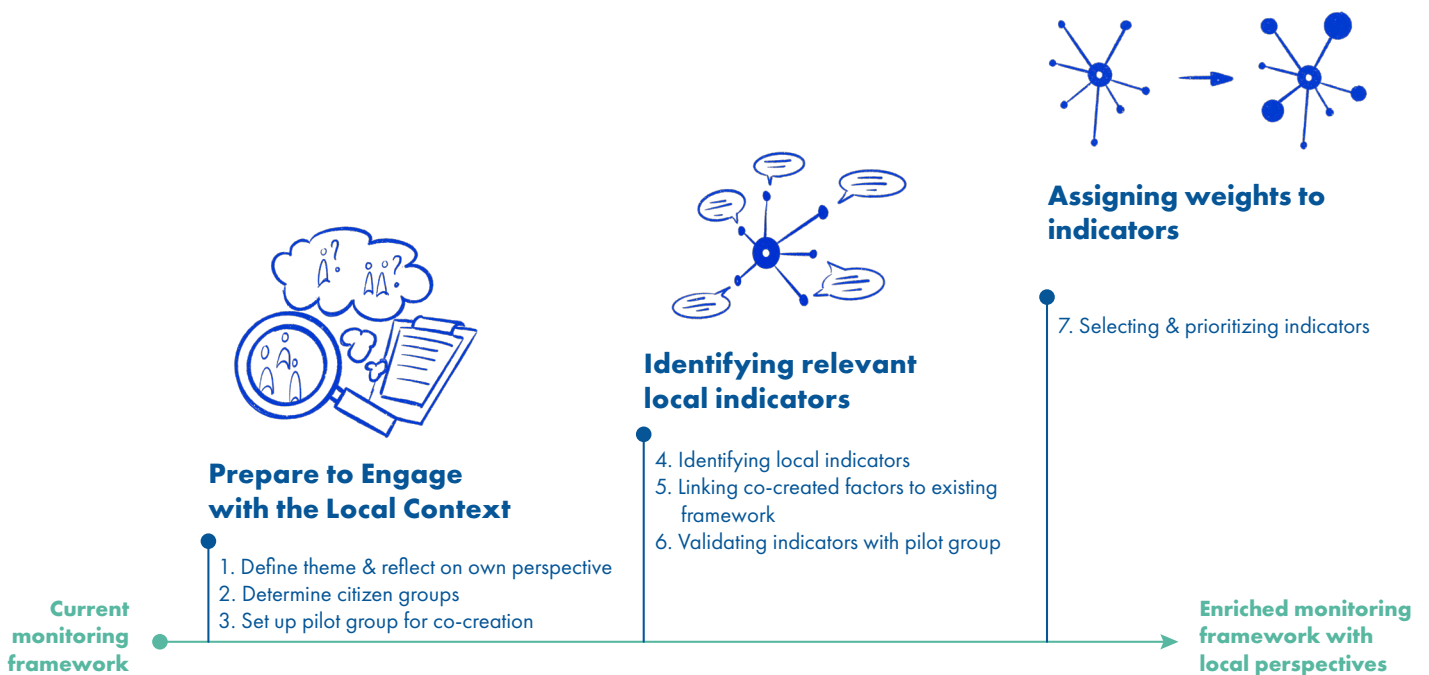


Figure 17: Overview of the the developed process for citizen engagement with monitoring frameworks

5.3 Presenting the guidebook

The design goal for this thesis was to : *“Develop an actionable process for monitor developers to incorporate citizen perspectives in monitoring frameworks through citizen engagement. With the overarching aim of aligning system and local context in urban monitoring systems to enable responsive policymaking.”*

To support monitor developers in navigating the proposed process, a guidebook was designed.

Through translating the insights of this design research into an actionable guidebook, the aim is to inspire and support monitor developers and civil servants to take a new approach and take the first steps in including local perspectives in their monitoring frameworks.

What is this guidebook?

The guidebook offers an actionable process for including local citizen knowledge in urban monitors. It suggests steps for engaging citizens and provides guidelines and examples from the design research project to help you integrate citizen perspectives into monitoring frameworks.

For whom is it meant?

This document is created for monitor developers and civil servants that aim to identify what matters to citizens and include their perspectives in the monitoring frameworks that they are deploying.

What is the aim?

The aim of this booklet is to inspire and support monitor developers and civil servants to take a new approach and take the first steps in including local perspectives in their monitoring frameworks.



Figure 18: The developed guidebook

Content of the Guidebook

This guidebook describes practical insights from this research in the form of guidelines for citizen engagement, explaining what considerations need to be made and what actions should be avoided (the don'ts). Next to this, examples are described for every step to give an illustration of what could be done.

Additionally, the results of this research for the identification of safety related indicators are added to serve as an exemplary narrative of what the outcome of citizen engagement with monitoring frameworks could look like.

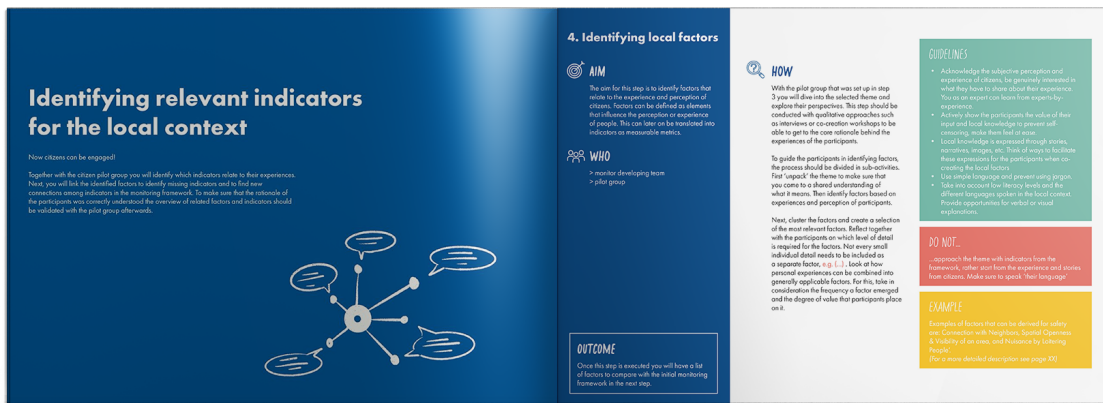


Figure 19: A page of the developed guidebook depicting one of the steps (right page)

COMPONENTS OF THE STEPS IN THE GUIDEBOOK:



AIM

This section gives a rationale to why this step is executed and what goal it aims to achieve.



HOW

This section describes how the step can be executed.



WHO

This section outlines who is involved in the steps, ranging from the monitor developing team, the pilot group, and a cross-section of the local context.



OUTCOME

This section describes the desired outcome of the step to give an idea of what the team is working towards.

GUIDELINES

Guidelines derived from literature, interviews and design interventions to support the monitor developing team in executing the steps of the process.

DO NOT...

Here it is emphasized where attention should be paid to prevent the team from doing something

EXAMPLE

To illustrate the possibilities of the actions or outcome of the proposed step, examples are added.

6.



Discussion & Conclusion

The following chapter evaluates the concept process presented in the previous chapter. Implications of the designed process are discussed for policymakers as well as for the monitoring process as a whole. The chapter continues by providing recommendations for future research and closes off with the conclusions.

- > 6.1 Implications and points of consideration for monitoring frameworks and policy decisionmaking
- > 6.2 Recommendations
- > 6.3 Conclusion

6.1 Implications and points of consideration for monitoring frameworks in policy decision making

6.1.1 Implications for policymakers

The input of citizen perspectives in the Ideal(s) City framework also influences how policymakers will be able to use the monitor. An illustration of the implications is given with the example of Safety on the right.

Implications for monitor use cases

By including citizen perspectives in the evaluation and development of monitors, the three use cases of monitors will be influenced.



Monitor progress towards policy objectives

By engaging citizens in the identification of local relevant indicators, it will become possible to not only monitor what matters for the City's objectives, but to assess the performance towards objectives based on what citizens determine as success. Monitoring progress based on these local indicators, will contribute to more responsive policy.



Inform policy decision-making

As found in the needs for policymakers (chapter 2.4), the data of monitoring frameworks is used to make trade-offs. The local identified indicators, connections and assigned weights in the monitoring framework can guide policymakers in making considerations of what direction policy should take. The localized indicators make the variation of the aggregated metrics explicit, and the assigned weight shows what matters the most to a specific local context.



Gain support base for policy (themes)

By quantifying the needs and values of citizens into indicators, policymakers that aim to respond to these needs of citizen now have the data showing what is important to them. This can be used to gain support base for policy themes relevant for citizens that before may have been difficult to put on the agenda.

THE CURRENT SCENARIO FOR SAFETY

A policymaker who wants insight into the current safety situation in a neighborhood, district, or entire city, or who wants to map out possible options to improve safety, has currently mainly access to objective indicators of reported crimes and people who have come into contact with government agencies as victims or offenders. This allows for objective statements about safety, but the perception and experience of citizens are not adequately considered, as subjective indicators for this theme are significantly underrepresented. The two existing subjective indicators regarding the experience of safety lack the subcomponents that lead to this experience. As a result, it is not clear

to the policymaker from the current monitoring framework how the perception of safety can be improved for citizens beyond reducing those reported crimes. The current framework provides little action perspective or possible directions for the policymaker to address.

While, interviews with policymakers in this project and the research by Pouw et al. (2021) indicate that policymakers prefer to view the subcomponents rather than a summary index as this provides insights for decision-making and creates actionable perspectives.

THE POTENTIAL FUTURE SCENARIO FOR SAFETY

In the potential future scenario, the current framework remains, but a new perspective is added. In the future situation, where the framework also integrates input from citizens, connects other indicators within the framework, adds new indicators, splits indices into individual indicators, and considers the importance of the indicators from the citizens' perspective, the policymaker is guided in making choices based on the citizens' perspective. The 'lens' of the citizens' perspective can provide direction from a list of data and indicators on what is important. By splitting indicators like the safety index and adding new indicators, as emerged from the co-creation workshop, policymakers gain more insight into the subcomponents that influence the perception of safety.

