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Public Toilets and Urban Equality: A Systemic Design Approach to Inclusive Public Space in Tallinn

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Abstract

This thesis explores public toilet provision in Tallinn and its role in shaping equitable access to urban space, particularly for women and other disadvantaged groups. Using a systemic, participatory approach, the research investigated how the public toilet system could be improved to support inclusion, dignity, and spatial justice. The study combined a targeted literature review focused on public toilets with empirical methods including field observations, interviews, participatory workshops, and systems mapping.

The findings revealed a fragmented, uneven system characterised by inadequate distribution, poor maintenance, and widespread distrust. Public toilets were concentrated in tourist areas, while residential neighbourhoods, playgrounds, and everyday routes were left underserved. Participants described avoiding public toilets due to concerns about cleanliness, safety, and reliability, relying instead on private facilities or planning routes around trusted spaces. This avoidance contributed to a reinforcing cycle: underuse led to increased vulnerability to vandalism or informal use, prompting closures and further eroding public trust.

A systemic analysis showed that these gaps were not simply logistical, but reflected a deeper issue: public toilets were not recognised, cared for, or valued as essential civic infrastructure. Their absence and neglect had become normalised, sustained by patterns of avoidance, reactive management, and fragmented responsibility. Breaking this cycle requires a shift in mindset towards seeing toilets as a shared public good embedded in systems of care, trust, and collective responsibility.

To support this shift, the research proposed a set of interconnected interventions aimed at activating different leverage points in the system. Rather than offering a singular solution, they work across multiple levels – addressing infrastructure, information flows, trust, and cultural narratives – to open space for more inclusive, accessible, and equitable public toilet provision in Tallinn.

Key words: systemic design; participatory research; public toilets; spatial justice

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I would like to thank Theresa Roth, a student of Interior Architecture at EKA, who collaborated with me during the early phases of the research. Her contributions - from field observations and co-facilitating the first participatory workshop to shaping and designing the cultural probes used in data collection - helped enrich my perspective and gave momentum to the project we first called Project: Toilet.

I also wish to thank my main supervisor, Kiwoong Nam, for helping me find a path through what was often a chaotic and non-linear research process. This project evolved iteratively and, at times, overwhelmingly so. His support helped me navigate uncertainty and stay grounded in the bigger picture.

I also want to acknowledge the influence of the course Embodied Research, taught by Arife Dila Demir, who later became the second supervisor of this thesis. The embodied and phenomenological approaches explored in her class helped me design and facilitate participatory activities in ways that made space for vulnerability, lived experience, and relational ways of knowing. These methods profoundly shaped the workshops' atmosphere and the stories that emerged from them.

To all the research participants – those who participated in workshops, submitted cultural probes, and shared informal stories in passing – thank you. Your honesty, trust, and willingness to speak about topics often considered too intimate or uncomfortable made this project possible. I am deeply grateful.

And finally, thank you to the places that shaped this thesis. To Tallinn, where the pace of the city and the reality of public space pushed me to start asking questions through walking, observing, and trying to understand the everyday. And to Rovaniemi, where the quiet of the Lapland winter gave me the space to slow down and make sense of it all.

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Abbreviations

EKA – Estonian Academy of Art

CLA – Causal Layered Analysis

GDPR – General Data Protection Regulation (Regulation (EU) 2016/679)

SDT – Systemic Design Toolkit

SOD – Systems Oriented Design

EPSS – Eesti Põletikulise Soolehaiguse Selts [Estonian Inflammatory Bowel Disease Association]

MLP – Multi-Level Perspective

PAR – Participatory Action Research

ZIP - Zoom, Innovation, Problem/Potential

1. Introduction

1.1. Positionality Statement

The topic of toilets came to me a long time ago. Working as an architect in my former profession, I designed dozens of toilets, across various public and private projects, navigating building regulations, client constraints, budgets, and technical standards. Each time, I found myself trying to push for more inclusive, accessible solutions yet always negotiating against limitations imposed by cost, norms, and priorities that often left those needs unmet. In addition to this, it was my own lived experiences, combined with conversations with women around me, that inspired me to dive into the topic. I had a lot of discussions with my female friends about the disproportion in public toilet provision in many cities. When living in London, I noticed that toilets are hard to find, most are closed, and residents are left using toilets in pubs. Pubs are usually open for you to use the toilet when needed, but are they the type of toilet anyone can use? They are not available at all times when they are needed (usually closed in the mornings), and when open, they are often loud, dominated by men, and not accessible to children. In public venues such as museums and concert halls, the queue to women's toilets is usually much longer than the men's. Why? Building regulations, historical norms, and a lack of understanding of the varied needs of women.

Moving to Berlin showed me yet another striking example of discrimination against women when it comes to toilets. Public toilets built in 2021 across the city had two options: urinals and an enclosed toilet. What did that mean in practice? Men go for free; women pay 50 cents. This is explained in practical terms by stating that the enclosed toilets require more maintenance because they might be used in unintended ways, especially by people experiencing homelessness. However, the effect of this design was that most of those paid enclosed toilets were hardly functional, as 50 cents was still a relatively small price for someone to spend the night. The question is whether maintenance challenges justify such stark discrimination against women and other disadvantaged groups. Not everyone can use an open urinal – a toilet serves many different purposes and is particularly essential when someone needs more than just a quick pee.

We brought these questions with my friend, Irola Andoni to a symposium on urban design at the Floating University in Berlin in 2023. We showed a short film created by Irola during her studies at the London School of Economics – *Everything is in the Toilet* – which

highlighted toilet inequality in London and expanded the topic with a short discussion on similar problems in Berlin. Our talk received applause and very enthusiastic responses. It became clear that this is a universal issue that affects people across cities. A problem in London and Berlin - so I began to ask myself whether this was also the case in Tallinn, where I lived at the time. I started my exploration, and the first reactions I received were many stories that people wanted to share with me. I discovered everyone has a toilet story, and surprisingly, everyone was willing to tell it: lived experiences of searching for hidden toilets, stories of dread and disgust, but also pleasant surprises. These conversations revealed that the topic is not spoken about enough. We need a platform to begin those discussions and take the first steps toward finding solutions. The problem is common, and we need to act on it.

In this research project, I position myself as a systemic designer and thinker, deeply embedded in the system I am investigating, and, most importantly, as a woman personally affected by the barriers related to toilet provision. My own lived experience, alongside those of other women, forms a crucial entry point into the research. Rather than taking a distant or neutral stance, I approach the work reflexively, as both an observer and a connected participant.

The research focuses primarily on the lived experiences of women living in Tallinn while also acknowledging the needs of other disadvantaged groups, including people with mobility impairments or specific medical conditions such as inflammatory bowel disease. I treat participants' contributions with respect and care, ensuring confidentiality and avoiding overinterpretation. I aim to make the research process genuinely participatory: emerging insights and proposed interventions are grounded in workshops and conversations, and I test and refine them in collaboration with participants.

Following a systemic approach, I adapt the research as I go – listening to individual stories, paying attention to patterns, and allowing insights to emerge through an iterative sense-making process. Although the final output may appear structured, the path was non-linear and exploratory in nature. While the lack of public toilet provision is a global issue, this research is rooted in the specific urban, social, infrastructural, and organisational context of Tallinn. The goal is not to isolate a single solution but to reveal the systemic dynamics that shape toilet provision and to explore a series of potential interventions that, over time, may contribute to more inclusive and equitable urban futures.

1.2. Research Problem

Everything is in the public toilet – our basic human needs and rights, dignity, and access to public space. And it brings major city problems to the surface – homelessness, alcoholism, vandalism, and cultural attitudes towards the care for the common good. Public toilets are not just the "four walls" – elements of city infrastructure – but an essential and interrelated element of the larger complex system of the city. Public toilets are where we perform the most intimate activities, far from the privacy and comfort of our homes (Molotch, 2010). Moreover, as I learned, it is a place where we go because we have to, not because we want to. Toilets have been deeply neglected worldwide – under-researched, underdeveloped, and often misunderstood in their social and emotional dimensions (Corradi et al., 2020). There are not enough of them, and they do not fully provide what we need from them – a space not just for sanitation but also for our wellbeing.

Without adequate public toilet provision, city inhabitants and visitors cannot fully access and enjoy public space. We cannot move far from home – where our private bathrooms are located – if public toilets are not sufficient. This is especially true for those who are disadvantaged: those with medical conditions that make them dependent on toilet access, people with mobility impairments, and women. This makes more than half of the population underserved in terms of toilet provision. Why is that happening?

First of all, cities are inherently gendered. For centuries, planned by and for men, the biological and behavioural differences between men and women – including the fact that women must go to the toilet more often and require larger space and more time – were not noticed or considered (Greed, 2010, 2019). Other disadvantaged groups are ignored even more. "Accessible" toilets may provide step-free access but very little else. Many toilets shown on maps are shut down, locked, or inaccessible due to neglect, vandalism, or lack of privacy.

Toilets are not something we talk about much. It is a taboo topic, and perhaps this adds to the long story of misunderstanding, missed research, and missed opportunities for change. Toilets are still researched mostly from a functional perspective – sanitation, technical design, and accessibility – but rarely from user experience or wellbeing.

Every city has a different toilet story. The context is never the same. While in London, the problem is mainly due to historical planning and building regulations that dictated a greater provision of urinals than female toilets, causing long queues for women, toilets in Tallinn

are distributed equally by gender. Provision is equal, but of course, "equal" is not the same as "equitable": women need more toilets than men and have greater requirements in terms of space, cleanliness, and privacy (Greed, 2010, 2019).

At first glance, Tallinn may not appear to have a problem with the overall number of toilets – they are visibly present, especially around the Old Town. However, the issue lies deeper: their unequal distribution, their lack of suitability, and the mismatch between provision and people's actual needs. As the United Nations has highlighted, toilets must meet several criteria: availability; accessibility; affordability; quality and safety; acceptability; privacy; and dignity (UN Human Rights Council, 2019). Tallinn's public toilet system does not fulfil many of those criteria. While the toilets exist, residents do not perceive them as reliably available.

Publicly accessible toilets in Tallinn can be divided into "on-street" public toilets managed by the city and "off-street" toilets inside various institutions and businesses. Both are "away-from-home" toilets publicly accessible to some degree, but the way they function varies greatly. On-street toilets are free-standing facilities, cleaned and maintained twice a day by the city, and yet they often fail to provide reliable service – notoriously vandalised, unclean, insecure, with broken locks, doors, and fittings. However, admittedly, they are available to all – to people of all backgrounds, including people experiencing homelessness. This inclusion comes at a cost, as many residents note: availability to all is often followed by lack of cleanliness and destruction.

Off-street toilets, on the other hand, offer a much more pleasant experience – relatively clean, maintained, dignified, and secure – but they come at a price: either a 50-cent fee or the discomfort of having to ask for permission to use a toilet that officially is not yours to use, as is the case in many restaurants or shops.

When asking the residents of Tallinn what the toilet situation is in their view, the most repeated answer is "tragic." I argue that it is not the worst. The city understands the need to provide public toilets. However, what is missing is a full systemic understanding of what the toilet represents – including the underlying social problems it exposes. Public toilets need to be treated as a service. It is not enough to provide infrastructure – the toilet must be maintained, and its condition, location, availability, and use patterns must be analysed from a systemic perspective.

Currently, only one department of the Tallinn city administration is directly responsible for public toilets – the Department of Urban Environment Maintenance – and their role is limited to maintaining conditions on a day-to-day basis and reacting to immediate problems. The approach is largely reactive rather than proactive, and the department lacks a clear connection to decision-making bodies within the city structure.

It is unclear how decisions on toilet location and design are made, as relevant actors are seemingly not consulted. For example, The Estonian Inflammatory Bowel Disease Association (EPSS), whose representative co-creates a map of accessible toilets for thousands of residents with bowel-related conditions, is "chasing" new toilet locations after they have been installed rather than being consulted beforehand. Based on field research and conversations, the current distribution of toilets is designed primarily for tourists and seasonal activity. While in summer, the city installs between 56 (interview, 2025) and 85 (City of Tallinn, 2022) seasonal toilets, in winter the city is left with only 12 permanent container toilets (city employee, personal communication, March 2025; City of Tallinn, 2022). This number does not include on-street toilets provided by private contractors or portable toilets, so the total is greater – but the disparity in provision remains evident.

In summary, although public toilets exist in Tallinn, their number, quality, and distribution remain insufficient to meet residents' needs. Moreover, there is no clear path toward lasting improvement – because the city is not approaching the issue from a systemic perspective. The question is not whether and how many toilets to have but how to provide a sufficient, equitable, high-quality, and dignified toilet system that serves all – all year round.

This challenge can be understood as a wicked problem in design thinking (Buchanan, 1992), involving multiple stakeholders, shifting needs, and no single 'correct' solution. This complexity calls for a systemic design approach that engages both structural dynamics and lived experience.

1.3. Research Aim and Questions

This thesis explores the role of public toilets in shaping access to and experience of urban space. It focuses on how Tallinn's public toilet system could be improved to create a more inclusive city, particularly for women and other disadvantaged groups.

Research Aim

> How can we improve the public toilet system in Tallinn in order to create a more inclusive and equitable urban space, particularly for women and other disadvantaged groups?

Research Questions

To better understand the problem, the research is structured around four key questions:

> RQ1: What is the current state of the public toilet system in Tallinn? What is missing?
>
> RQ2: How is public urban space currently perceived by women and other disadvantaged groups in Tallinn?
>
> RQ3: How does the insufficient provision of public toilets impact women's experience of urban space?
>
> RQ4: What are the common needs of women in public space, and what barriers prevent their full participation in urban life?

These questions are grounded in a systemic understanding of public infrastructure and a feminist approach to urban accessibility. They examine both the physical conditions of toilet provision and the emotional, social, and practical implications of their (un)availability. The questions also serve as a foundation for this project's participatory and multi-method research strategy.

1.4. Scope and Boundaries

This research focuses on the city of Tallinn, Estonia, as a case study. The choice of location was not based on pre-established theory, but on lived experience: I was living in Tallinn when the idea for this project emerged. As I explored the city and spoke with others about public space, the topic of toilets kept surfacing – as both a practical need and a symbol of deeper structural issues. Tallinn also offers a compelling context of post-socialist urban development and visible yet uneven investment in public toilet infrastructure, making it a valuable ground for investigating questions of access, equity, and systemic planning.

Throughout this thesis, the term "public toilets" refers to toilets that are publicly accessible, even if not publicly owned. This includes both on-street toilets – free-standing structures managed by the city or private contractors – and off-street toilets located inside institutions

or businesses such as libraries, cafés, or shopping centres. These may be free or require payment. Toilets inside private homes, staff-only facilities, or informal/invisible alternatives (such as those in transportation depots or closed buildings) are not included in the analysis.

The study places a particular emphasis on women's experiences. This focus stems from the systemic gender bias in urban planning, where women's needs, including more frequent toilet use, the need for privacy, and menstruation-related needs, have historically been overlooked. While the primary lens is gendered, the research also recognises the overlapping needs of other disadvantaged groups, including people with mobility impairments, chronic illnesses such as inflammatory bowel disease, elderly people, and those experiencing homelessness. These experiences are acknowledged where relevant but do not form the central focus of the study.

There are several limitations to the research. First, the study is context-specific and focuses only on Tallinn. Second, the fieldwork took place during a specific period of time, meaning seasonal changes and temporary infrastructure (e.g. summer toilets) may not be fully captured. Third, while every effort was made to speak to relevant stakeholders, access to decision-makers and city data was limited. Lastly, this is not a technical analysis or an exhaustive audit of all toilets in Tallinn, nor does it offer a single design solution. Instead, the goal is to better understand how public toilets function as part of a complex urban system – and how they could be improved to support more inclusive, equitable access to the city.

Across all research activities, I engaged a total of 26 distinct participants. The first participatory workshop brought together 15 Tallinn residents (10 women and 5 men). The second workshop involved eight women, six of whom had already taken part in the first session, adding two additional voices. Four expert interviews complemented the resident perspective, including an EPSS representative, a municipal accessibility consultant who uses a wheelchair, a researcher who had recently studied homelessness in Tallinn, and a public-toilet maintenance supervisor (2 women and 2 men). To capture informal perspectives on toilet access in semi-public venues, I conducted five anonymised "guerilla" conversations with restaurant staff. In addition, 11 participants from the first workshop completed take-home cultural probe booklets, providing deeper individual reflection rather than expanding the participant pool.

Although the sample was diverse in some respects, it remained limited in others. Recruitment through university channels and voluntary participation meant that certain groups –

particularly older residents, people with disabilities, and those currently experiencing homelessness – were not directly represented in the workshops. Their perspectives entered the study only by proxy through the specialist interviews. While small, the sample size is typical for qualitative systemic design research, which prioritises depth and diversity of insight over statistical representativeness.

1.5. Key Terms

This section defines the key concepts used throughout the thesis. These terms guide the framing, methodology, and interpretation of the research.

Public Toilets

In this thesis, "public toilets" refers to any publicly accessible toilet facility outside the home. This includes both on-street toilets managed by the city or private contractors and off-street toilets located inside institutions or businesses such as libraries, cafés, or shopping centres. Toilets that require payment, permission, or indirect access (e.g. through a café) are included if they serve a public function. Toilets in private homes or staff-only areas are excluded.

Spatial Justice

Spatial justice refers to the fair and equitable distribution of public infrastructure, resources, and access to urban space. It draws on Soja's (2009) understanding of urban space as a reflection of social structures and Harvey's (1973) foundational critique of how cities reproduce inequality. This thesis also builds on feminist interpretations, particularly Beebeejaun (2017), who highlights how spatial injustice is often experienced differently along gender lines, especially in relation to infrastructure like toilets.

Right to the City

The "right to the city" is understood here as the right of all individuals to access, inhabit, and shape urban space. Following Lefebvre (1991) and Harvey (2008), this concept connects access to services like toilets with broader issues of urban citizenship and justice. De Certeau (1984) expands this idea by arguing that the right to the city is not only claimed through planning and policy but also through everyday acts of walking, navigating, and adapting urban space – a framing particularly relevant when considering how people seek out or avoid public toilets.

Systems Thinking

Systems thinking is an approach to understanding complex, interrelated issues by identifying patterns, relationships, and feedback loops. It helps uncover how challenges like toilet access are not isolated but deeply connected to broader dynamics of urban governance, social norms, and institutional responsibility (Meadows, 2008; Sevaldson, 2022).

Systemic Design

Systemic design combines systems thinking with design practice to explore and address multifaceted social challenges. It supports mapping relationships, identifying leverage points, and considering change across time and scale (Jones & Van Ael, 2021, 2022). In this thesis, it is used to explore toilet access not only as a design problem, but as a system-level issue rooted in policy, infrastructure, care, and everyday experience.

Systems Oriented Design

Systems Oriented Design (SOD) is a methodology developed by Sevaldson (2022) that supports designers in working with complexity through visual, iterative, and reflective methods. It is used in this thesis not only to synthesise research but also as the overarching approach for structuring the research and design process itself – combining investigation, analysis, and design into a continuous, evolving process. Rather than separating these stages, SOD treats design and research as inseparable and iterative.

Gigamapping

A visual research method from Systems Oriented Design, in which complex systems are mapped at large scale to reveal patterns, connections, feedback loops, and areas for intervention (Sevaldson, 2011, 2022). Gigamaps use a combination of sketches, notes, images, and diagrams to explore interdependencies among stakeholders, processes, and material elements, supporting collaborative sense-making and design. Gigamapping also supports interpretive techniques such as ZIP-Analysis, a method for identifying Zoom points, Problem/Potential points, and Intervention/Innovation points

Leverage Points

A concept from systems thinking (Meadows, 1999) describing places in a system where small interventions can create significant, cascading change. Meadows identified a hierarchy of leverage points, ranging from shallow (adjusting numbers or rules) to deep (shifting

mindsets or paradigms). Intervening at deeper levels, such as beliefs or goals, offers greater potential for transformative change but is more difficult to achieve.

Multi-Level Perspective

The Multi-Level Perspective (MLP) is a framework used to understand how systemic change unfolds through interactions across three levels: niches (spaces of innovation), regimes (established systems and structures), and landscapes (broader societal trends). Originally developed within transition studies (Geels, 2002), it is used in this thesis to frame the public toilet system as part of a layered urban ecosystem where change must happen at multiple scales – from small innovations to shifts in institutional practices and cultural attitudes.

Participatory Research

Participatory research involves working with people not as passive subjects but as active contributors in the research process. It values lived experience and aims to create knowledge through collaboration. In this thesis, the research was shaped by insights from the participants themselves, with methods such as cultural probes and workshops designed to surface needs, share stories, and imagine new possibilities together. The workshops were intentionally generative and reflective, giving participants space to influence the process and outcomes. Research proposals were also shared back with participants to avoid one-sided interpretation and support validation of insights. This approach follows Manzini and Rizzo's (2011) framing of participatory design as an open and evolving process where outcomes emerge from collective meaning-making, while drawing on key values of Participatory Action Research, particularly iterative reflection and shared decision-making (Kemmis & McTaggart, 2008).

Service Design

Service design is an approach to shaping services that are more useful, usable, and meaningful. It emphasises empathy, collaboration, and iteration. In this thesis, service design supports the reframing of toilets as services – not just physical infrastructure but part of a broader user experience encompassing access, maintenance, emotional comfort, and dignity (Stickdorn et al., 2018). In this thesis, service design also supports the framing of *infrastructure as service* - understanding toilets not just as physical facilities but as relational services.

1.6. Summary of Methodology

This study follows a qualitative, participatory, and systemic design approach. Grounded in the principles of Systems Oriented Design (SOD) and enriched by tools from Systemic Design Toolkit (Jones & Van Ael, 2021) and Service Design practices, the methodology evolved iteratively over time. The research and design processes were treated as interconnected, with insights emerging through constant interaction with participants, context, and the city itself.

The methodological choices were guided by the main research aim:

> How can we improve the public toilet system in Tallinn in order to create a more inclusive and equitable urban space, particularly for women and other disadvantaged groups?

In response to this aim, the research drew on multiple methods to capture both systemic and lived dimensions of the problem. These included:

Field observations ("toilet safaris"), used to explore the condition and context of existing public toilets

Participatory workshops, which served as co-creative spaces for story sharing, reflection, and ideation

Cultural probes, designed to surface individual perspectives and emotional responses to toilets and public space

Semi-structured expert interviews aimed at understanding institutional responsibilities, systemic barriers, and ongoing efforts

System mapping and gigamapping used to visualise complexity, interconnections, and opportunities for intervention

The process was iterative, with early observations and participant feedback informing the design of each next step. Ethical considerations were embedded throughout, and a strong emphasis was placed on lived experience, emotional safety, and collaboration. Instead of treating participants as research subjects, the process was designed to enable co-reflection and co-creation – from early framing to shaping design opportunities.

A full description of the methodology, including methods, process phases, ethical considerations, and data synthesis, can be found in Chapter 3.

1.7. Structure of the Thesis

This thesis is structured into seven chapters, each contributing to a systemic understanding of public toilet provision in Tallinn, and the role it plays in enabling inclusive urban life.

Chapter 1: Introduction outlines the background of the problem, the personal and academic motivations behind the research, and the research questions and scope. It also includes a positionality statement and a summary of key concepts that underpin the work.

Chapter 2: Theoretical Framing provides the conceptual grounding for the study. It positions public toilets as critical but often overlooked infrastructure, explores their connection to spatial justice and gendered urban space, and outlines systems thinking and systemic design as the guiding methodologies. The chapter also bridges theory and practice, showing how the conceptual framework informed the research design.

Chapter 3: Research Design and Methodology details the methodological approach, drawing on Systems Oriented Design, participatory practices, and qualitative research. It introduces the overall research strategy, data collection methods (including field observations, workshops, cultural probes, and expert interviews), and the iterative process that guided the project.

Chapter 4: Results and Systemic Insights presents the research findings. It offers an overview of Tallinn's current public toilet system, synthesises insights across methods, maps systemic patterns and and underlying structures, and identifies leverage points for systemic change.

Chapter 5: Design Interventions introduces three proposed interventions developed through the research process. It describes the People's Toilet Map, the People's Toilet Award, and the Public Toilet Prototype, outlining their goals, conceptual foundations, and how they address key systemic challenges.

Chapter 6: Discussion reflects on the findings in relation to the research questions and theoretical framing. It discusses the potential contributions and limitations of the work, reflects on the research process, and considers possible directions for future research and action.

Chapter 7: Conclusion summarises the study's contributions. It argues that public toilet provision is both a practical necessity and a matter of spatial justice, and advocates for systemic, participatory approaches to create more inclusive, equitable urban spaces.

2. Theoretical Framing

2.1. Public Toilets as Multidimensional Infrastructure

The complexity and scope of public toilet provision is perhaps best captured by Greed (2003), who writes:

> Toilets' is a topic linking to a range of issues, including (in no particular order) crime and vandalism; sexuality (of all types); the environment, water conservation and global sustainability; health, hygiene and medicine; women's issues, childcare, breastfeeding and sanpro disposal; public transport and private travel; leisure, tourism and sport; continence, disability and ageing; architecture, engineering and design; sewerage, drainage and plumbing; religion, culture and taboo. In fact, 'all human life is there'. …
>
> (Greed, 2003, p. 8)

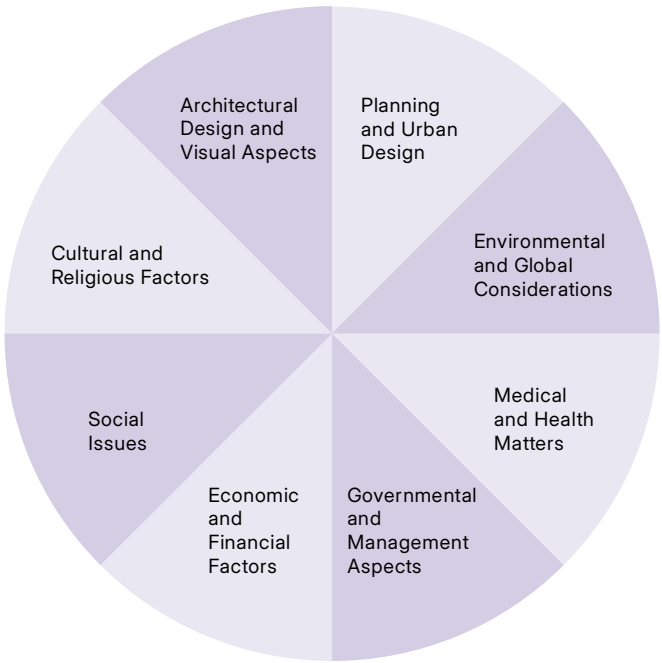


Figure 1. Realms concerned with toilets.
Adapted from Greed (2003, p. 9).

This recognition – that toilets intersect with nearly every aspect of social life – shows that toilets are not merely technical installations but deeply embedded elements of urban systems. Yet despite this multidimensional role, toilets remain among the most neglected components of city infrastructure. They are essential to daily life yet absent from planning documents,

underfunded, and frequently overlooked in policy and investment priorities (Greed, 2003, 2019; Molotch, 2010).