Additionally, analysis of the safety theme within the framework, combined with insights from the co-creation workshop, revealed that the current indicators mainly focus on what harms safety. Indicators that positively contribute to safety are lacking. By incorporating input from citizens on how safety can also be improved from their perspective, policymakers are given an actionable perspective. This guides actions on what can be done, rather

than what should be prevented. For example, spatial planning in a neighborhood can focus on improving the line of visibility in areas where people frequently walk. Or that investing in programs that enhance neighborhood contact is not only relevant for social affairs policymakers but also for those responsible for safety.

The prioritization of indicators ensures that the interests of local communities can be specifically considered. In neighborhood X, connection might be very important, while neighborhood Y prioritizes aggressive driving or noise disturbance because these situations are prevalent there. When this prioritization also includes demographic information, such as age, family situation, employment status, and education, target groups can be selected accordingly. For example, if the goal is to make the neighborhood safer for young people, efforts might need to focus on spatial openness and visibility for nighttime street activity. Conversely, if the focus is on families with young children, the priority maybe needs to be on avoiding busy streets. By incorporating their prioritization, it is possible to see which interests are important from the perspective for each target group.

6.1.2 Implications and considerations for monitor frameworks

The following factors are important to consider to appropriately consider citizen perspectives in monitor development.

Citizen engagement and scalability

Involving citizens in the development and evaluation of urban monitors has significant implications for municipal governance. While the current data-driven era allows for the collection of vast amounts of data through sensors, which can be seamlessly integrated into urban monitoring systems, involving citizens in this process makes monitor development more complex and time-consuming. The measurement of basic interventions that can be captured by sensors is a relatively straightforward process that can be easily scaled up, but fails to reflect the realities that are most relevant to citizens. As found in this thesis the complexity of cities and their diverse populations necessitates a process where, in the future data-driven city, the human implications of this data are also considered. Given this added complexity, it might be an option to apply the proposed citizen engagement process initially to a selected range of themes. A suggestion for this is to include topics that are of critical importance to upcoming policy years and issues that require not just quantitative data but also the experiences and emotions of citizens, where capturing this subjectivity is crucial.

Citizens as guide through the ever-expanding urban data

Citizens can also play a crucial role in identifying which data is relevant. The ever-increasing amount of data can be overwhelming for policymakers. By involving citizens in the process of monitor development, their perspectives can aid in creating a selection and prioritization of the most important data from their viewpoint. This supports policymakers in navigating the complexity of the monitoring frameworks.

Balancing Aggregated and Local Indicators

One of the critical challenges in incorporating citizen perspectives into monitoring frameworks is finding an appropriate balance between aggregated indicators, which guide policy at broader levels, and locally relevant indicators that reflect the lived experiences of individuals. Aggregated indicators are indispensable for policy-making due to their ability to provide a generalized view of complex realities, enabling policymakers to identify trends and allocate resources effectively. However, these indicators often risk overlooking the unique challenges and priorities specific to certain communities. To address this, it is essential to carefully consider the purpose of the monitoring framework, the practical constraints of data collection and the generalizability of indicators for other local contexts. Striking a balance involves ensuring that while broader trends are captured, the framework remains sensitive to local variations and citizen input. The ultimate goal of the monitoring framework is to inform and improve policy. Therefore, the line should be drawn based on the expected impact of different indicators on policy responsiveness. If a highly localized indicator is likely to lead to significant policy improvements that address critical issues within a community, it may be worth including even if it complicates the aggregation process.

Monitors as supplement, not substitute

In order to truly bridge the gap between the system and local context in the city, policymakers and civil servants need to engage directly with local communities as well. Urban monitors are tools that support them in the process of decision-making and increases opportunities to for responsive governance. However, they remain a simplified approximation of reality. The complexity and individuality of citizens' experiences cannot be fully captured by metrics alone. Therefore, monitoring frameworks should be seen as additional tools for policymakers to gain information over the city, but not a replacement for direct engagement with citizens.

Continuous evaluation of monitoring frameworks

A crucial question that must be continually asked is: What are we missing within these data frameworks? As cities and society evolve, so too do values, concerns, and priorities. This highlights the importance of recognizing that monitor development is not a linear process but rather a continuous one, where ongoing evaluation is necessary. Thus, engaging citizens in this process should be considered an integral part of the evaluation and development of such systems. Including diverse perspectives will remain essential in the future to continue contributing to responsive policy.



6.2 Recommendations

This thesis provides a valuable first step in developing an actionable approach for monitor development that improves the alignment with lived experiences of citizens. However, the successful implementation of this approach relies on addressing the following key areas:

To validate the steps and guidelines proposed in the guidebook, a complete pilot process should be conducted on a specific theme. This pilot will provide insights into how the results can be integrated into policymaking and how policymakers can effectively utilize citizen perspectives in their policy assessments and decision-making processes. The incorporation of a new dimension that prioritizes indicators is likely to alter the utility of the framework for policymakers. Consequently, further research is necessary to determine the best means of communicating the framework's content to policymakers, with particular emphasis on the development of a user-friendly front-end design for the monitors.

As outlined in the guidebook, it is imperative to involve a range of experts in the process of engaging citizens with monitoring frameworks. Expertise in qualitative research and citizen participation is essential to ensure that questions are appropriately framed and that citizen engagement is effective. Further investigation by these experts is necessary to determine the most effective strategies for approaching citizens and clearly conveying the value of their involvement. As monitoring and indicators are frequently abstract concepts that are detached from the everyday lives of citizens, it is highly important to bridge this gap and demonstrate the relevance of their perspectives.

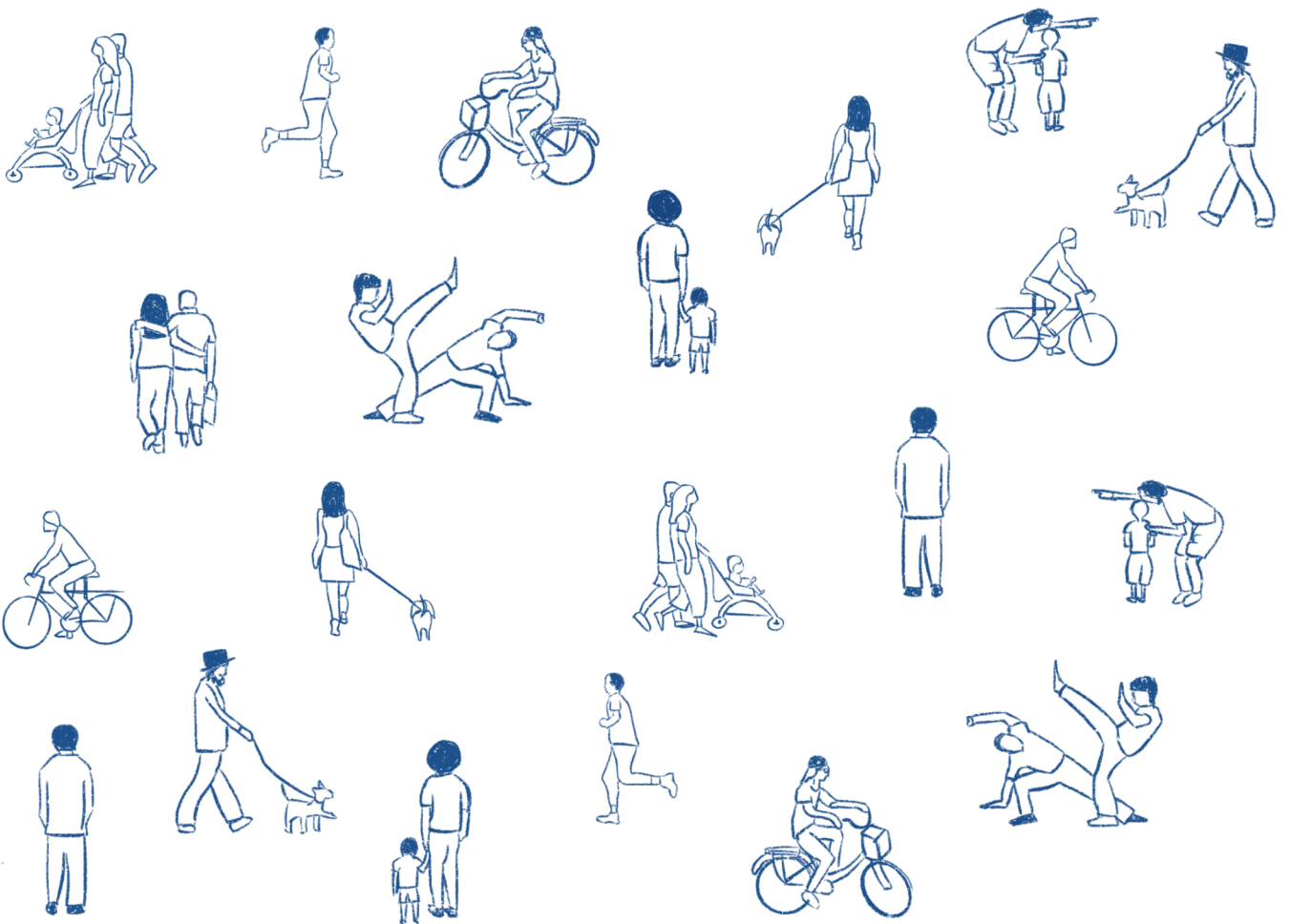
Ensuring that the involved demographic is truly representative is critical, particularly with regard to including minority groups and avoiding the reinforcement of existing inequalities. Furthermore, the research process must account for the inclusion

of individuals with low literacy and those who speak various local languages. It is only through the consideration of these factors that a truly representative and inclusive demographic can be achieved.