Public toilets are where the most intimate activities take place, far from the privacy of home (Molotch, 2010). They are not spaces people choose to visit for leisure, but spaces they must access. Their absence or poor design affects people's ability to participate in public space, limiting mobility, inclusion, and everyday confidence (Greed, 2019; Molotch, 2010). Yet city planning typically treats toilets as basic sanitation facilities rather than integral components of inclusive infrastructure. Provision is often measured in technical metrics – location, capacity, cost – while their broader social and civic roles remain unacknowledged (Greed, 2003; Molotch, 2010).

This neglect reflects what Star (1999) calls the "taken-for-granted" nature of infrastructure: systems that remain invisible until they fail. Toilets fit this description, yet they also resist it. They are materially present, spatially visible, and socially hyper-visible – marked by stigma, taboo, and bodily urgency. Public toilets exist at an awkward intersection: invisible to planners but impossible to ignore for users; mundane in intent but sites of extreme experiences, from care to vandalism, intimacy to transgression. They are both "hard" infrastructure – requiring plumbing, maintenance, physical upkeep – and "soft" infrastructure – mediating care, inclusion, dignity, and emotional safety. Their ambiguous status makes them doubly vulnerable to neglect: neither fully integrated into technical systems nor embraced as social infrastructure.

Global examples show how bias in provision reproduces inequality. In London, women face chronic queues due to the historical over-provision of urinals (Greed, 2010). In Berlin, new toilets installed in 2021 charged women 50 cents while men used urinals for free – justified as a maintenance issue but reinforcing inequity (personal observation). In Ankara, a survey found women's cubicles fewer, smaller, or absent compared to men's (Afacan & Gurel, 2015, as cited in Moreira et al., 2021).

Similar systemic failures are evident in Estonia. Paulus (2023) traces a longstanding neglect of public toilet infrastructure, arguing that poor quality, inaccessibility, and design failures have become almost "part of national identity." Her historical examples, from the underused 1937 Paide toilet, to Viljandi's closed facilities in 1972, to Tallinn's infamous "miljonipeldik" toilet built in 2002, highlight how toilets have consistently been undervalued in urban planning, both materially and symbolically. Paulus critiques Tallinn's procurement-

driven approach, noting that "if a toilet is obtained through procurement, a better solution cannot emerge," reflecting a failure to recognise toilets as more than "a pot and, at best, a sink" but as spaces with spatial, emotional, and social significance. This perspective echoes Greed's (2010, 2019) critique of the technocratic neglect of toilets, showing that infrastructural underinvestment is both global and locally embedded.

These patterns demonstrate that toilets are not simply minor amenities but sites where broader inequalities in urban space are materially enacted. Their neglect signals whose needs are recognised in public life – and whose are overlooked. The following section explores how this infrastructural neglect connects to questions of spatial justice and gendered urban space.

2.2. Public Toilets, Spatial Justice and Gendered Urban Space

Access to public toilets is unevenly distributed, revealing and reinforcing inequalities embedded in urban design. These inequalities are shaped not only by gender but by intersecting exclusions across disability, age, class, migration status, and health conditions. This intersectional lens draws from feminist urban scholarship (Greed, 2010; Kern, 2020; Beebeejaun, 2017) and is informed by intersectionality theory (Crenshaw, 1989).

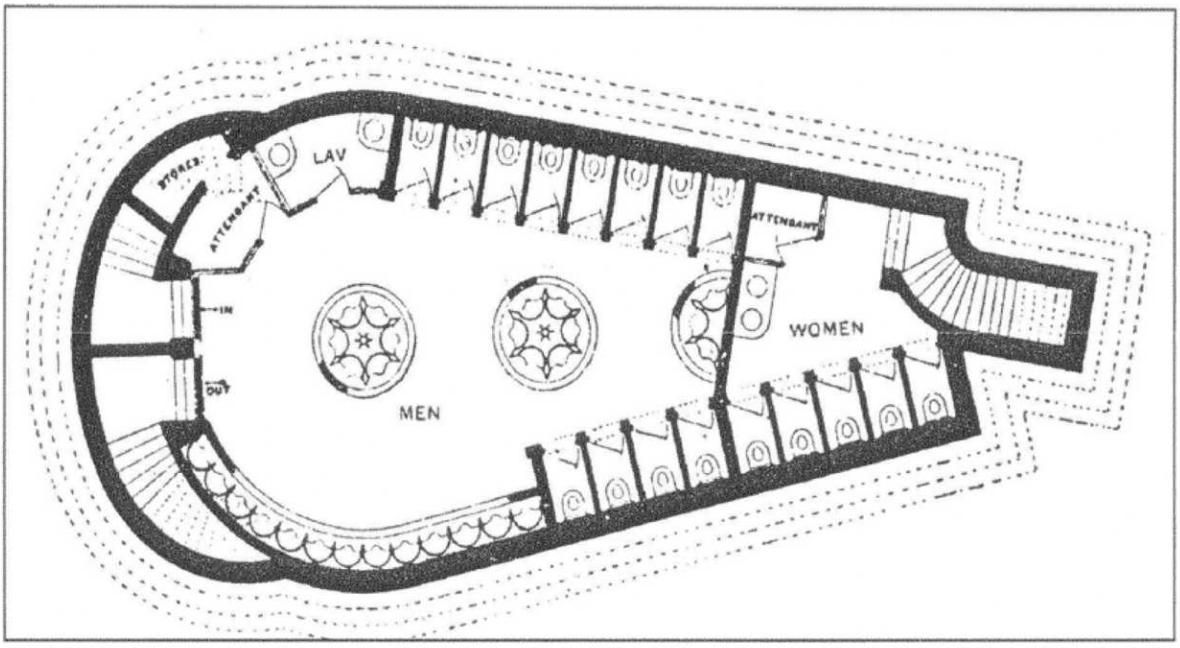
Tallinn's planning history reflects these structural patterns. Following the post-socialist transition in the 1990s, rapid property privatisation hollowed out municipal responsibility for small-scale infrastructure, leaving toilets especially vulnerable to budget cuts and fragmented governance (Tuvikene, Sgibnev, & Neugebauer, 2019). While infrastructure may appear neutral, cities have historically been shaped through male-dominated perspectives, with limited attention to the embodied needs of women, disabled people, older adults, trans and non-binary individuals, and others whose bodies diverge from normative assumptions (Greed, 2010; Kern, 2020). Who can access, feel safe in, and shape public space is therefore not only gendered but fundamentally intersectional.

The concept of spatial justice helps frame this issue. Originally articulated by Henri Lefebvre and later expanded by Edward Soja and David Harvey, spatial justice demands that all people have the right not only to inhabit urban space but to participate in shaping it. Harvey (2008) describes the right to the city as a collective right to remake the urban environment to reflect diverse needs. Beebeejaun (2017) extends this framework by showing how women and other marginalised groups experience cities differently, and how urban design subtly excludes them. She also draws on De Certeau's (1984) idea of asserting rights through everyday

practices: walking, moving, and pausing in public space are acts of presence and belonging. When basic infrastructure such as toilets restricts movement, they also restrict these everyday forms of participation. People with intersecting disadvantages – including women, disabled people, and those with medical conditions – face greater exclusion when public toilets are absent, unsafe, or inaccessible.

While toilets may seem trivial in spatial justice debates, they are essential for enabling full participation in public life. Their absence limits mobility, spontaneity, and confidence. Kern (2020) argues that cities reproduce gender hierarchies through infrastructure: women take more complex routes, care-related trips, and travel with children, increasing reliance on public toilets. Greed (2010, 2019) similarly notes that planning often overlooks these embodied realities. Criado Perez (2019) shows that even well-intentioned design standards, like equal floor area for men's and women's facilities, create unequal access because women need more time and privacy. Seemingly "equal" design can thus entrench inequality.

Historically, this inequality was built into the urban fabric itself: women's toilets were fewer, hidden, or absent altogether, while men's urinals were readily available in public space. Greed (2010, 2019) described this gendered constraint on women's mobility as the "bladder's leash" – a term capturing how inadequate toilet provision effectively tethered women closer to home.



Plan of underground convenience in St Martin's, London (reproduced from Sanitary Conveniences & Drainage, published in 1906)

Figure 2. Unequal Victorian toilet provision for women.
From Greed (2019).

The taboo surrounding toilets further contributes to their marginalisation. As Greed (2010) points out, the euphemisms we use – "restroom," "comfort station" – reflect cultural embarrassment, helping obscure the civic importance of toilets. Lewkowitz and Gilliland (2024) note that public conversation about toilets remains uncomfortable and rare. This silence reinforces the idea that toilets are private concerns, disconnected from structural issues like equity, safety, or inclusion. Beebeejaun (2017) argues that achieving spatial justice requires recognising these embodied and emotional dimensions of urban life.

Inadequate toilet provision undermines people's mobility and ability to participate in city life. Women, trans and non-binary individuals, disabled people, and others face disproportionate exclusion when toilets are unreliable or unsafe. Unisex toilets may improve inclusivity for some but reduce feelings of safety for others, particularly women and girls, if not carefully designed (Lewkowitz & Gilliland, 2024; Moreira et al., 2020). Unisex provision, therefore, is a partial solution, not a universal fix.

In this thesis, I focus on women's experiences in Tallinn while recognising that spatial injustice is never uniform. My aim is not to create a binary between "men's" and "women's" needs but to surface how gendered assumptions shape provision: who is anticipated, who is overlooked, and whose presence is made possible or impossible.

2.3. Public Toilets as Embodied Experience

Public toilets are not only infrastructural or political spaces – they are intensely embodied, sensory, and emotional spaces. Toilets are where we confront the body directly, often on a schedule not of our own making (Molotch, 2010). They are spaces dealing with excretion, hygiene, privacy, and care, yet rarely provide the comfort or dignity we require. Toilets engage us at our most physically vulnerable moments, while also being marked by discomfort, shame, and anxiety.

As Barcan (2010) notes, toilets are "multiple spaces" housing many bodily practices: from urination and defecation to changing tampons, adjusting makeup, taking medication, or managing a colostomy bag. They are also informal shelters, quasi-medical spaces, sites of sex, drug use, or solitude. Yet despite these varied functions, toilets are often associated with disgust, pollution, and fear. Barcan (2010) describes public toilets as ambiguous spaces – simultaneously necessary and shunned, private yet public, mundane yet charged with heightened emotion and sensory discomfort.

This discomfort is not incidental; it shapes provision and use. Greed (2010) observes that embarrassment about bodily functions undermines public discussion, leading toilets to be sidelined in policy. Euphemistic language – "restroom," "comfort station" – reflects cultural discomfort, further depoliticising toilets. Penner (2010) shows that architectural discourse similarly erased the embodied user: toilets were celebrated as functionalist icons, yet stripped of any reference to the gendered, vulnerable body that uses them.

Corradi et al. (2020) highlight that public toilet use is widely associated with fear, discomfort, and psychological distress due to the lack of control and safety outside the home. These negative emotions can have lasting psychological repercussions, particularly for those with heightened or frequent needs. Individuals with medical conditions report anxiety, irritability, and fear around bathroom use, and note that availability and quality have a substantial impact on daily life (Corradi et al., 2020). Public toilets are thus not experienced equally: those who rely on them most acutely carry the heaviest emotional burden.

Writer Nancy Mairs (as cited in Serlin, 2010) reflects on the stakes of accessible design: "many of us with disabilities require some assistance, but with the right facilities we can maintain dignity for ourselves and those who care for us." For Mairs, dignity is inseparable from autonomy – the ability to manage one's bodily needs privately and independently. This highlights that toilets are not just technical provisions but central to emotional and social wellbeing.

International frameworks like the UN Human Rights Council (2019) recognise this complexity, defining adequate toilets as those that provide not only availability, accessibility, and safety but also privacy, dignity, and acceptability. Yet these experiential qualities are rarely considered in urban planning or architectural regulation, which continue to prioritise technical metrics over human experience. Toilets may meet formal standards while still failing to provide a dignified, comfortable experience.

Ultimately, these emotional, sensory, and embodied discomforts are not random: they reflect systemic failures in design, governance, and cultural norms. The emotional burden carried by users – particularly those more dependent on toilets – reveals deeper inequalities embedded in urban systems. To address these challenges, we must understand toilets not as isolated facilities but as products of complex, interconnected systems. This systems perspective is the focus of the following section.

2.4. Public Toilets as Part of a Complex System

Cities are not machines governed by linear cause and effect – they are complex, interdependent systems. They are shaped by invisible feedback loops, overlapping responsibilities, cultural values, political decisions, and social behaviours. Michael Batty (2013) describes cities as organic, evolving systems: adaptive rather than engineered, shaped over time by countless interactions. Christopher Alexander (1964) was among the first to frame cities as systems within the design field, arguing that urban environments cannot be "solved" like technical problems but must instead be understood as interwoven patterns.

Public toilets, while often seen as minor elements, are embedded in this complexity. They are not isolated objects but points of connection between infrastructure, policy, social norms, public perception, and maintenance cultures. Toilets exist at the intersection of many systems: technical (plumbing, electricity), institutional (city governance, budgeting), social (behaviour, stigma, inclusion), and environmental. For this reason, their provision cannot be understood or improved through isolated fixes. What is needed is a systemic view: one that pays attention to connections, dependencies, and deeper structures.

To apply these ideas in practice, I use Systems Oriented Design (SOD), a design research approach developed by Birger Sevaldson (2022). SOD offers tools for working with social complexity through mapping, synthesis, and participatory exploration. It treats research and design as interconnected processes, with knowledge emerging through tools such as gigamapping, participatory workshops, and insights drawn from lived experience. In this thesis, SOD supports a shift from problem-solving to sensemaking – uncovering patterns, barriers, and opportunities within Tallinn's public toilet system.

Looking at toilets systemically also changes how we think about solutions. Instead of one-off fixes, such as a new building or an app, this approach invites action across multiple levels: infrastructure, communication, governance, and culture. It helps explain why toilets are often broken, hidden, or avoided and offers ways to reimagine them in collaboration with residents and institutions.