Currently, the influence of citizen input on policy execution through monitoring frameworks is perceived as indirect, which often diminishes the apparent value of their contributions. To mitigate this, further research should explore methods for aligning citizen involvement more directly with policy development and execution. This would increase the perceived and actual impact of their input.

Following the pilot process, a continuous evaluation should be conducted to ascertain the sufficiency of the steps and information outlined in the guidebook, and to determine whether greater specificity or emphasis is required in certain areas. This continuous evaluation will ensure that the guidebook remains a relevant and effective tool in guiding the development of citizen-inclusive monitoring frameworks.

Given the complex interconnected nature of policymaking and monitoring, and the timeframe and scope of this project, the above-mentioned areas remain underexplored, but are crucial for successful implementation of the developed process and guidebook for citizen engagement with monitoring frameworks.



6.3 Conclusion

In modern cities, data-driven decision making is being increasingly adopted by policymakers for example through use of urban monitoring frameworks. In this study it was found, however, that current monitoring frameworks are biased by the normative perspectives of monitor developers, and that the aggregated metrics of monitoring frameworks are masking local differences and issues. This results in a gap between monitoring systems and the reality of the lived experiences of citizens.

In collaboration with the AMS institute, this thesis explored how citizen engagement can be used to align monitoring frameworks with the lived experiences of citizen. This led to the formation of the following research question:

How can we actively involve citizens in monitor development in order to align urban monitors with the lived experiences of citizens?

To answer this research question, a research-through-design approach was applied which provided knowledge on two main components: 1) how can we engage citizens with monitoring frameworks to effectively convey their perspectives? and 2) How can we incorporate local knowledge of citizens in monitoring frameworks?

Exploring these questions resulted in two main outcomes. First, a guidebook was developed, outlining a process for engaging citizens with monitoring frameworks. Secondly, this study demonstrated how local knowledge from citizens can be integrated into urban monitoring frameworks.

The guidebook depicts a process with actionable steps and guidelines for monitor developers to actively engage citizens in the development and evaluation of indicators used in frameworks. It was found that in order to effectively engage citizens, it is

important to start from their lived experiences rather than starting from the technical indicators currently present in monitoring frameworks. Starting from the perspective of citizens enables the transformation of qualitative experiences into usable quantitative indicators. The proposed process establishes guidelines for facilitating an open collaborative environment. Through co-development the process allows monitor developers to identify citizens underlying values regarding urban policy themes.

This thesis also suggests that engaging citizens in monitor development can contribute to the incorporation of local knowledge in monitoring frameworks in the following ways:

1. Identifying missing indicators in the current monitoring frameworks to minimize disparities between citizen perspectives and urban monitors.
2. Providing new connections among indicators in the monitoring framework
3. Assigning weight of importance to indicators to reflect the diverse concerns and experiences of citizens

It was found that engaging citizens in the identification of locally relevant indicators enables the assessment of the city's performance based on what citizens define as success. The locally identified indicators, connections and assigned weights in the monitoring framework can guide policymakers in making considerations of what direction policy should take. The localized indicators make the variation of the aggregated metrics explicit, and the assigned weight shows what matters the most to a specific local context. Ultimately, utilizing local knowledge to shape monitoring frameworks allows us to monitor what matters to both the city and her citizens, thereby contributing to more responsive policy decision making.

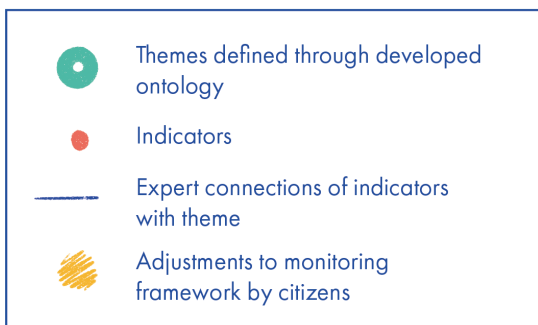
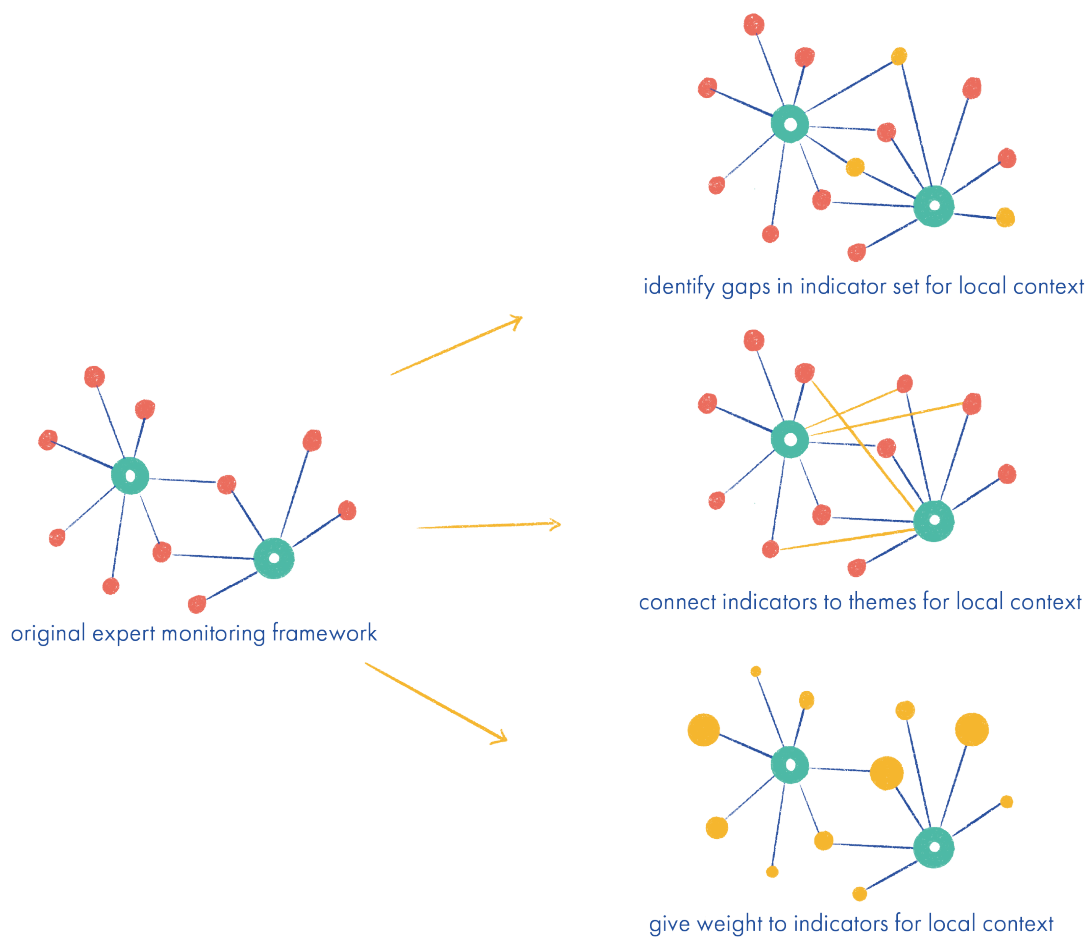


Figure 20: Visual explanation depicting the role of local knowledge in monitoring frameworks



Personal Reflection

I embarked on this project out of an interest in the use of technology within our society and its effects and implications on people. With a critical perspective, I aimed to examine the use of data within policy decision-making and explore how the gap between urban data and monitoring frameworks, and the experiences of citizens, could be better aligned.

Looking back on the project and the initial goals I set for myself, I experienced that my own idealism and drive to contribute to a just future through design sometimes got in my way. The scope of my project (focused on the entire city and all its citizens), the comprehensiveness of the Ideal(s) City framework (essentially encompassing all themes relevant to city-wide policy), and my own idealism in wanting to do justice to the diverse interests of all citizens within the city, led me to feel overwhelmed at times.

I began this project with little prior knowledge of the policy system, the role of data within it, and how monitoring systems could be designed or utilized. Through delving into the literature and engaging in conversations with individuals in the context, I gradually gained a better understanding of these subjects. However, this growing knowledge was also accompanied by the realization of how complex the policy system is and the various actors involved. In trying to understand how I could design for this complex context with its diverse interests and perspectives, I resorted to what had often helped me in previous design projects: stepping back from what I was working on and trying to create an overview of how my project relates to the broader context. However, in this case, the big picture became increasingly elusive, and the issues grew larger, making it sometimes feel impossible to consider all the insights I had gained during my research.

What I have learned from this is that, in order to better understand something, you sometimes need to zoom in on a specific part and simply start testing something within the context to gain more insight into your potential role in it. For instance, when I zoomed in on the theme of safety with a group of people, I immediately learned a great deal about

how we could involve citizens, but more importantly, what their input could contribute to and how it could transform the current system.

Additionally, I realized that I could have made a more conscious choice earlier in the project regarding which stakeholders I wanted to design for within this system of monitoring, thereby focusing my process more effectively on this stakeholder. I began this project by exploring the perspective of citizens through street interviews, but ultimately designed for monitor developers (and policymakers). The steps I took were necessary to gain a better understanding of the context and the roles the different stakeholders play, but I believe that if I had made a more deliberate choice earlier in the project about who I wanted to design for, it would have been easier to make decisions about what was relevant to my research and what I could exclude from the scope.

Working independently on a multifaceted topic related to justice in urban governance has been challenging at times. When dealing with such sensitive topics, I sometimes missed the opportunity to spar and discuss with others to gain different perspectives. I often questioned, 'Who am I to judge what is the best approach to take?' Through experiencing this discomfort, I realized that the goal of this project is not to make all the decisions, but rather, precisely because there are so many different interests and perspectives, to show how to include diverse viewpoints in the development of these monitoring systems, thereby supporting policymakers with tools and information to make informed decisions and considerations.