In this light, toilets are not just hygiene infrastructure – they are indicators of care. Their condition signals whose needs are recognised in public life. A systemic design lens helps this thesis explore those dynamics and co-create meaningful responses.

These theoretical foundations shaped not only how the issue of public toilets was framed, but also how research was designed, conducted, and synthesised, as the following chapter will explain.

3. Research Design and Methodology

3.1 Research Philosophy

The research is qualitative, systemic, and participatory. Rather than aiming for statistical generalisation, it focuses on depth, lived experience, and uncovering systemic patterns and relationships. It draws from both systems thinking and design-led methodologies to address the complexity of public toilets as both physical infrastructure and a reflection of broader social, economic, and political systems.

This research is guided by systems thinking as described by Donella Meadows (2008), who defined systems as dynamic wholes made up of interacting parts. One of her key contributions is the concept of leverage points – places where a small shift can produce significant change (Meadows, 1999). In the context of public toilets, these leverage points might include improving institutional collaboration, shifting mindsets around care and responsibility, or making user needs more visible through co-design and storytelling.

Because public toilets are embedded in both human experiences and larger urban systems, I adopted a design-led methodology combining systemic design and service design approaches. Both methodologies prioritise participatory, human-centred methods and place greater value on qualitative than quantitative data, while embracing iteration and flexibility in their process.

Service design focuses primarily on the human factor: understanding user or customer journeys, experiences, emotions, and needs. It uses a mix of quantitative and qualitative approaches, with an emphasis on ethnographic research and participatory tools (Stickdorn et al., 2018). While service design generally follows a structured process, it allows flexibility in selecting specific methods tailored to context.

Systemic design, on the other hand, takes a holistic perspective, focusing on mapping complexity, uncovering interconnectedness, and situating a problem within a wider system. It is inherently participatory and not only allows but encourages flexibility and adaptation throughout the research process. Research within a systemic design framework is iterative, design-led, and responsive to emerging insights, extending across both research and design phases (Jones & Van Ael, 2022).

Both service design and systemic design align with constructivist and interpretivist research philosophies, which hold that knowledge is co-created through interaction rather than

discovered objectively. While service design foregrounds the individual or group experience, systemic design emphasises the relationships and structures that shape those experiences. By combining both approaches, I aimed to achieve a deeper understanding of not only the needs and barriers experienced by individuals, but also the broader systemic forces that sustain or reproduce exclusion and inequality.

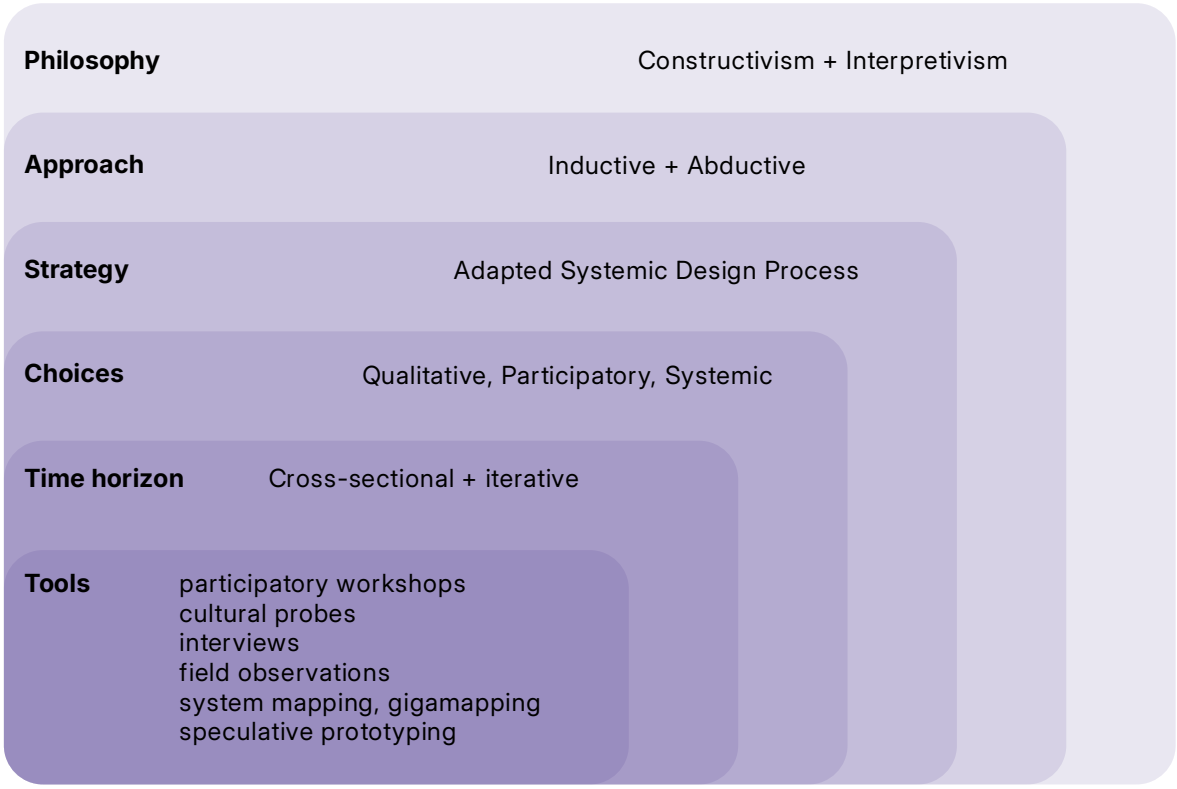


Figure 3. Research onion diagram
Adapted from Saunders et al. (2007).

3.2 Methodological Approach

This section outlines the frameworks and logic that guided the design and research strategy, combining tools from Systems Oriented Design (SOD), Systemic Design Toolkit (SDT), and the Design Council's Systemic Design Framework. (Design Council, 2021; Jones & Van Ael, 2021, 2022; Sevaldson, 2013, 2022). This approach primarily followed an inductive logic, while also incorporating abductive reasoning typical of systemic design - iteratively reframing insights through mapping, reflection, and sensemaking (Jones & Van Ael, 2022; Sevaldson, 2022).

To structure my research and design phases, I chose to follow the methodology of Systems Oriented Design (Sevaldson 2013,2022), supported by elements of Systemic Design Framework and Systemic Design Toolkit (Jones & Van Ael, 2021, 2022). Systems Oriented

Design (SOD), developed at the Oslo School of Architecture is described by Sevaldson (2022) as a "methodology without methods", in which we approach the design process. Rather than prescribing specific tools or methods, it asks for open-mindedness in the design process, involving collaboration and participation, and exploring and embracing complexity through system mapping – done mostly in the form of "gigamaps". Similarly to service design and other systemic design approaches, it encourages iteration and use of mixed methods, with a greater level of flexibility than most other frameworks (Sevaldson, 2022). While SOD proved to be a great frame to structure my thinking, I decided to complement it with more structured process frameworks. The Systemic Design Framework (SDF) builds on a well-known Double Diamond process, used widely by service and user experience designers, guiding their process through four main phases – Discover, Define, Develop and Deliver. It builds on top of this frame, adding a more systemic view and helping explore interconnectedness. The Systemic Design Toolkit (SDT) introduces a seven-step process template that spans from „framing the system" to „fostering the transition," offering concrete tools and templates for each stage. The original SDT framework has since been republished as *Design Journeys* (Jones & Van Ael, 2022). For consistency, I refer to both iterations as SDT throughout this thesis.

Consistent with the systemic design principles, my research was grounded in participatory and qualitative traditions. It is based on tools used in service design and ethnographic research, focusing on the lived experiences of the participants. The workshops, cultural probes and semi-structured interviews used in the process were designed not only as tools for data collection but also platforms for exchange, reflection and meaning-making. This aligns with an interpretivist stance**,** in which knowledge is seen as relational and situated. While this thesis did not follow a full Participatory Action Research cycle, it drew on key PAR values – iterative reflection and active engagement to shape workshops and co-creation activities (Kemmis & McTaggart, 2008).

Adding a strong participatory focus to my process and combining the SDF and SDT methodologies helped me support the SOD framework with a structure while allowing flexibility in the research design. In practice, my process was largely iterative, forming organically through continuous learning, driven by listening to the system and working with the participants. The final process was a result of various adaptations and learning and can be summarised as follows:

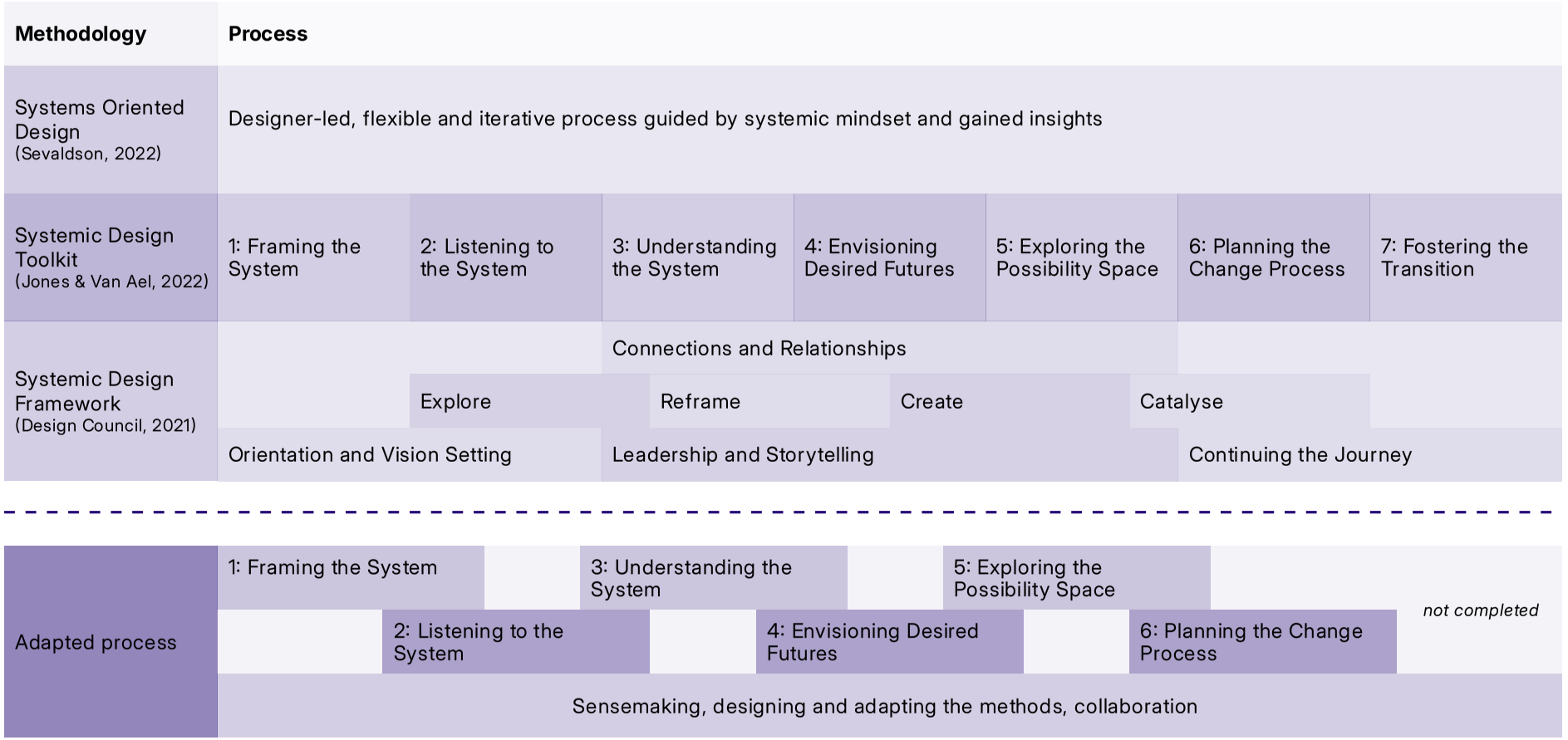


Figure 4. Adapted Systemic Design Methodology

Step 1: Framing the System / Orientation and vision setting: desk research, initial conversations and exploratory observations

Step 2: Listening to the System: qualitative research, including participatory workshops, field observations, probes and interviews

Step 3: Understanding the System: analysing and mapping the research findings, exploring insights and interconnections

Step 4: Envisioning Desired Futures: imagining the desired future based on the research participant input (workshops, interviews)

Step 5: Exploring the possibility space: discovering possible intervention points in the system, framing opportunity statements

Step 6: Planning the Change Process: ideating and prototyping interventions, developing a timeline and map of interventions

Step 7: Fostering the Transition: (not yet completed as part of this thesis): implementing the interventions, observing and iterating

3.3 Research Strategy

My main research strategy was formed by analysing and categorising the research questions and assigning relevant methods accordingly. The main research aim:

> How can we improve the public toilet system in Tallinn in order to create a more inclusive and equitable urban space, particularly for women and other disadvantaged groups?

has been split into four research questions:

RQ1: What is the current state of public toilets system in Tallinn? What is missing?

RQ2: What is the current perception of public urban space by women and other disadvantaged groups in Tallinn?

RQ3: How does the insufficient provision of public toilets impact women's experience of urban space?

RQ4: What are the common needs of women in public space and barriers that stop them from full participation in the urban life?

To support my research design, I developed three thematic lenses – or analytical categories – that helped structure my focus: toilet facts, toilet needs and toilet perceptions. Those lenses were linked to corresponding research questions and then assigned relevant data collection methods and tools. This logic later helped with synthesising insights gained from varied research activities. The table below summarises the strategy used.

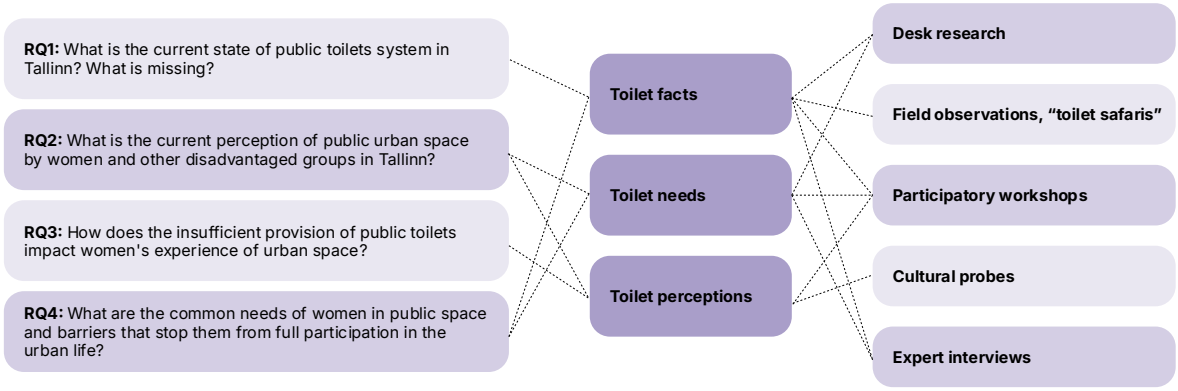


Figure 5. Research strategy

3.4. Research Methods

This section outlines the primary research methods used throughout the study. The methods are described in an order in which they were conducted, presenting a short explanation of the method as well as reasoning behind their selection.

"Toilet safaris"

Toilet safaris were inspired by the service safari method used in service design (Stickdorn et al., 2018) and adapted here to explore public and semi-public toilets in Tallinn. I visited a range of facilities, documented them through photos, notes, and personal reflections, and observed aspects such as accessibility, cleanliness, signage, pricing, and layout. As I used the spaces myself, the process also included elements of autoethnography. This method contributed to understanding both toilet facts and toilet perceptions.

Participatory workshops

Two participatory workshops were held to explore perceptions, needs, and future visions around toilet access and public space. The first included mixed-gender participants and focused on shared mapping and story sharing. The second was a smaller, women-only session, with more reflective and speculative tools like archetypes, card sorting, and co-ideation. Both workshops were designed to create a safe, creative space and contributed to all three analytical lenses.

Cultural probes

Cultural probes are a method used to collect personal and reflective input through creative tasks (Stickdorn et al., 2018). In this research, I designed a take-home booklet with a set of open-ended activities related to toilet use and public space. These included drawing toilet maps, responding to word associations, and sharing short stories or memories. The format allowed participants to reflect in their own time and environment, generating insight into toilet perceptions and needs in a less formal, more intimate way.

Semi-structured expert interviews

Expert interviews were conducted with individuals involved in planning, policy, design, and public space management. The format was semi-structured – guided by a loose set of questions but flexible enough to follow the conversation. These interviews helped to understand institutional perspectives, responsibilities, and systemic barriers. The findings contributed primarily to the toilet facts lens, while also revealing gaps and tensions in how public toilets are currently provided and maintained.

3.5. Ethical Considerations

Although this project did not go through a formal institutional ethics review process, it was carried out in alignment with recognised research integrity standards. The University of Lapland has no dedicated review board for master's projects; instead, students are expected to follow the university's online guidelines on Responsible Research and Ethical Review (University of Lapland, 2025), the Finnish National Board on Research Integrity TENK principles, the ALLEA European Code of Conduct for Research Integrity (ALLEA, 2023), and the General Data Protection Regulation (European Parliament & Council, 2016).

Throughout the project, I took care to approach all parts of the research with ethical sensitivity, especially given its participatory and personal nature. From the beginning, I was aware that the topic touches on both physical and emotional experiences, often linked to discomfort, exclusion, or vulnerability in public space.

Before each workshop, interview, or probe activity, I explained the purpose of the research, what participation involved, and how the input might be used. I asked for consent – verbally and in writing – and made it clear that participants could withdraw at any time. Names and identifying details have been anonymised unless someone specifically agreed to be acknowledged. In the women-only workshop and in the take-home booklets, I paid extra

attention to building trust, creating emotional safety, and ensuring participants felt in control of what they chose to share.

Photographs taken during the toilet safaris focused only on the spatial context, not on people. No one was photographed without consent. Visual materials from workshops (such as maps, drawings, or booklets) are reproduced in this thesis only with permission or after removing any identifying details.

In addition to the formal research activities, I also had many informal conversations throughout the process – with friends, acquaintances, strangers, and staff at public venues. Some of these were spontaneous, while others took the form of "guerrilla interviews," such as asking staff about toilet policies in restaurants or shops. These conversations were not recorded or analysed as formal data, but they played an important role in shaping the early framing of the research. I have not quoted from them directly, but I acknowledge them here as part of the broader background that informed the process. I made sure these exchanges remained informal and non-extractive, and avoided treating them as data without consent.

Finally, I recognise that I did not approach this research as a neutral observer. My own lived experience informed the direction of the project and how I engaged with participants. Reflexivity was part of the process – in planning, during workshops and interviews, and in the interpretation of the findings – and I aimed to remain aware of my position, assumptions, and potential influence throughout.

3.6. Research Process in practice

This section described how the research evolved over time in practice. It includes the motivation behind the chosen activities, what took place, and the types of insight generated. While the overall process followed the adapted systemic design framework described earlier, in reality it was far from linear. Research and design phases overlapped, and a space was made for observation, reflection and iteration of the activities.

3.6.1. Early discussions and observations

The first phase of my research focused on understanding the broader context of public toilet provision in Tallinn. I began with exploratory visits to publicly available toilets – including both officially managed city facilities and those provided by institutions or businesses. At the same time, I held a number of informal conversations with fellow students, faculty members at the Estonian Academy of Arts (EKA), and Tallinn residents. These conversations helped me test early research ideas and gave direction to the emerging focus.

One particularly important encounter was with an interior design student at EKA , who was also working on a master's thesis related to toilets. We bonded over a common interest and decided to conduct some research activities together. This collaboration shaped the design of my first participatory workshop and cultural probes. While preparing those activities together, we reached out to others, gauging the interest and gathering opinions. To my surprise, many people were eager to talk and even more eager to share personal experiences. With every new conversation, it started to become clear the common thing among us all, are toilet stories. What quickly became clear was that everyone had a toilet story: sometimes funny or embarrassing, sometimes uncomfortable or even traumatic. I decided to include collection of "toilet stories" in the workshops and probes.

The first informal test of this approach took place during a coffee morning hosted by the Department of Interior Architecture at EKA, where my collaborator and I presented our research topic to students and faculty. As part of this exchange, we distributed simple templates to collect toilet stories, which were met with enthusiasm. We received four completed stories immediately after the session and were able to analyse them, confirming that the method was engaging and replicable.

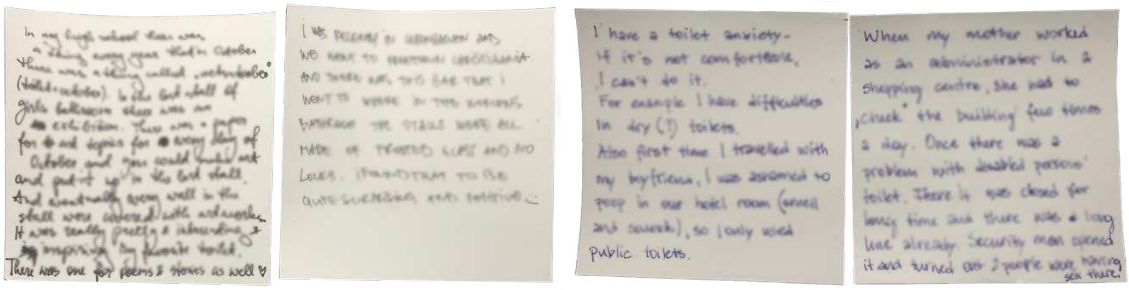


Figure 6. „Toilet stories" collected during a coffee morning talk at EKA (blurred and anonymised).

During this phase, I also immersed myself in reading about public toilets more generally – in the context of accessibility, gender equality and spatial justice. I once again got reminded that the problem is widespread and not unique to one city and that perceptions of dignity, safety, and cleanliness are often shaped by invisible systemic factors. These early insights helped me shape my research aim: to explore the lived experiences and perceptions of residents of Tallinn, especially from disadvantaged groups, including women.

Initially, I planned to develop elaborate cultural probe kits asking participants to map their toilet journeys and document experiences. However, through ongoing conversations, I realised that most people do not use public toilets at all – meaning those journeys would

never be recorded. Public toilets in Tallinn, I learned, are avoided due to negative perceptions. This changed my approach entirely: rather than asking participants to document use, I needed to ask why they were avoiding it in the first place.

All of these first observations and impressions were captured on Miro board, forming a collection of first insights and forming reference point for further research. This stage laid the foundation for my research strategy and tools and reminded me that the best place to begin designing change is through listening.

3.6.2. Main research activities

Following early observations, I continued with the main research activities. These included my own field observations – this time documented in a more methodical way – participatory workshops, cultural probes, and interviews with experts. As mentioned earlier, many of these activities happened in parallel with the analysis. This was intentional, reflecting the adaptive and iterative character of this study.

The first activity I conducted in this phase was field observation – or what I called "toilet safaris". I visited ten public toilets, including those managed by the city of Tallinn as well as those provided by institutions and business. I prepared "toilet cards" as a way to document their characteristics. These included categorisation of the toilets (free/paid, public/commercial, permanent/temporary, accessible/not accessible), location, emotional response (delighted, comfortable, frustrated, neutral, disgusted, anxious), and Likert-scale assessments (1-7) across criteria such as: conditions and ambiance, functionality, accessibility/inclusivity, privacy and comfort, importance/frequency of use.

Figure 7. Toilet safari photographs and data-collection cards.

In addition to the assessments, I took notes, observed user behaviour and photographed the facilities. The toilet safaris served primarily to help me understand the landscape and informed the design of participatory workshops, particularly the second participatory workshop, which was grounded in lived experiences. Findings from the toilet safaris also contributed to a typology map, which was later incorporated into the overall gigamap of the system.

The second activity was the first participatory workshop with Tallinn residents. It was designed as a space for problem discovery, discussion, and speculation about desired futures. Together with my collaborator, we designed a two-hour session held at EKA, coordinated with the annual celebration of World Toilet Day on 20 November. We promoted the event by designing and distributing posters within our community. Fifteen people signed up – a mix of men and women aged 20–45. Although this group did not directly reflect my primary research focus (disadvantaged groups, particularly women), it offered valuable insights into how residents generally perceive the issue, aligning with the goal of exploring the overall systemic landscape.

The workshop began with a light icebreaker, asking participants to share a few words about their favourite toilet. This helped create a welcoming atmosphere and confirmed once again that sharing personal experiences was appreciated. We followed this with a short talk and a "cinema experience" – screening relevant videos to introduce the topic. While this introduction may have slightly influenced later responses, it provided shared context and a sense of focus that supported the group exercises.

Figure 8. Problem discovery workshop - topic introduction and video screening.

Participants were divided into three teams for two mapping exercises: the first focused on the current situation, the second on a desired future. These team tasks stimulated discussion, reflection, and story-sharing. In my later analysis, the resulting maps were secondary to the

rich discussions that were recorded. Participants raised a wide range of themes, which are analysed in detail in Chapter 4.

Figure 9. Problem discovery workshop - group mapping , presentations and discussion

During the workshop, I distributed the cultural probes – take-home booklets with three tasks: “toilet maps”, “toilet associations” and “toilet stories”. The participants were asked to map their usually journeys and “toilet stops” across Tallinn. Originally meant as one of the main tasks in my research, here it was included as a small element. I was right not to overly focus on this aspect, as I only received six of those maps back, with very few toilets marked or described. More insights were provided though the “toilet associations” section – with 8 responses, I was able to analyse the repeated words, and use the most commonly associated words to form my thematic analysis of all methods – described at a later stage. “Toilet stories” received the highest number of responses – 11, with additional stories told to us directly after the workshop or during other informal conversations. Although those undocumented stories could be effectively analysed, they provided a larger picture of recurring themes.

Figure 10. Cultural probe - take-home booklets distributed during the workshop.

Second participatory workshop, was focused on my selected focus group – women living in Tallinn. I invited 8 female participants to join me for an intimate story-sharing session. I prepared exercises that helped stimulate the conversation, being more grounded in the context of Tallinn. I brought images of "toilet archetypes", based on outputs from my toilet safaris, a map of existing public toilets to start a discussion on what is there, what is missing, what is needed, and most importantly – how do the participants relate to those images and maps, what are their personal experiences.

One of the exercises was focused on finding the most important qualities of public toilets. Although by now I started understanding the main perceptions of the public toilets, I needed to know what is actually needed. For example, the aspect of beauty and aesthetics was brought up often in conversations, but the repetition itself did not confirm that the beauty is an actual need. I was right to think that "what we need" and "what we think we need" are two separate things.

Figure 11. Story-sharing workshop – card-sorting and ideation activities.

The last part of the workshop included, once again, ideating on what could be done to improve the toilet situation. Unlike the more abstract thinking at the first workshop, this ideation exercise highlighted the practicality of needed solutions. Participants focused on the fair distribution of the toilets, and the information on their availability and condition. Those ideation exercises – from both workshop - informed my thinking in the later "Exploring the Possibility Space" and "Planning the Change Process" phases.

Final method used in the research phase, was expert interviews. I prepared a semi-structured interview guide, focusing on both the personal experience but also more factual, systemic understanding of the issue. I contacted persons dealing with the problems of accessibility, homelessness and maintenance of the public toilets, and conducted five 45-minute interviews. Insights from them helped fill the gaps in my knowledge about the overall systemic context, uncovered additional perceptions and needs of disadvantaged groups and helped understand the day-to-day realities of the functioning and maintenance of a public toilet. All insights from this phase of my research were collected in the collective Miro board, gathering first impressions, as well as analysed separately based on themes and analytical lenses.