What I see as my most important insight from this project is that designing (for the development of urban monitors) is inherently political. The norms and values of researchers, policymakers, and designers influence the systems they develop, and in doing so, they (consciously or unconsciously) make decisions about who is included and who is excluded. I believe that is a very valuable lesson I want to carry with me throughout the rest of my design career.

References

- Ballas, D. (2013). What makes a 'happy city'? *Cities*, 32, S39–S50. <https://doi.org/10.1016/j.cities.2013.04.009>
- Bibri, S. E. (2021). Data-driven smart sustainable cities of the future: An evidence synthesis approach to a comprehensive state-of-the-art literature review. *Sustainable Futures*, 3. <https://doi.org/10.1016/j.sfr.2021.100047>
- Broekhuizen, B. (2024). De Staat van de Stad Amsterdam XII, 2022-2023. Openresearch Amsterdam. <https://openresearch.amsterdam/nl/page/105734/de-staat-van-de-stad-amsterdam-xii-2022-2023>
- Corburn, J. (2003). Bringing local knowledge into environmental decision making: Improving urban planning for communities at risk. *Journal of Planning Education and Research*, 22(4), 420–433. <https://doi.org/10.1177/0739456X03258643>
- Design Council. (2021). *Beyond Net Zero: A Systemic Design Approach*.
Foucault, M. (2002). *Archaeology of Knowledge* (2nd ed.). Routledge. <https://doi.org/10.4324/9780203604168>
- Gemeente Amsterdam. (2022). Monitor Circulaire Economie 2022 | Website Onderzoek en Statistiek. [Onderzoek.amsterdam.nl. https://onderzoek.amsterdam.nl/publicatie/monitor-circulaire-economie-2022](https://onderzoek.amsterdam.nl/publicatie/monitor-circulaire-economie-2022)
- Godin, D., & Zahedi, M. (2014). Aspects of research through design: A literature review.
- Hachem, S., Issarny, V., Pozdnukhov, A., & Bhatia, R. (2014). Urban Civics-Democratizing Urban Data for Healthy Smart Cities. *Smart Cities*, 10.
- Helbing, D., Fanitabasi, F., Giannotti, F., Häggli, R., Hausladen, C. I., Van Den Hoven, J., Mahajan, S., Pedreschi, D., & Pournaras, E. (2021). Ethics of smart cities: Towards value-sensitive design and co-evolving city life. *Sustainability (Basel)*, 13(20), 11162. <https://doi.org/10.3390/su132011162>
- Jain, G., & Espey, J. (2022). Lessons from nine urban areas using data to drive local sustainable development. *Npj Urban Sustainability*, 2(1). <https://doi.org/10.1038/s42949-022-00050-4>
- Kitchin, R. (2016). The ethics of smart cities and urban science. *Philosophical Transactions - Royal Society. Mathematical, Physical and Engineering Sciences*, 374(2083), 20160115. <https://doi.org/10.1098/rsta.2016.0115>
- Magee, L., & Scerri, A. (2012b). From issues to indicators: Developing robust community sustainability measures. *Local Environment*, 17(8), 915–933. <https://doi.org/10.1080/13549839.2012.714755>

Magee, L., Scerri, A., & James, P. (2012a). Measuring social sustainability: A community-centred approach. *Applied Research in Quality of Life*, 7(3), 239–261. <https://doi.org/10.1007/s11482-012-9166-x>

Magee, L., Scerri, A., James, P., Thom, J. A., Padgham, L., Hickmott, S., Deng, H., & Cahill, F. (2013). Reframing social sustainability reporting: Towards an engaged approach. *Environment, Development and Sustainability*, 15(1), 225–243. <https://doi.org/10.1007/s10668-012-9384-2>

Martin, C. J., Evans, J., & Karvonen, A. (2018). Smart and sustainable? Five tensions in the visions and practices of the smart-sustainable city in Europe and North America. *Technological Forecasting and Social Change*, 133, 269–278.

Massaro, E., Athanassiadis, A., Psyllidis, A., & Binder, C. R. (2020). Ontology-based integration of urban sustainability indicators. In *Sustainability Assessment of Urban Systems* (pp. 332–350). Cambridge University Press. <https://doi.org/10.1017/9781108574334.016>

Mattern, S. (2017). A city is not a computer. *Places*, 2017. <https://doi.org/10.22269/170207>

McArthur, J., & Robin, E. (2019). Victims of their own (definition of) success: Urban discourse and expert knowledge production in the liveable city. *Urban Studies*, 56(9), 1711–1728.

McCann, E. (2007). Inequality and politics in the creative city-region: Questions of livability and state strategy. *International Journal of Urban and Regional Research*, 31(1), 188–196.

Merino-Saum, A., Halla, P., Superti, V., Boesch, A., & Binder, C. R. (2020). Indicators for urban sustainability: Key lessons from a systematic analysis of 67 measurement initiatives. *Ecological Indicators*, 119, 106879.

Pouw, N., Verrest, H., & Beek, J. (2021). Welzijnsindex voor de stad Amsterdam. Governance and Inclusive Development Programme Group (GID), University of Amsterdam.

Raworth, K. (2017). *Doughnut economics: Seven ways to think like a 21st-century economist*. Chelsea Green Publishing.

Robinson, J. M., Redvers, N., Camargo, A., Bosch, C. A., Breed, M. F., Brenner, L. A., & Ishaq, S. L. (2022). Twenty important research questions in microbial exposure and social equity. *MSystems*, 7(1), e01240-21.

Scerri, A., & James, P. (2009). Communities of citizens and “indicators” of sustainability. *Community Development Journal*, 45(2), 219–236. <https://doi.org/10.1093/cdj/bsp013>

- Scerri, A., & James, P. (2010). Accounting for sustainability: Combining qualitative and quantitative research in developing “indicators” of sustainability. *International Journal of Social Research Methodology*, 13(1), 41–53. <https://doi.org/10.1080/13645570902864145>
- Shen, L. Y., Ochoa, J. J., Shah, M. N., & Zhang, X. (2011). The application of urban sustainability indicators—A comparison between various practices. *Habitat International*, 35(1), 17–29.
- Stappers, P. J., & Giaccardi, E. (2017). Research through design. In *The Encyclopedia of Human-Computer Interaction* (pp. 1–94). The Interaction Design Foundation.
- Stone, T. (2021). Design for values and the city. *Journal of Responsible Innovation*, 8(3), 364–381. <https://doi.org/10.1080/23299460.2021.1909813>
- Tomasini Giannini, F., & Mulder, I. (2022). Towards a power-balanced participatory design process. In *Proceedings of the Participatory Design Conference 2022-Volume 2* (pp. 111-117). <https://doi.org/10.1145/3537797.3537819>
- Turcu, C. (2013). Re-thinking sustainability indicators: Local perspectives of urban sustainability. *Journal of Environmental Planning and Management*, 56(5), 695–719. <https://doi.org/10.1080/09640568.2012.698984>
- UNECE, Eurostat, OECD (2014). *Conference of European Statisticians Recommendations on Measuring Sustainable Development*. New York/Genève: United Nations.
- Universiteit van Amsterdam. (2023). Welzijnsdashboard Venserpolder – Welzijnsdashboard Amsterdam. <https://www.welzijnsdashboard.nl/welzijnsdashboard-venserpolder/>

Appendix

- > Appendix A: Design brief
- > Appendix B: Wellbeing Dashboard
- > Appendix C: Safety indicators of Ideal(s) City framework
- > Appendix C: Guidebook

Appendix A: Original Design Brief



Personal Project Brief – IDE Master Graduation Project

Name student

Student number

PROJECT TITLE, INTRODUCTION, PROBLEM DEFINITION and ASSIGNMENT

Complete all fields, keep information clear, specific and concise

Project title

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)

Cities deal with complex challenges that are multifaceted and intertwined. In the pursuit to effectively monitor and address these challenges, cities have been developing monitoring models to collect and process large amounts of data in urban datasets. Amsterdam has adopted a data-driven approach as well, and created monitors such as the *Circular Economy Monitor*. However, the majority of these urban datasets focus on the input rather than the results of the output (Jain, et al., 2022). Subsequently, the results primarily focus on simple interventions as opposed to the actual impact on people and society.

In response to this, the AMS Institute initiated the Ideal(s) City project, where they take a more holistic and integral approach on monitoring. They aim to develop a framework that is able to map the impact of Amsterdam's policies and projects on the ideals of the city to support policymakers in the decision-making process.

With the method of addressing ideals in the framework, the output already puts the human impact at the forefront. However, the citizen perspective on the ideals has up until now been lacking. Therefore, this thesis will involve citizens as co-creators during the process, enabling them to express their needs, values and interpretations of the ideals of their city. And with that, contribute to a framework that better represents their perspectives and therefore decisions/policy that resonate more with their experiences, leading to more inclusive and representative urban strategies.

Jain, G., Espey, J. Lessons from nine urban areas using data to drive local sustainable development. *npj Urban Sustain* 2, 7 (2022). <https://doi.org/10.1038/s42949-022-00050-4>

→ space available for images / figures on next page

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)

The Ideal(s) City framework strives for the ideal city for Amsterdam's citizens and is intended to be used to measure the impact of policy and projects of the city towards these ideals (AMS Institute, n.d.). However, up until now citizen perspectives on the ideals and its indicators have been lacking. Besides, the defined ideals are still ambiguous and lack specificity, hindering a comprehensive understanding of their implications. This presents an interesting space to explore and define what the seven ideals mean for citizens and how these interpretations might be represented and measured. This project will engage citizens as co-creators to capture their needs, values, and experience through participatory workshops and interviews. The diverse perspectives from these citizens are essential for creating policies that are not only in line with administrative goals, but also resonate with the nuanced realities of the City's residents, ultimately fostering a more inclusive and representative urban environment.