3.7. Data Analysis and Synthesis

Given the complexity and variety of data collected, I needed a strategy to analyse and, most importantly, synthesise my findings in a way that also honours the principles of Systems Oriented Design. As a researcher and designer embedded in the system I was studying, it was important to not only analyse individual data sets, but to see the "rich picture" (Checkland & Poulter, 2006), recognising interconnectedness and wholeness of the system. One of the suggestions of SOD is the use of designer's "expert intuition" in the process, listening to the system and responding to what emerges (Sevaldson, 2022). With that in mind, I developed a six-step approach, combining qualitative analysis and systemic approaches – described below. Although the final result is a clear step-by-step approach, in reality the process was not linear and happened alongside ongoing research. Both research and analysis activities informed each other and have been adapted according to emerging findings. This non-linear process is presented in the Figure 12.

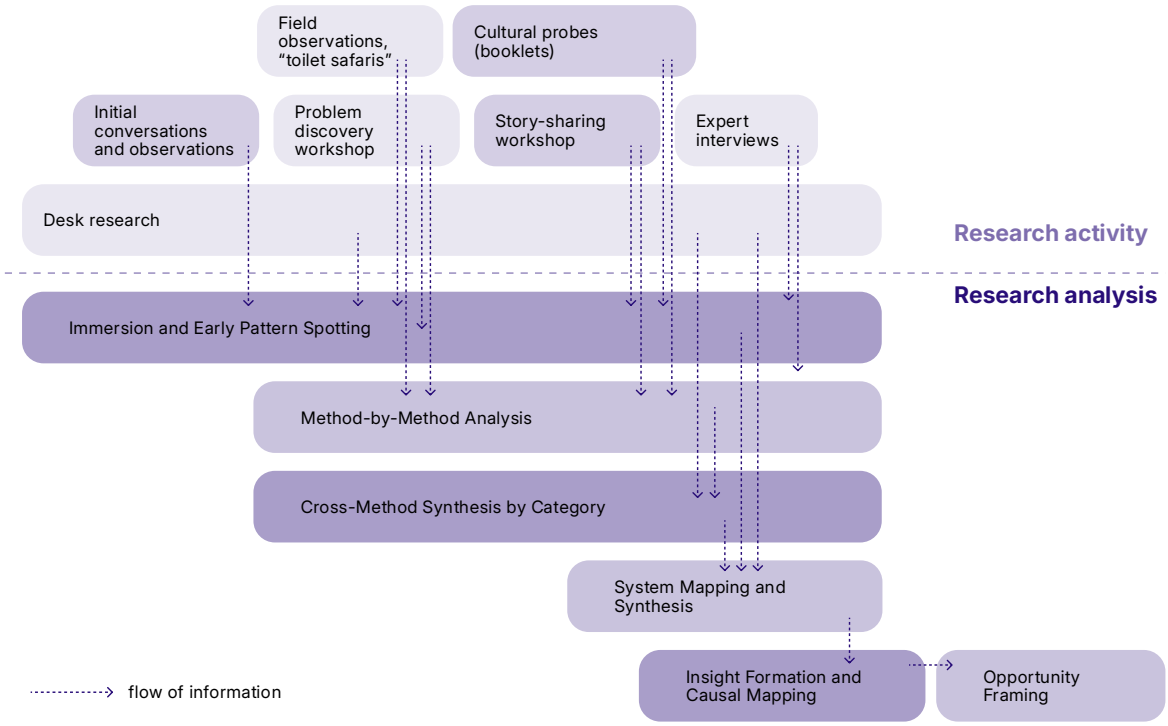


Figure 12. Research analysis process.

3.7.1. Immersion & Early Pattern Spotting

In this first step, I gathered early impressions, observations and key insights from all research activities on a collective Miro board. This allowed me to spot first recurring themes and patterns, supporting the thematic coding conducted in next steps, as well as later category coding and gigamapping. The mapping was done alongside the ongoing research, allowing me to adjust the activities as I went. For example, insights from the first participatory workshop – designed as a problem discovery session – informed design of a second workshop, which focused more on personal story-sharing and lived experience within the Tallinn context.

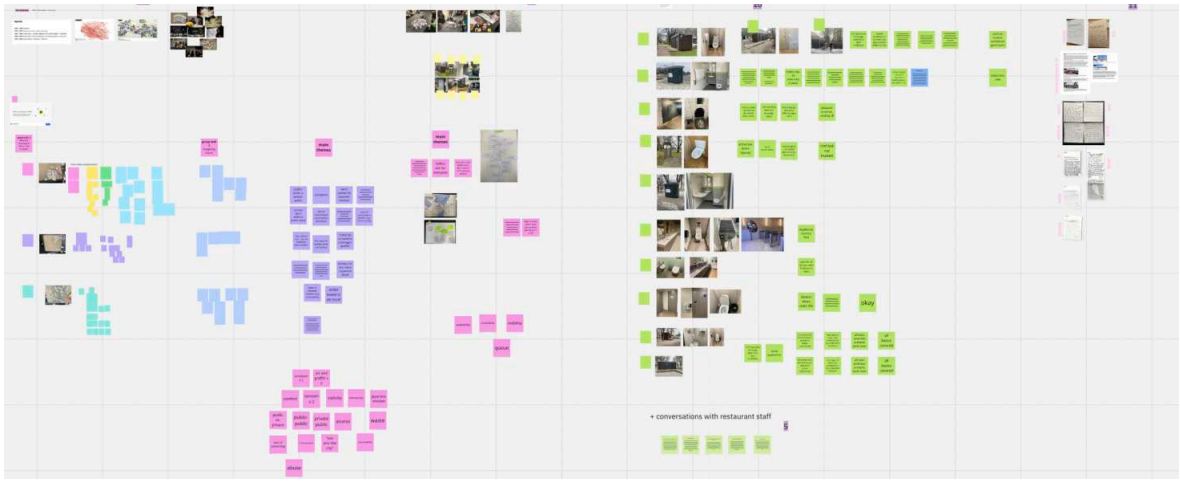


Figure 13. Early pattern spotting on a collective Miro board.

3.7.2. Method-by-Method Analysis

Here, I conducted qualitative analysis of each method – recordings on discussions from the participatory workshops, semi-expert interviews, and cultural probes. For this, I used a combination of coding and clustering techniques informed by qualitative content analysis and thematic approaches (Vaismoradi et al., 2013; Hsieh & Shannon, 2005). While the data from participant workshops proved rich and full of personal lived experiences and perceptions, the cultural probes provided a good summaries of them, allowing me to quantify some of the data – as described in next steps. Expert interviews were more focused on facts and systemic issues, and most of the insights were used directly in the next steps of the process – categorisation and synthetic mapping. Separately, analysed my field notes from the toilet safaris and developed a typology map of toilet types in Tallinn, noting their quality, accessibility, and similar characteristics. This typology map was later enriched with the findings from participatory methods – workshops and probes, adding a more experiential layer to the factual system overview.

As this was a single-researcher project, I took several steps to ensure the credibility and trustworthiness of the qualitative analysis, following recommendations from Nowell et al. (2017). First, I maintained an audit trail by writing detailed analytic memos after each coding session and preserving version-controlled Miro boards documenting the analysis process. Second, I engaged in peer sounding through debrief meetings with a course colleague, as well as ongoing discussions with my supervisor. Finally, I applied triangulation by comparing emerging themes across workshops, interviews, cultural probes, and field observations. These measures helped ensure that the analysis process remained systematic, transparent, and grounded in the research materials.

3.7.3. Cross-Method Synthesis by Category and Themes

In this step, I combined insights across methods using three analytical lenses: toilet facts, toilet needs, and toilet perceptions. While participatory workshops provided most insight for the perceptions and needs categories, the facts category was drawn from field observations, expert interviews, and desk research.

As part of this synthesis, I carried out thematic coding across all research activities. I developed an initial list of over 50 keywords based on word associations gathered during workshops and cultural probes, which I then expanded with new themes emerging from workshop and interview transcripts and collected toilet stories. After grouping similar terms

and removing overlaps, I arrived at a final set of 59 themes. I then counted how often these themes appeared across the data.

To visualise these patterns, I created a word cloud showing the most frequently mentioned themes across participants. This word cloud supported the synthesis process and is presented in Chapter 4 as part of the findings.

3.7.4. System Mapping & Synthesis

System mapping, especially gigamapping, was the central method of synthesis in this project. Gigamapping is the key method used in SOD, used to make sense of complex systems, by mapping large amounts of information across different scales and categories (Sevaldson, 2022). In my case, it brought together different types of insights, derived from both quantitative and qualitative methods and helped find interrelations. The map looked at a larger social, cultural, institutional, political, and economic system and evolved gradually, by layering and connecting the previously analysed findings. Mapping also allowed me to uncover the gaps that need to be researched further.

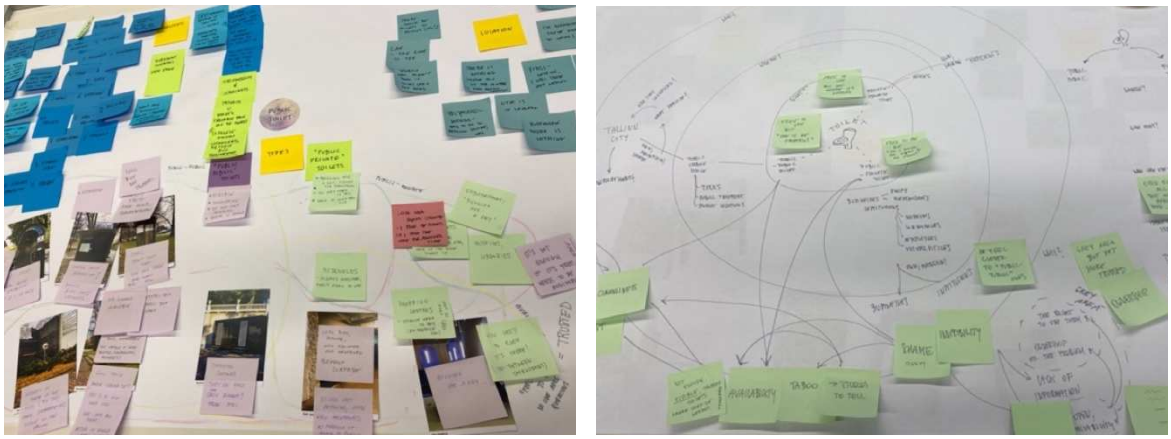


Figure 14. Gigamapping process.

3.7.5. Insight Formation & Causal Mapping

This phase emerged in parallel with gigamapping. As I mapped, I began identifying critical patterns and recurring dynamics. I translated these insights into simplified diagrams, such as causal loop diagrams and story-loop diagrams, to explore how different factors reinforced or influenced one another over time. This visual sensemaking helped clarify underlying feedback mechanisms within the system and allowed me to distill the complexity into communicable insights. This step was crucial in moving from raw data toward structured understanding. The detailed insights derived from gigamapping are presented in Chapter 4.

3.7.6. Opportunity Framing

In this step, the key insights found in the previous steps have been analysed once again to assess their potential for creating systemic change. Building on the visual synthesis, I applied ZIP-Analysis (Sevaldson, 2022) to classify the insights into Zoom points (areas needing closer examination), Problem/Potential points (critical challenges or opportunities), and Intervention/Innovation points (potential sites for action). This process guided my prioritisation of system elements with the most relevance for change. I then reflected on these intervention points using Meadows' (1999) hierarchy of leverage points to assess where meaningful systemic shifts could occur. This structured analysis informed the subsequent design of intervention proposals, linking insights from the system mapping directly to actionable opportunities.

The results and outputs of this analysis are presented in detail in Chapter 4.

4. Results and Systemic Insights

4.1. Toilet Facts

In Tallinn, one public toilet has become legendary: the *Miljonipeldik* – a now-demolished facility in the Old Town that reportedly cost one million euros (Kanal 2, 2023). Despite its price, it was often closed, confusing to use, and widely mocked by residents. In conversations and workshops, the toilet came up repeatedly – not for its function, but as a symbol of how disconnected toilet provision can be from public needs. Its recent replacement with a new automatic unit has done little to repair its reputation.

To understand the current state of public toilets in Tallinn, I examined what is available, who is responsible for it, and how these services are perceived and used.

4.1.1. Container Toilets

Until recently, Tallinn's public toilet system relied primarily on a small number of container-style toilets, available year-round and managed by the Department of Urban Environment Maintenance. Each unit typically includes separate cubicles for men, women, and one unisex accessible stall. However, their reputation is overwhelmingly negative. Participants described them as "terrible" – dirty, smelly, and unsafe – or simply "not to be trusted." Several noted experiences of finding the toilets locked, often due to maintenance or after incidents involving vandalism or someone sleeping inside. Though these toilets are meant to be inclusive, open to all and free of charge, they are now widely avoided.

These problems escalate in the winter when fewer alternatives exist and the container toilets remain open. Because they are often the only warm, accessible spaces available, they become informal shelters for people experiencing homelessness. While the presence of unhoused individuals does not usually pose a threat, it contributes to discomfort and avoidance among other users. The scale of homelessness in Tallinn is relatively small – around 20 to 80 people are unhoused at any given time – but their needs remain unmet. Available shelters are perceived as inadequate, and some people reportedly choose arrest over the conditions offered (A. Minev, personal communication, February 21, 2025; Mets, 2021; Statistics Estonia, 2022). In the absence of better support, public toilets become a last resort.

They are constructed from poor-quality materials, which makes them highly vulnerable to damage. Maintenance staff reported a near-daily cycle of vandalism – doors kicked in, walls burned, paper stuffed in sinks to flood them, and graffiti and toilet paper theft as constant

issues (Public toilet supervisor, personal communication, March 19, 2025). These problems escalate in the winter when fewer alternatives exist, and the container toilets remain open.