Recognizing the risks of contextual integrity of data interpretation (Voight, et al. 2015) and information overload for the end-users of the framework (Falschlunger, 2016; Kashada, 2020), policymakers will be involved in the second co-creation phase where we will address the usability of the framework and the gathered information together with citizens. The goal is to combine the perspectives of policymakers and citizens into a redesign of the Ideal(s) city framework where the richness of the information and usability of the framework will be balanced.

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:

Enhancing the current Ideal(s) City framework by involving citizens and their perspectives on the ideals and indicators, while balancing the richness and usability of the information in the framework for policymakers. So that the redesigned framework resonates with and represents the experience of citizens with a diverse range of demographics and perspectives to ultimately create a more inclusive, representative supporting tool for decision-making processes in the city.

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)

The thesis will start with a research phase consisting of desk research and interviews. To get a better understanding of the potential end-user on the framework and the system in which it will operate, the focus will be on understanding the organizational structure of the municipality and the role that the Ideal(s) City monitor can play in impact assessment and decision-making processes.

Next to this, the project will use co-creation methodologies and materials to include citizen perspectives. Through generative (design) research (workshops, interviews and probes) the needs and values of citizens will be explored and defined. These insights will then be translated back to the indicators to find a way to represent these perspectives in the framework. This will be done through co-creation with both citizens and the potential end-user of the framework (policymakers). The selection of participating citizens will be done with a focus on representing diverse demographic backgrounds and districts of the City. Continuous feedback from citizens on outcomes throughout the process contribute to achieving the representativeness of the framework. With creative facilitation techniques, citizens will be empowered to think along on decision-making levels that they were not able before.

Appendix B: Wellbeing Dashboard

Welzijnsdashboard Venserpolder

Hoe is het met het welzijn van Venserpolder? Onderzoekers van de Universiteit van Amsterdam hebben samen met bewoners gemeten wat zij belangrijk vinden. Deze drie onderwerpen zijn het belangrijkste volgens de buurtbewoners:



Gezonde levensstijl

54%

is ontevreden over sport en gezond eten

44%

is ontevreden over hoeveelheid vrije tijd



Financiële gezondheid

47%

komt niet goed rond

57%

ervaart financiële problemen



Buurt-activiteiten

52%

wordt niet voorzien in behoeften

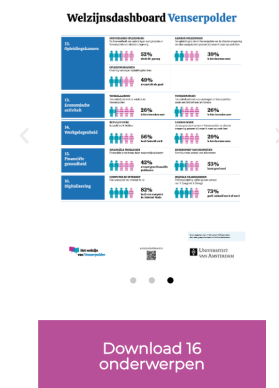
68%

mist activiteiten in de buurt

Het welzijn van Venserpolder









In totaal zijn er 16 onderwerpen, die samen een Dashboard vormen. Dat geeft een beeld hoe het gaat met Venserpolder.

Aan de percentages zie je hoeveel bewoners er al tevreden over zijn. Zo is onder andere te zien dat het goed gaat met politieke participatie. Maar het gaat minder goed met economische activiteit. De tevredenheid met gemeentelijk beleid scoort het slechtst.



[Link to website](#)

Welzijnsdashboard Venserpolder

12. Opleidingskansen	HOEEVEELHEID OPLEIDINGEN De hoeveelheid van opleidingen aangeboden in Venserpolder en directe omgeving	 52% vindt dit genoeg	AANBOD OPLEIDINGEN De opleidingen die in Venserpolder en de directe omgeving worden aangeboden passen bij waar ik naar op zoek ben	 39% is het daarmee eens
	OPLEIDINGSKANSEN Ervaring van eigen opleidingskansen	 49% ervaart dit als goed		
13. Economische activiteit	WINKELAANBOD Tevredenheid met de winkels in Venserpolder	 26% is hier tevreden over	VOORZIENINGEN Tevredenheid met voorzieningen in Venserpolder, zoals een bibliotheek en horeca	 26% is hier tevreden over
	14. Werkgelegenheid	BETAALD WERK Betaald werk hebben	 56% heeft betaald werk	AANBOD WERK De aangeboden banen in Venserpolder en directe omgeving passen bij waar ik naar op zoek ben
15. Financiële gezondheid		FINANCIËLE PROBLEMEN Financiële problemen door maandelijkse lasten	 42% ervaart geen financiële problemen	RONDKOMEN VAN INKOMSTEN Rond kunnen komen van inkomsten
	16. Digitalisering	COMPUTER EN INTERNET Een computer en internet thuis	 82% heeft een computer én internet thuis	DIGITALE VAARDIGHEDEN Zelfbeoordeling: cijfer op een schaal van 1 (laag) tot 5 (hoog)

Deze gegevens zijn in het najaar 2022 gemeten door een groep bewoners en UvA-onderzoekers



Appendix C: Safety indicators of the Ideal(s) City framework

short_indicator	indicator	
404	Number of households in cont	Number of households in contrc #N/A
391	Number of GRIP situations	Number of GRIP situations #N/A
403	Number of prioritized integrat	Number of prioritized integratec #N/A
406	Number of Persons in Directio	Number of Persons in Direction #N/A
397	Number of prepared sub-trian	Number of prepared sub-triangl #N/A
398	Number of letters based on th	Number of letters based on the #N/A
396	Number of Grip Situations	Number of Grip Situations #N/A
395	Number of Demonstrations	Number of Demonstrations #N/A
394	Number of C events	Number of C events #N/A
132	Number of trees replaced ann	Number of trees replaced annua #N/A
414	Shoplifting (number per 1,000	Shoplifting (number per 1,000 p #N/A
11	DestructionAndDamage	Destruction and damage (in pub DestructionAndDama
7	Hard core youths	Hard core youths Hard core youths
92	Heat stress elderly	Heat stress elderly Heat stress elderly
112	Homicide	Homicide Homicide
111	Impairment physical integrity	Impairment physical integrity Impairment physical i
22	Juveniles with delinquency in	Juveniles with delinquency in co Juveniles with delinqu
80	No reported crimes	No reported crimes No reported crimes
113	Organized crime	Organized crime Organized crime
6	Referrals Halt	Referrals Halt Referrals Halt
96	Risk of flooding	Risk of flooding Risk of flooding
8	Shop lifting	Shop lifting Shop lifting
10	Thefts from home	Thefts from home Thefts from home
9	Violent crime	Violent crime Violent crime
31	Youth with juvenile probation	Youth with juvenile probation Youth with juvenile pr
393	Preparedness rate Fire Depart	Preparedness rate Fire Departm #N/A
330	Number of requests for help a	Number of requests for help and #N/A
327	Number of requests for advice	Number of requests for advice a #N/A
329	The proportion of triage decisi	The proportion of triage decisio #N/A
400	Number of closures/warnings	Number of closures/warnings #N/A
332	Percentage of youth 12 to 23	Percentage of youth 12 to 23 wi #N/A
399	Security indices (4 types): rec	Security indices (4 types): recor #N/A
407	Number of youth in direction	Number of youth in direction of #N/A
328	Occupancy rates at Blijf Group	Occupancy rates at Blijf Group #N/A
415	Violent crimes (number per 1,	Violent crimes (number per 1,00 #N/A
416	Thefts from home (number pe	Thefts from home (number per #N/A
418	Halt referrals (number per 1,0	Halt referrals (number per 1,000 #N/A
401	Number of addresses visited d	Number of addresses visited dur #N/A
390	Number of incidents Fire Depa	Number of incidents Fire Depart #N/A
405	Number of persons in directio	Number of persons in direction #N/A
218	Percentage of sports clubs wit	Percentage of sports clubs with #N/A
392	The number of fire safety opin	The number of fire safety opinic #N/A
417	Destruction and damage (in pt	Destruction and damage (in pub #N/A
402	Number of Bibob files started	Number of Bibob files started (c #N/A
229	Crimes	Total crimes Crimes
234	Digital security	Digital security Digital security
233	Domestic violence	Domestic violence Domestic violence
225	Insecurity perception	Insecurity perception Insecurity perception
224	Safety Index	Safety Index Safety Index

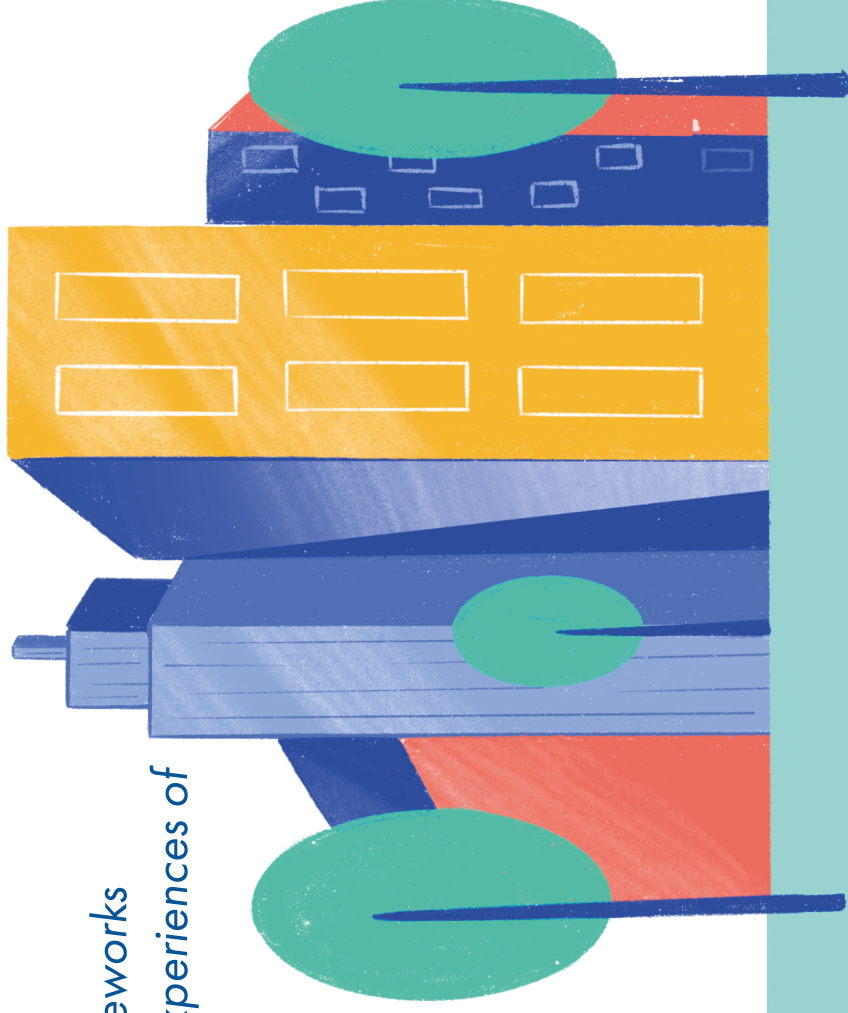
A

Guidebook for Citizen Engagement with Monitoring Frameworks



Monitoring What Matters to the City and Her Citizens

*A guidebook for engaging citizens with monitoring frameworks
to bridge the gap of monitoring frameworks and lived experiences of
citizens*



August 2024
Laura van der Linden

Developed as part of a graduation project at TU Delft for the MSc 'Strategic Product Design'
in collaboration with the Amsterdam Institute for Advanced Metropolitan Solutions

Are you monitoring what matters to the city and her citizens?