The city contracts five different companies to manage the system – cleaning, repairs, security, rental, and provision of temporary toilets – with daily coordination falling on the shoulders of the maintenance team. Despite cleaning each toilet twice a day, the situation remains reactive, failing to address underlying design, material, and systemic shortcomings. As the maintenance supervisor described, their job is fixing problems, not influencing design or planning.

The so-called accessible toilet cubicle included in each container also fails to meet its design goal. According to several interviewees, the ramp is too narrow to allow a wheelchair to turn, making it unusable for many (J. Kapper, personal communication, February 11, 2025; Accessibility specialist, personal communication, April 02, 2025).

4.1.2. Temporary Toilets

In summer, Tallinn's public toilet provision expands through temporary installations, including 6–7 sanitary units near beaches and up to 78 portable toilets (City of Tallinn, 2022). Depending on the year and source, seasonal provision amounts to between 56 and 85 temporary toilets (Public toilet supervisor, personal communication, March 19, 2025; City of Tallinn, 2022).

Participants noted that these seasonal toilets are often in better condition than the permanent ones. Because they are busier and more visible, they are less likely to attract vandalism or inappropriate use. They are also newer and less stigmatised. However, their availability is limited to the summer season, and as soon as the weather changes, they are removed.

This creates a winter–summer divide in toilet access. Residents described how, outside the city centre during the colder months, there are few viable options. One example came from a cultural probe: after a dinner in Lasnamäe, a friend urgently needed a toilet. With no public toilets available and shop staff unwilling to allow access, the only option was an isolated bush. Such stories illustrate the human impact of seasonal provision models focused primarily on tourist areas.

4.1.3. Automatic Toilets

In 2023, Tallinn signed a contract with JCDecaux – a multinational street furniture company – to install 34 fully automatic toilets between 2024 and 2026 (JCDecaux, n.d.). These units are designed to be uniform, accessible, and self-cleaning, and include features such as baby-

changing stations. They cost 50 cents to use and are maintained entirely by the company. The city does not pay for them directly; JCDecaux earns revenue through the usage fees and advertising space.

There were already 18 existing JCDecaux toilets installed under a 2007 contract (of which 14 are in working order), but those vary in type, design, and pricing (typically 20 cents). These older toilets do not follow the same accessibility or maintenance standards.

The new units received positive feedback from interviewees, particularly from Janek Kapper, a member of the Estonian Inflammatory Bowel Disease Association (EPSS) – an organisation that provides a toilet access card to its members and maintains its own digital toilet map (EPSS, n.d.). He noted, "At least you know that it's clean, there is toilet and you can go," and "if I need to go, I'm ready to pay those 20–50 cents because you have to go" (J. Kapper, personal communication, February 11, 2025). A city accessibility consultant similarly noted that the new design appears solid and user-friendly (Accessibility specialist, personal communication, April 02, 2025).

However, there are still problems. Some new toilets have already been vandalised. Others confuse users – especially older residents or tourists unfamiliar with the automated door or payment system. I witnessed a group of tourists struggling with the new Old Town toilet, eventually giving up and walking away. Other participants described similar incidents. While technically accessible, these toilets are not always intuitive or welcoming.

4.1.4. Off-Street Toilets and "Public-Private" Spaces

Much of Tallinn's toilet access depends on private venues – cafés, libraries, malls, cinemas, and restaurants – referred to by workshop participants as "public-private" toilets. These are physically accessible but not formally public; access may require confidence, a purchase, or familiarity with the location.

Participants shared strategies for navigating these informal systems. Some save cinema tickets for door codes. Others know where to find clean toilets for 50 cents and go there regardless of distance. One woman said she always goes to the same shopping mall toilet "because it's nice." The perceived reliability and cleanliness of such toilets often outweigh concerns about cost.

However, this system creates inequality. As noted by workshop participants, while some residents feel comfortable walking into fancy hotels to use a toilet, others find it intimidating. During informal interviews, most restaurant staff said they allow people to use their toilets

even without a purchase – “Of course!” one said. “What can you do? Tell the government to install a toilet upstairs?” Another said they discreetly let people in even though management disapproves. Nevertheless, this is a fragile system. The burden of public service has quietly shifted onto private venues – without formal support, compensation, or clear policy.

4.1.5. Systemic Gaps and Lack of Coordination

The biggest issue emerging from these findings is the lack of systemic coordination in toilet planning. Both the accessibility consultant and the public toilet maintenance supervisor confirmed that they were not involved in decision-making. They are brought in only after toilets are already planned and installed. Kapper from EPSS said that many toilet placements make little sense – some portaloos are placed under trees or in unlit areas – and that he often has to "chase" new locations after they appear (J. Kapper, personal communication, February 11, 2025).

EPSS plays a significant role in Tallinn’s toilet ecosystem – they maintain a detailed public map, issue toilet access cards to people with Crohn’s disease and similar conditions, and personally contact venues to request participation (EPSS, n.d.). Despite this, they are not involved in consultation or planning. Neither the city’s accessibility advisor nor the maintenance team is responsible for the day-to-day functioning of toilets.

A lack of transparency adds to this fragmentation. I asked several city representatives how decisions are made about toilet locations and design. No one could give me a clear answer. In fact, a representative from Tallinn’s Urban Environment and Public Works Department initially suggested the topic of public toilets to me. But when I followed up with questions, I received no response. Another Tallinn City staff member expressed interest but withdrew once I asked for an official institutional perspective.

What emerged across interviews, workshops, and observations is a pattern of reactive management. When damage occurs, it is repaired. When a location becomes notorious, it is quietly locked. The shift to outsourcing – contracting JCDecaux to build and maintain new toilets – may reduce strain on city staff, but it also distances the municipality from feedback, accountability, and long-term learning.

On paper, Tallinn’s public toilet provision might appear sufficient. But as the EPSS and city maps show – and my own research confirmed – the number, distribution, and condition of toilets often fail to translate into real-world availability or usability. When toilets are

perceived as unsafe, locked, or invisible, people avoid them. And when access depends on confidence, familiarity, or money, they are not truly public at all.

Toilet type	Access	Number	Perception
Permanent container toilets	Free, year-round	12	unreliable, inadequate, poor accessibility
Seasonal container toilets	Free, summer only	~6-7	good condition, reliable
Temporary portaloos	Free, temporary, more in summer	~ 56-78	unreliable, inadequate, inaccessible
JCDecaux toilets (2007 contract)	Approx. 0.20€	14 (originally 18)	“ok”
JCDecaux toilets (2023 contract)	0.50€	34 (to be installed 2024-2026)	good and clean, accessible, untrusted technology, expensive
Toilets in shopping malls	Varies, free-0.50€	widespread, mostly city centre	reliable, good condition, expensive
Restaurant and cafe toilets (“need to ask”)	Need to ask, purchase expected	widespread	inconsistent and unequal access (staff decision), awkwardness
Libraries, cultural and educational institutions	Free, need to ask	widespread	inconsistent access, awkwardness

Figure 15. Overview of public toilet types and key characteristics.

4.2. Toilet Perceptions

The lived experience reveals critical gaps and failures in the public toilet system. The issue is not just about quantity but trust, visibility, and perceived availability. Residents do not avoid toilets because they are unaware of their existence but because they do not believe they are accessible, clean, or safe to use. As Janek Kapper from EPSS noted, the official Tallinn toilet map is often inaccurate. The toilets listed may be locked, out of order, or placed in unsafe or uninviting locations (J. Kapper, personal communication, February 11, 2025). This disconnect between official data and on-the-ground experience is precisely why he continues mapping and verifying toilets for the EPSS members.

During this research's early stages, I planned to ask participants to map their toilet journeys across Tallinn. But I quickly realised that this method would not work. Most people do not use public toilets at all – not because they never need to, but because they avoid them as long as possible. This insight alone revealed much about the perception of public toilets in the city.

The reasons for this avoidance are layered. Disgust, discomfort, and distrust came up frequently – especially among women. These findings align with the work of Corradi et al. (2020), who showed that women rated public toilets lower than men across multiple criteria, particularly in terms of cleanliness, safety, and privacy. In my workshops, participants – especially women – shared elaborate strategies for choosing the "right" cubicle, recounting widely shared "rules," such as avoiding the first stall (believed to be the dirtiest). While anecdotal, these details reveal how deeply perceptions of hygiene shape toilet use.

Comfort and control are recurring themes. Several women brought up the anxiety of using unfamiliar locks or automatic doors – particularly when past experiences, like failing locks on trains, made them wary. While high-tech toilets may offer cleanliness, they do not always offer peace of mind. One participant described having to "beg for the key," a phrase that powerfully captures the discomfort of asking to use something that should be a basic public service.

And yet, while toilets are often seen as taboo, this did not hold true in the context of this research. Participants were eager to share toilet stories – often funny, sometimes vulnerable – in formal workshops and casual conversations. The notion of "taboo" seems to apply more to city-level discussions than to everyday social exchanges. We may avoid discussing bodily functions, but "toilet" offers a socially acceptable abstraction. It allows us to talk about the real challenges without spelling them out.

Participants also pointed to broader societal factors shaping toilet perception and use. The state of public toilets is often blamed on people experiencing homelessness, but many participants questioned this narrative. Alcohol use was cited more frequently than homelessness as a visible issue in some toilet locations, but participants also highlighted deeper cultural patterns. Several spoke of a "post-Soviet mindset" – a sense that public goods are not really anyone's responsibility. As one put it: "Because it's not yours, and maybe you didn't pay for it, you don't have to care."

In contrast, the "Japanese mindset" was frequently invoked – often inspired by the Tokyo Toilet project and Wim Wenders' film Perfect Days, which several participants had seen. These toilets, designed by renowned architects and maintained with visible care, served as a powerful reference point for what public infrastructure could be. Participants acknowledged that this idealisation may be overly simplistic, but it opened up a wider conversation about respect, responsibility, and the role of care for the public good in shaping the behaviours of

residents. One participant suggested: “Everyone should clean a public toilet once in their life” – not as punishment, but as education.

Three key perception-based obstacles emerged from these insights: people don’t trust the public toilet system, toilets are not visible enough in the urban landscape, and no one feels responsible for their condition. This pattern was further reinforced by the thematic coding and word cloud generated during my cross-method analysis. Across workshops, interviews, and cultural probes, perceptions of vandalism, availability, and affordability dominated participant associations. These negative perceptions discourage people from using the toilets and reinforce a cycle of avoidance, invisibility, and neglect. Without breaking this cycle, no amount of new infrastructure can create meaningful change.

Figure 16. Word cloud of themes identified through cross-method thematic analysis.

4.3. Toilet Needs

What people need from a public toilet is not always the same as what they want – and often quite different from what they talk about first. Throughout this research, I noticed a contrast between perceptions and practical needs. Many participants shared stories of disgust, avoidance, or embarrassment. However, when asked directly what matters most in public toilet design, the answers were surprisingly clear: above all, toilets must be available.

This insight emerged most clearly during a small participatory workshop with eight women living in Tallinn. I invited them to complete a simple card-sorting task to identify the most essential qualities of public toilets. Alongside the cards I prepared in advance, the group collectively created a new one – availability – and unanimously placed it at the top of the list. A toilet cannot be clean or beautiful if it is not there in the first place. The top-ranked needs were consistent across the group: availability, accessibility, visibility, good location, and inclusivity. The message was clear – public toilets must be reliably available to all, in both principle and practice.

“Toilets should be for everyone” was a phrase repeated multiple times. And yet, this insight highlights a design tension also raised during the first participatory workshop: if toilets are truly open to everyone – including people dealing with alcohol use or experiencing homelessness – then maintaining cleanliness and comfort becomes more challenging. Several participants acknowledged that there may be a trade-off between equity and comfort or inclusion and affordability. The question then becomes: Can we provide both?

Interestingly, while aspects such as aesthetics, design, and memorability often came up in stories and informal conversations – particularly in anecdotes about favourite or most surprising toilet experiences – they consistently ranked low on the importance list during structured activities. What remained significant, however, was the multifunctionality of public toilets. This discrepancy was also reflected in the word cloud produced through my thematic coding, where references to aesthetics and design appeared much less frequently than themes like availability, affordability, and vandalism.

Public toilets are rarely just about sanitation. This notion came up frequently, not only in workshops but also in casual conversations and literature. Toilets serve secondary purposes that are rarely planned for – yet regularly performed. As one participant said, they are “private spaces within public space.” People use them to change a tampon or administer medicine, to escape for a moment of quiet, to care for children or older relatives, or even to cry, hide, or have a conversation out of sight. Some participants pointed out that toilets are places of graffiti, poetry, or quiet rebellion – spaces where people leave messages or mark their presence. One workshop team described toilets as “sex and the city spaces,” used for everything from drinking to intimacy to emotional release. Another team asked whether we should embrace graffiti and messaging as legitimate forms of expression in public toilets rather than treating them as damage.

These insights connect with existing literature. As Corradi et al. (2020) note, most research on public toilets focuses on sanitation systems, technical performance, and formal accessibility. Meanwhile, emotional comfort, privacy, and user experience – particularly for women and other disadvantaged groups – are often overlooked. This gap became visible in my own research. While many participants discussed cleanliness and design in their stories, when asked to define their needs, those aspects quickly dropped in priority. Instead, they emphasised visibility, reliability, and a feeling of comfort that often has more to do with trust and dignity than appearance.

This complexity poses a challenge for urban design. If toilets are designed only around the primary function – urination or defecation – they risk ignoring a whole layer of needs that emerge from everyday life. As one workshop team proposed, perhaps we need to design toilets as multi-use units that recognise this full range of functions. Others reflected on the idea of dignity and how it is shaped not just by the object (the toilet itself) but by the context, the behaviour it enables, and the way it makes people feel.