In modern cities, data-driven decision making is being increasingly adopted by policymakers for example through use of urban monitoring frameworks. In this study it was found, however, that current monitoring frameworks are biased by the normative perspectives of monitor developers, thereby making their views and opinions dominant in shaping policy and public perception. Moreover, the aggregated metrics of monitoring frameworks may overlook outlier experiences, masking and excluding local differences and problems. **This results in a gap between monitoring systems and the reality of the lived experiences of citizens.**

Implications of including citizens in monitor development

This booklet is the result of a design research project in collaboration between the TU Delft and the AMS Institute. The project explored how citizens can be engaged with monitoring frameworks and how their perspectives can be integrated in urban monitoring systems.

It was found that citizen perspectives can lead to identifying new locally relevant indicators, new connections within monitoring frameworks and that assigning weights to indicators could indicate local priorities and nuances. Through including citizen perspectives, the assessment of the city's performance can be based on what citizens define as success, through making the variation of the aggregated metrics explicit, and showing what matters the most to specific local contexts by weighing indicators across local demographics. Ultimately, utilizing local knowledge to shape monitoring frameworks allows us to monitor what matters to both the city and her citizens, thereby contributing to more responsive policy decision making.

For this project the Ideal(s) City monitoring framework (co-developed by the AMS Institute and the City of Amsterdam) was used as a case study.

What is this booklet?

This booklet offers an actionable process for including local citizen knowledge in urban monitors. It suggests steps for engaging citizens and provides guidelines and examples from the design research project to help you integrate citizen perspectives into monitoring frameworks.

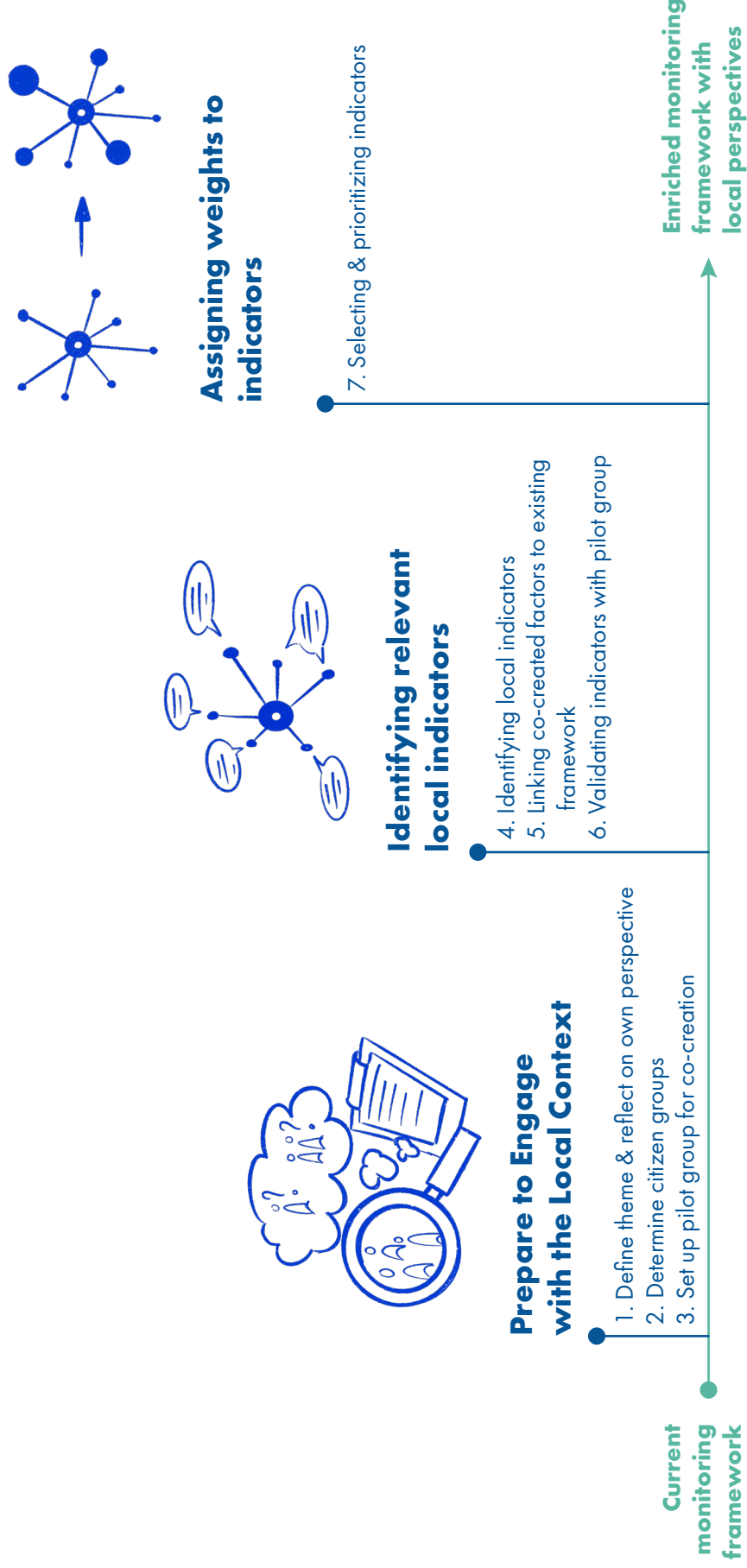
For whom is it meant?

This document is created for monitor developers and civil servants that aim to identify what matters to citizens and include their perspectives in the monitoring frameworks that they are deploying.

What is the aim?

The aim of this booklet is to inspire and support monitor developers and civil servants to take a new approach and take the first steps in including local perspectives in their monitoring frameworks.

Process overview



Before you start...

What do you need?

Before you start engaging citizens with your monitoring framework, you will need to have an existing monitoring framework, and a multidisciplinary team to execute the steps as described in this booklet.

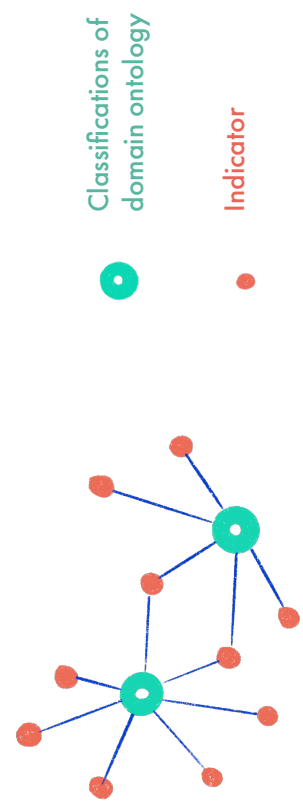
Base Monitoring framework

To start the process of engaging citizens in the development of urban monitoring systems, there should be an existing relational indicator base where the indicators have been classified according to relevant themes for City policy. This initial framework will be used as a base to integrate the local perspective through providing new connections and identifying gaps in the indicator set.

Multidisciplinary Monitor Developing Team

In addition, a multidisciplinary team with different knowledge and skills is needed. Within the team there must be knowledge of what is going on within policy regarding the theme(s) that will be dealt with in order to ensure that the results are in line with the policy goals of the city. Next to this, there is a need for a person that can act as the bridge between the technical framework and the experiences of citizens. To act as this 'connector', one requires a number of social skills, such as being empathic, approachable, and a good listener. Next to this experience in facilitating workshops is beneficial. Furthermore, analyzing the insights from this process and integrating the co-created indicators requires knowledge of data analysis.

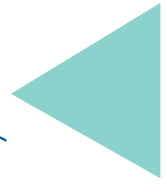
VISUAL EXPLANATION OF COMPONENTS OF IDEAL(S) CITY FRAMEWORK



Simplified visualisation of a relational indicator base, where indicators are connected through the classifications of a domain ontology (such as themes and indicators)

Policymaking

> ensures relevancy and alignment of outcome for policy



Mediator

> acts as bridge between citizens and monitoring framework

Data Analysis

> analyzes insights process & integration of local indicators

Prepare to Engage with the Local Context

Before you start the engaging citizens with the monitoring framework, a few things need to be prepared. First, it is important to create a definition of the (policy) theme that citizens will be able to understand and to become aware of your own perspective. Secondly, in aiming to include the diverse perspectives and experiences of citizens, it is important to reflect on what this diversity looks like for the specific theme and define 'citizens groups' based on the key socio-demographic variables. With these groups in mind, it is then time to reach out to citizens to set up the pilot group for the identification of local indicators.



1. Define the theme & reflect on own perspective



AIM

As a starting point for co-creating, there should be an initial understanding of the theme(s) that will be covered. Creating understandable definitions of the themes will serve as a baseline for the next steps and makes you aware of your own perspective. Which might turn out to be different from the local perspective!



WHO

- Monitor developing team



HOW

Take a look at the policy objectives and the indicators that are currently related to the theme that you will discuss with citizens. Based on these two elements, take into consideration how this theme or policy might affect citizens and create a definition of the theme. In formulating this, take the guidelines in consideration.

TIP! CREATE ILLUSTRATIONS TO SUPPORT THE EXPLANATION OF THE THEMES FOR CITIZENS

GUIDELINES

- The topic for discussion should be concrete, specific, and relevant for citizens
- Focus on how the city can contribute to the experience of citizens and not on what the city wants to achieve
- Consider the different local languages and create multiple versions if necessary

DO NOT...

...use jargon. Instead use simple language, preferably supported with visual explanations to be able to also communicate to citizens with low literacy or command of the main language.

EXAMPLE

When discussing the theme safety the description of the theme could be:

"Citizens of Amsterdam feel safe in the city because they do not experience danger or risks."

OUTCOME

A (visual) document describing the theme that will be analyzed with citizens & awareness of own perspective on the theme in question.

2. Determine 'citizen groups'



AIM

This step should be conducted to actively consider how the diversity of the population can be taken into account in the process of co-creating indicators.



WHO

- Monitor developing team



HOW

For every theme, think about what sociodemographic variables of citizens and their situation play a role in their experience, such as: age, income, ethnicity, and which neighborhood they live in. What might influence their experience around this theme?

Explore the local context to see what is happening in the city revolving this theme and step out of your bubble.

Create an overview of different 'citizen groups' that can be characterized according to the variables that are considered to influence citizens' perspectives.

Per theme it might differ who you involve to represent this diversity of the city. For some themes it might be crucial to consider the neighborhood in which they live, where for other themes the focus should lay on their income or age.

GUIDELINES

- Consider the diversity expected within the local context for a specific theme (based on e.g. age, gender, nationality, income, education, household situation, etc.)
- Try to step out of your own perspective and bias and reflect on what aspects impact the experience of a citizen for the theme.
- Engage in conversations with potentially affected citizen groups.
- Make use of the existing knowledge, such as existing literature, local/community news articles, previous participation projects, etc.

DO NOT...

...determine those citizen groups from behind your desk. Engage in conversations with citizens and local organizations to find out what is happening outside your own bubble.

EXAMPLE

For safety, citizen groups are likely relevant at the neighborhood level. Additionally, it is important to consider vulnerable groups such as women and the elderly, or people who may feel unsafe due to discrimination, such as ethnic minorities.

OUTCOME

Awareness of the diversity and different perspectives surrounding the theme, and an overview of citizen groups based on key variables for the theme

3. Set up pilot group for co-creation



AIM

Based on the identified citizen groups, a pilot group can be established. This is a specific selection of the citizen group consisting of a limited number. The goal of the pilot group is to identify factors related to the theme. Diversity is central to this group in order to capture as many perspectives on the theme as possible, thereby aiding in the development of indicators.



WHO

- Monitor developing team



HOW

Examine the sociodemographic variables on which the citizen groups are formed and strive to include as much diversity within these variables in the pilot group as possible. Ensure a distribution of variables such as age, income, gender, ethnicity, etc. The number of participants in the pilot group should be based on reaching this distribution of variables that were identified as important.

Delve into the local context and engage in conversations with key figures from neighborhoods or local organizations to connect with citizens, or go out on the street and talk to people about the theme.

GUIDELINES

- The participating group should be as diverse as possible. Diverse perspectives will result in a better representation of the experiences of the local community.
- Actively involve minority groups, to prevent reinforcing existing inequalities.
- Consider the diversity expected within the local context for a specific theme (based on e.g. age, nationality, income, education, household situation, etc.)

DO NOT...

...always look for participants via the same key figures, but build up as much of a network as possible in order to create variation in who is involved.

EXAMPLE

The goal is to assemble a diverse group in which the various key variables identified are evenly distributed within the group. So for example, for safety, you want people of different neighborhoods, age, gender and ethnicity. People can represent multiple characteristics from the citizen groups in this.

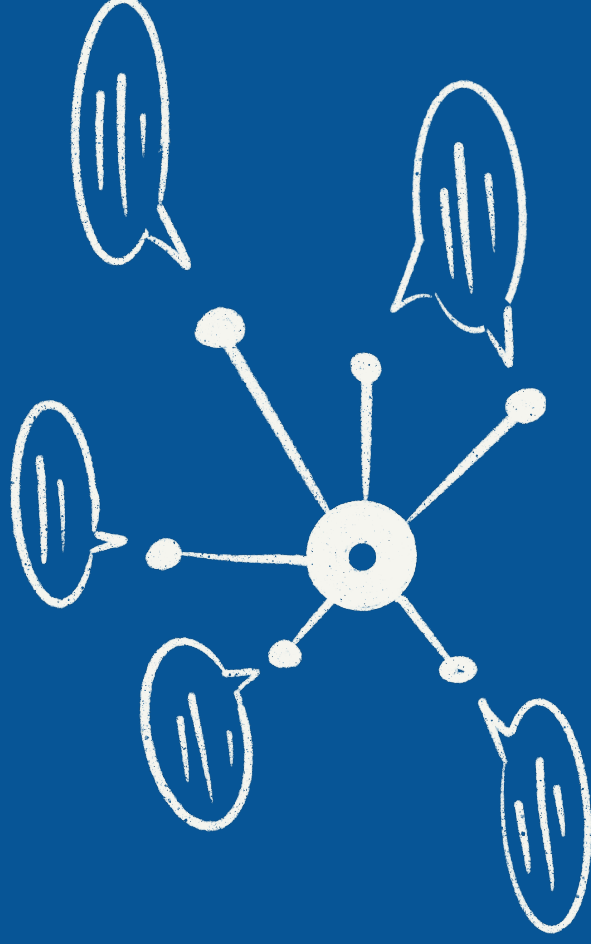
OUTCOME

A diverse group of citizens that reflects the sociodemographic variables identified in the citizen groups.

Identifying relevant indicators for the local context

Now it's time to involve citizens!

Together with the citizen pilot group you will identify which indicators relate to their experiences. Next, you will link the identified factors to identify missing indicators and to find new connections among indicators in the monitoring framework. To make sure that the rationale of the participants was correctly understood the overview of related factors and indicators should be validated with the pilot group afterwards.



4. Identifying local factors



AIM

The aim for this step is to identify factors that relate to the experience and perception of citizens. Factors can be defined as elements that influence the perception or experience of people. This can later on be translated into indicators as measurable metrics.



WHO

- Monitor developing team
- Pilot group



HOW

With the pilot group that was set up in step 3 you will dive into the selected theme and explore their perspectives. This step should be conducted with qualitative approaches such as interviews or co-creation workshops to be able to get to the core rationale behind the experiences of the participants.

To guide the participants in identifying factors, the process should be divided in sub-activities. First 'unpack' the theme to make sure that you come to a shared understanding of what it means. Then identify factors based on experiences and perception of participants.

Next, cluster the factors and create a selection of the most relevant factors. Reflect together with the participants on which level of detail is required for the factors. Not every small individual detail needs to be included as a separate factor. Look at how personal experiences can be combined into generally applicable factors. For this, take in consideration the frequency a factor emerged and the degree of value that participants place on it.

GUIDELINES

- Acknowledge the subjective perception and experience of citizens, be genuinely interested in what they have to share about their experience. You as an expert can learn from experts-by-experience.
- Actively show the participants the value of their input and local knowledge to prevent self-censoring, make them feel at ease.
- Local knowledge is expressed through stories, narratives, images, etc. Think of ways to facilitate these expressions for the participants when co-creating the local factors
- Use simple language and prevent using jargon.
- Take into account low literacy levels and the different languages spoken in the local context. Provide opportunities for verbal or visual explanations.

DO NOT...

...approach the theme with indicators from the framework, rather start from the experience and stories from citizens. Make sure to speak 'their language'

EXAMPLE

Examples of factors that can be derived for safety are: Connection with Neighbors, Spatial Openness & Visibility of an area, and Nuisance by Loitering People'.
(For a more detailed description see page XX)

OUTCOME

Once this step is executed you will have a list of factors to compare with the initial monitoring framework in the next step.

5. Linking identified factors to existing framework



AIM

Ultimately, the co-created factors should be translated into indicators and integrated into the monitoring framework. To do this, links with the existing indicator base should be made. Through doing this, gaps and new connections in the indicator framework can be identified.



WHO

- Monitor developing team



HOW

Take the list of co-created factors and compare them with the indicator set of the existing monitoring framework. List per factor which indicators relate to the co-created factor and create an overview of this. Per factor there could be more than one indicator, or it could be that the co-created factor is not yet represented in the existing monitoring framework.

Determine if there are any gaps in the indicator base, i.e. which co-created factor is not represented in the existing monitoring framework. And create suggestions of how this factor can be included in the monitoring framework as indicator.

Try to find a balance between aggregated and locally relevant indicators. For this, take into consideration the frequency a factor emerged, the degree of value that participants place on it, the measurability, resources available for data collection and the impact on policy responsiveness.

GUIDELINES

- In this translation it is important to make sure the rationale of the participants is understood. It comes down to properly understanding the nuances of their stories to prevent connecting indicators that do not align with their experiences.
- Formulate the indicator descriptions in simple language that is understandable for the participants

DO NOT...

...fall back into old patterns of aggregated indicators. If a highly localized indicator is likely to lead to significant policy improvements that address critical issues within a community, it may be worth including even if it complicates the aggregation process.

EXAMPLE

For the Ideal(s) City framework an example of a gap that was identified was: 'Spatial Openness & Visibility of the area'. A new connection that emerged was: 'Connection with Neighbors'.

OUTCOME

In the end, you should have a clear overview of indicators (both indicators from the framework and suggestions for new indicators) that relate to the identified factors and the perception of the pilot group regarding the theme.

6. Validating indicators with pilot group



AIM

Translating experiences and factors into indicators is a sensitive step, as the richness of stories is lost, it comes down to understanding the rationale of participants. Therefore the set of indicators should be validated with the pilot group. This gives citizens the opportunity to contest and provide feedback.



WHO

- Monitor developing team
- Pilot group



HOW

Take the overview of the factors and indicators and share it with the pilot group. Make sure that the description of the indicators is given in simple language so that the participants are able to understand. This can be done verbally in a meeting or workshop, or in a written document with an accessible option to contact the monitor developing team.

Explain why certain decisions were made and ask for feedback. This moment can also be used select between different options, e.g. which of these three indicators best represents what we identified in the previous step?

GUIDELINES

- Think of this as a moment of feedback to test whether the correct assumptions were made.
- Show your appreciation of the participants' efforts to enthuse them to continue participating in future research.
- Reflect with participants on the co-creation process to gather feedback on how to improve this in the future.

DO NOT...

...avoid coming across that all choices are already made and fixed. Give citizens the sincere space to provide feedback on the list of indicators.

EXAMPLE

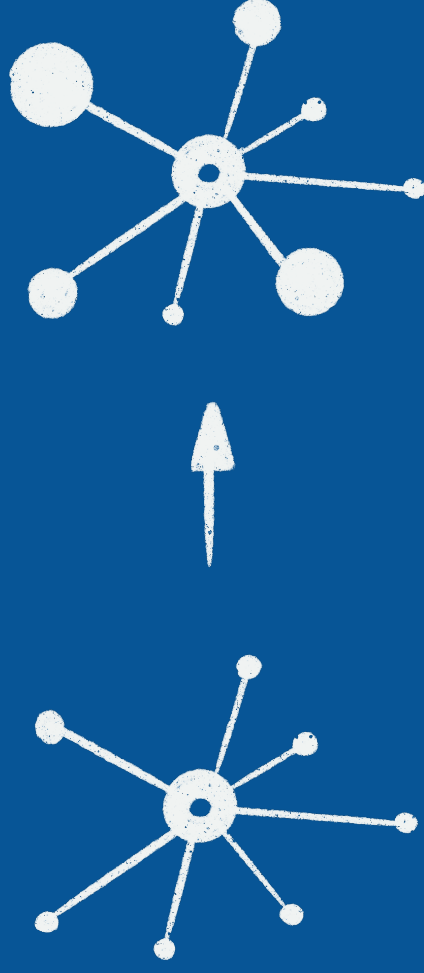
Validation with participants can be done by e.g. presenting the results, hosting a lunch, sharing via the mail, etc.

OUTCOME

A validated list of indicators related to the theme in question, ready to be assessed in a representative study.

Assessing relevance of indicators

Now you have identified which indicators are considered relevant to the local context, it is time to reflect the diverse concerns and experiences of the city through assigning weights to the indicators. Through a quantitative study among a cross-section of the local context, citizens can assess the degree of importance of the indicators.



7. Selecting & Prioritizing Indicator



AIM

In striving to monitor what matters to citizens, the diversity of the population should be taken into account. Through assessing the indicators on importance, the indicators can get an attributed weight in the monitoring framework. Thereby providing the opportunity to show what matters to which local context. Therefore, a relevant questionnaire that covers all topics and indicators in a way that is understandable and accessible to citizens must be prepared.



WHO

- Monitor developing team
- Cross-section of city population



HOW

To get a representative selection of indicators that reflect the importance of indicators for all citizens, this step should be executed quantitatively with a cross-section of the local context. To be able to do this a validated questionnaire should be set up that covers the essence of the indicators and allows citizens to assign weight of importance for their experience of the theme. Preparing such a questionnaire is a specific expertise beyond the scope of the present study. Consult experts in drafting a validated questionnaire.

Next to assessing the indicators on importance, include questions on demographic data in the questionnaire. In doing so, citizens' responses can be traced back to their demographic data, such as age or neighborhood. This allows for filtering the selection and weights of indicators for specific social groups, enabling policymakers to target the execution of their policy better to the needs of the local community.

GUIDELINES

- Conduct the indicator assessment among a representative cross-section of the local context
- Based on these priorities, one can also look at how important it is to include certain indicators. The questionnaire can help make a selection of relevant indicators.
- Consider the different local languages and offer alternatives for low-literate people such as questions read aloud to make the questionnaire as inclusive as possible.
- Weighting indicators could be combined with questionnaires in which the city is already collecting data on the topic in question

DO NOT...

...make it too complicated. Keep the questions simple, effective and clear.

EXAMPLE

Think of experts within the municipality, such as the research department or external parties, such as Populytics.

OUTCOME

Through assessing the indicators on importance, a selection of the most important indicators can be made. Besides, a new dimension to the monitoring framework can be added through the assigning of weights to the selected indicators.

Example of Co-Creating indicators for theme 'Safety'

To illustrate what the outcome of co-creating indicators with citizens can be, this section compares the results of an explorative co-creation workshop for the theme 'Safety' with the indicator base of the Ideal(s) City framework.

Example of Safety (before and after co-creation)

In the current Ideal(s) City framework, safety is measured by 59 indicators. Examples of these indicators are shown below.

Selection of safety indicators from the Ideal(s) City framework

- Number of juveniles with delinquency in court
- Number of warnings given by police
- Violent crimes (number per 1,000 population)
- Number of reports for shoplifting
- Thefts from home (number per 1,000 population)
- Number of victims of crimes
- Destruction and damage (in public places)
- Number of incidents Fire Department
- Number of GRIP situations (where multiple emergency services are involved)
- Number of reports of domestic violence
- Occupancy rates at shelters for domestic violence
- Risk of flooding
- Heat stress elderly
- Street lighting
- Feelings of unsafety
- Safety Index (recorded crime, perceived nuisance, perceived victimization, perceived unsafety.)

Looking at these indicators you can see that safety is primarily tied to objective indicators that deal with the number of crime reports such as theft or violence, or the number of people who have been in contact with the police or other organizations like youth care.

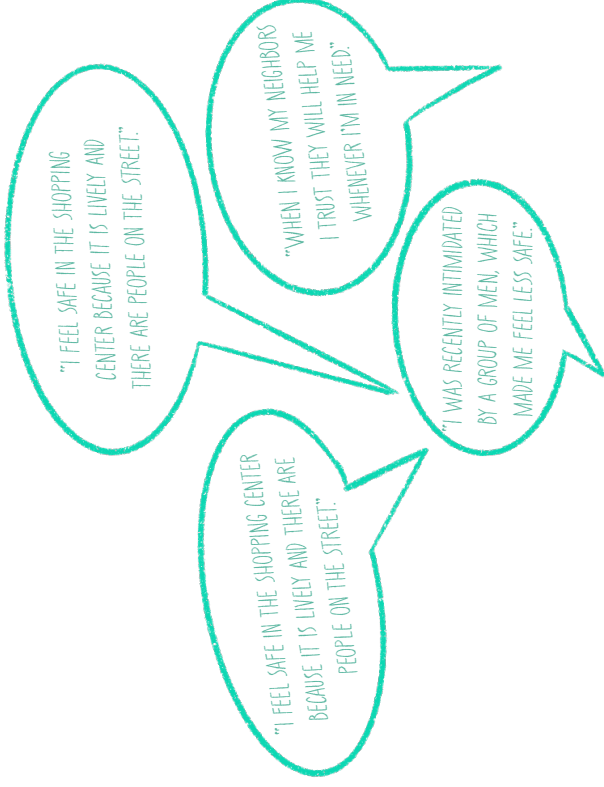
Merely, two indicators refer to the perception of safety by citizens; 'Feelings of unsafety' and the 'Safety index' that includes: recorded crime, perceived nuisance, perceived victimization, perceived unsafety.

So the framework incorporates perception of safety, only to condense the entire experience of safety into a single index figure. Consequently, the different factors contributing to, for example, 'perceived nuisance' or 'perceived unsafety' are no longer clearly distinguishable.

Furthermore, these indicators predominantly focus on aspects that compromise safety; the list lacks indicators that demonstrate what contributes to improved safety.

Example of Safety (before and after co-creation)

In the co-creation session for safety, eleven factors were identified. Four examples are shown on the right.



CO-CREATED FACTORS FOR SAFETY

Connection with neighbors

The presence of familiar individuals in a neighborhood, such as recognizing people on the street or knowing neighbors, enhances the perceived sense of safety among citizens.

Loitering (groups of) people

Loitering (groups of) people can lead to feelings of intimidation and discomfort among citizens, thereby reducing their sense of safety.

Presence of people on the street

Active and lively neighborhoods, characterized by the presence of people on the streets, contribute positively to the citizens' feeling of safety.

Spatial openness & visibility

The degree to which public spaces provide unobstructed views, allowing for clear visibility of surroundings, this enables people to detect potential threats and be seen by others.

Implications of including citizen perspectives in monitoring frameworks

In the case study for the Ideal(s) City framework three main roles were identified for local knowledge in monitoring framework. Looking at the theme safety, the following examples for these three roles can be given.

1. Identifying missing indicators in the current monitoring frameworks to minimize disparities between citizen perspectives and urban monitors.

For safety we identified, new indicators for example: 'Presence of people on the street.'

2. Providing new connections among indicators in the monitoring framework

New connections were identified with the factor 'Connection with Neighbors', as this was already present in the current monitoring framework for Social Connection, but not yet connected to safety.

3. Assigning weight of importance to indicators to reflect the diverse concerns and experiences of citizens

It was found that for safety, participants perceived the connection with neighbors as more influential than the spatial openness and visibility in a specific local context.