In sum, public toilets are not merely utilities – they are relational spaces. They support care, autonomy, and participation in the city. Their success cannot be measured solely by technical metrics but by their ability to meet a diverse and often invisible range of human needs.

While these insights illuminate the specific needs and priorities of residents, they also reveal tensions between what is available, what is perceived, and what is required. To better understand these tensions, I synthesised the findings across facts, perceptions, and needs in a systemic mapping process, described in the following section.

Figure 17. Result of "toilet needs" card-sorting exercise during the workshop

4.4. Intersecting Facts, Perceptions and Needs

Through system mapping and synthesis, guided by cross-method analysis using thematic lenses (toilet facts, needs, and perceptions), and insights gathered during the participatory workshop with women where we directly discussed toilet types, I uncovered key tensions between these three lenses in relation to toilet provision in Tallinn.

While residents technically have several types of toilets to choose from, each option comes with its own set of limitations:

- Public on-street container toilets are affordable and theoretically open to all, but they lack sufficient number, convenient locations, and above all, the quality and comfort necessary for residents to consider them truly usable.
- Automatic on-street toilets, especially the new JCDecaux models, are perceived as higher quality but less affordable, and the automatic locking systems generate distrust, with several women expressing fears that the doors may malfunction or fail to open.
- Seasonal toilets (temporary summer facilities) are often the most pleasant and well-maintained public toilets, but they are only available in summer, leaving a significant gap the rest of the year.
- Off-street toilets provided by private businesses or institutions (e.g. restaurants, cafés, malls, universities) cannot be considered truly public: they are "hidden", requiring either prior knowledge, a purchase, or the awkward act of "asking for the key", leaving many feeling they have no right to access them.

In short, while residents clearly need toilets that are reliably available for all needs, regardless of gender, ability, specific health needs, or age, the qualities of the existing system reveal that no single toilet type currently meets these expectations.

If a toilet is visible and accessible, its quality and comfort are often inadequate (as with container toilets). If a toilet is high quality (as with automatic or mall toilets), it tends to be invisible, seasonal, or financially inaccessible.

This analysis reveals that what is lacking is an in-between solution: a toilet type that is not only visible, accessible and reliably open, but also offers sufficient quality, comfort and inclusivity to be truly usable by all.

Additionally, this gap is not merely technical but spatial: there is an insufficient number of toilets distributed beyond tourist hubs, with residential areas, parks, playgrounds and everyday commuter routes often left unserved.

This systemic insight was confirmed during the participatory workshop with women, who, in a co-creation task, proposed a “toilet grid” system: an equitable network of toilets distributed across the city based on walkable distances. The participants also recommended a monitoring system, allowing residents to check in real time whether toilets are open, clean and operational, highlighting the importance of trustworthy, transparent information as part of access.

While this stage of the research uncovered what is missing in Tallinn’s public toilet system, the next step was to investigate the underlying causes behind these gaps. This led to a deeper systemic analysis, presented in the following section.

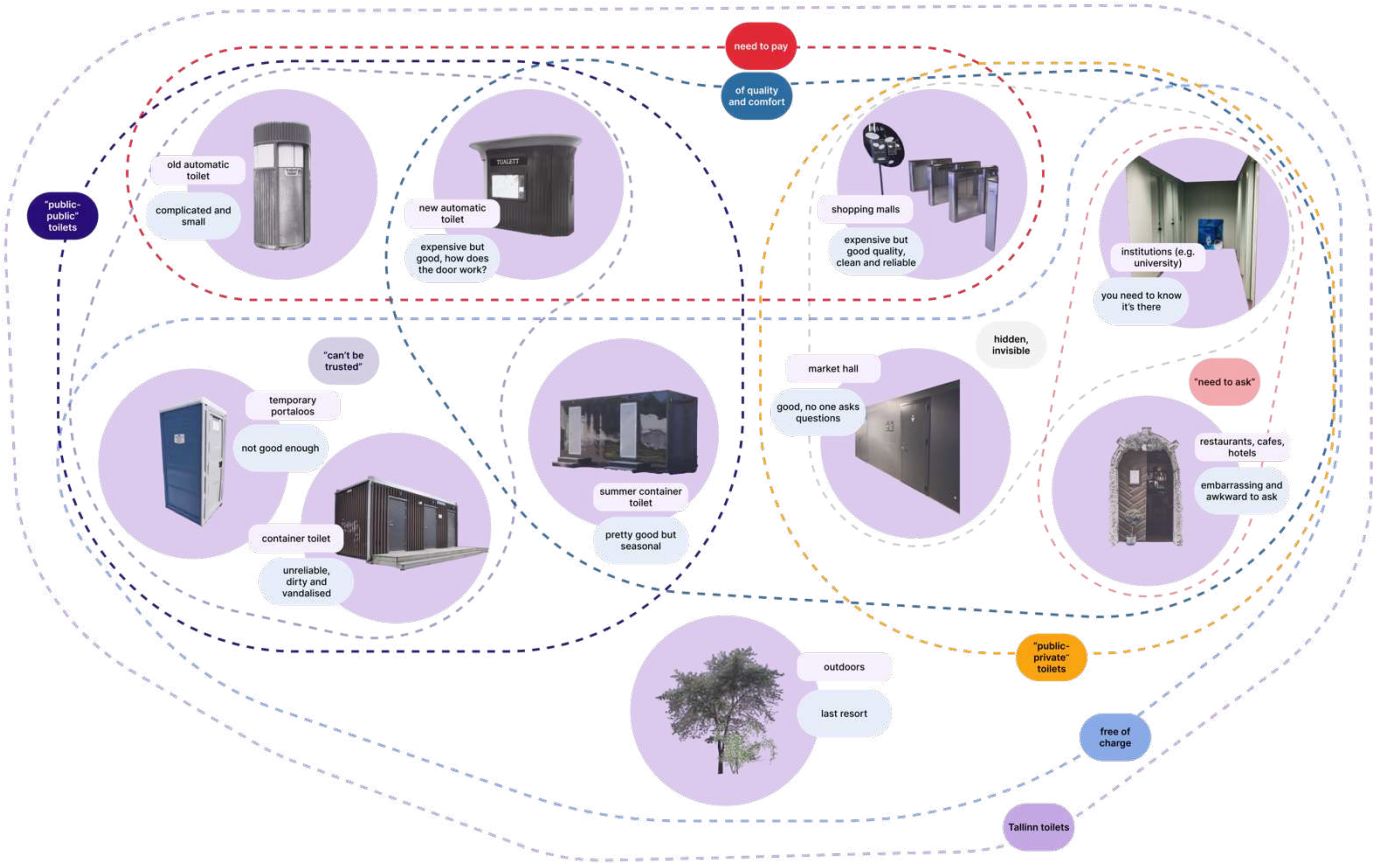


Figure 18. Tallinn toilet-typology map combining toilet types and their perceptions (see Appendix E for the full-size version).

4.5. Systemic Patterns and Deeper Structures

The analysis of toilet types, perceptions, and needs made clear that the challenges of public toilet provision in Tallinn cannot be separated from the broader systems in which they are embedded. Toilets are shaped not only by technical decisions or individual experiences, but by patterns of governance, care, visibility, and accountability that span multiple layers of the urban environment.

To better understand these interconnections, I created a gigamap that synthesised insights from field observations, interviews, workshops, cultural probes, and literature. The mapping process layered multiple aspects of the toilet system: starting from the typology map, I expanded it by adding layers representing users (categorised by diverse needs), providers (both public and private), and the behaviours, perceptions, and responsibilities associated with each group. This process allowed me to visualise not just the structural components, but the interdependencies, gaps, and disconnects between actors.

Through gigamapping, I uncovered the systemic fragmentation running through Tallinn's toilet provision. Responsibilities are scattered across various actors with little coordination or shared vision. For instance, the Department of Urban Environment Maintenance, responsible for daily upkeep, faces challenges that are not recognised as systemic problems at higher governance levels, leaving their insights absent from decision-making. Meanwhile, decisions like the installation of new automatic toilets via JCDecaux were made without meaningful consultation with maintenance staff, accessibility experts, or users, resulting in designs disconnected from both operational realities and resident needs. The map also showed that private providers, such as cafés and malls, informally fill gaps in provision without formal collaboration or support – another layer of invisible reliance.

Mapping these relationships highlighted how fragmented governance, missing communication, and lack of coordinated accountability allow gaps to persist. At the same time, the process of mapping became a reflective tool: it not only revealed systemic disconnections but also helped me understand how these structural gaps intersect with the emotional and experiential realities of daily toilet use. This process sharpened my focus towards identifying leverage points that address both systemic and lived challenges.

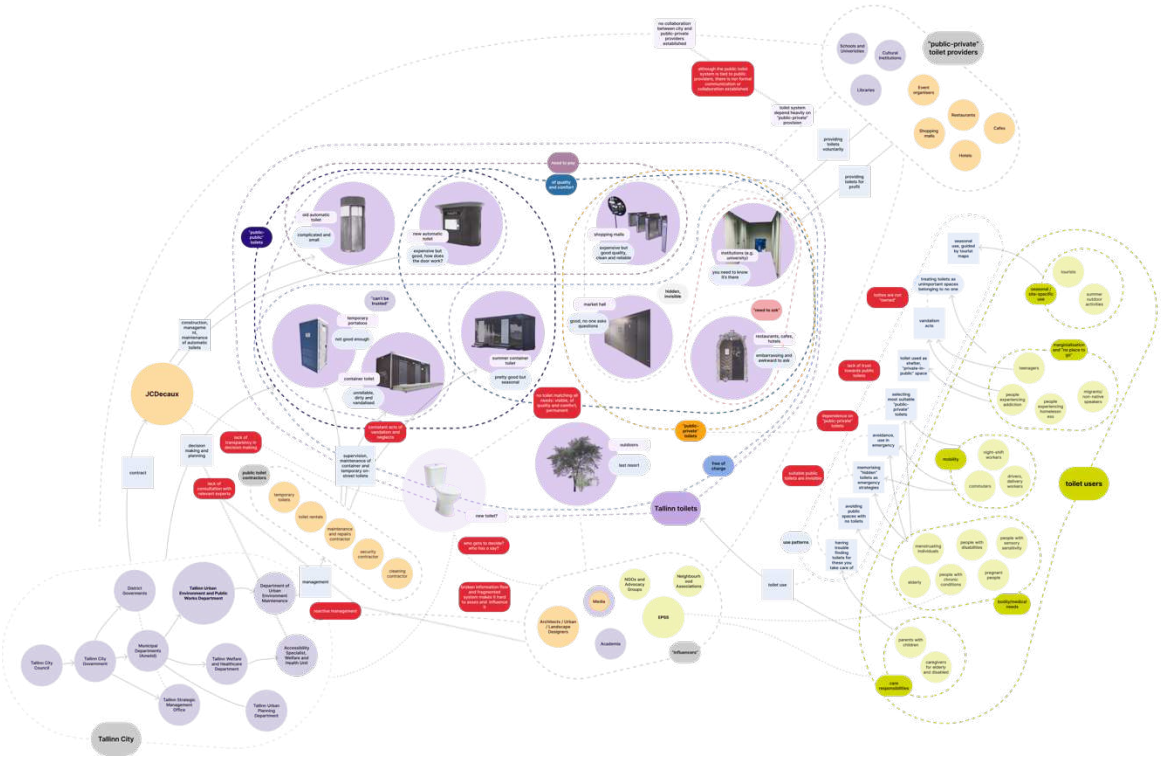


Figure 19. Gigamap of Tallinn's public toilet system
(See Appendix F for full-size version)

This systemic perspective highlighted not only the visible gaps, but also the hidden structures and cultural assumptions sustaining them. Mapping became a way of making sense of the complexity: bringing together facts, perceptions, and needs into a shared space, and showing where patterns of avoidance, neglect, or exclusion reinforced one another. Crucially, it revealed that underprovision itself – both the insufficient number of toilets and their uneven distribution – was not simply a logistical failure, but a product of these deeper dynamics: a reflection of toilets not being recognised or valued as essential public infrastructure. When no one feels responsible for toilets, their absence is normalised.

To interpret the complexity captured through gigamapping, I applied the ZIP-analysis framework developed within Systems Oriented Design (Sevaldson, 2022). ZIP-analysis is a simple but powerful tool for identifying strategic points in a complex system. The acronym stands for Zoom points – areas requiring closer investigation; Problem or Potential points – places where problems or opportunities emerge; and Intervention or Innovation points – spaces where actionable change can be introduced. It is an iterative method used both during mapping and as a way of reflecting on the system's emerging shape over time.

As the first step, I identified several Zoom points - areas that called for deeper investigation, particularly where observations and participant experiences revealed contradictions between

official narratives ("toilets exist") and lived realities ("toilets are not trusted or used"). Focusing on these gaps, I gradually distilled three interconnected core problems (P-points):

P1 Lack of trust towards public toilets among Tallinn residents

P2 Lack of visibility, resulting in a perception of scarcity and inaccessibility

P3 Lack of ownership and accountability, with toilets not being treated as a shared public good

With these problems defined, I turned to story-loop analysis, adapted from Jones and Van Ael's Systemic Design Toolkit (2021), to explore how the P-points reinforced one another. These diagrams revealed a reinforcing feedback loop that sustains the system's dysfunction:

Residents avoid using public toilets due to fear of poor conditions. Low usage leaves these spaces empty and unsupervised, making them attractive for alternative uses – such as temporary shelter for people experiencing homelessness or acts of vandalism by frustrated individuals. These alternative uses lead to damage and unhygienic conditions, triggering further avoidance and, at times, reactive city responses such as locking the toilets. In effect, the perception that toilets are unsafe, unavailable, and unreliable is confirmed, worsening the original problem.

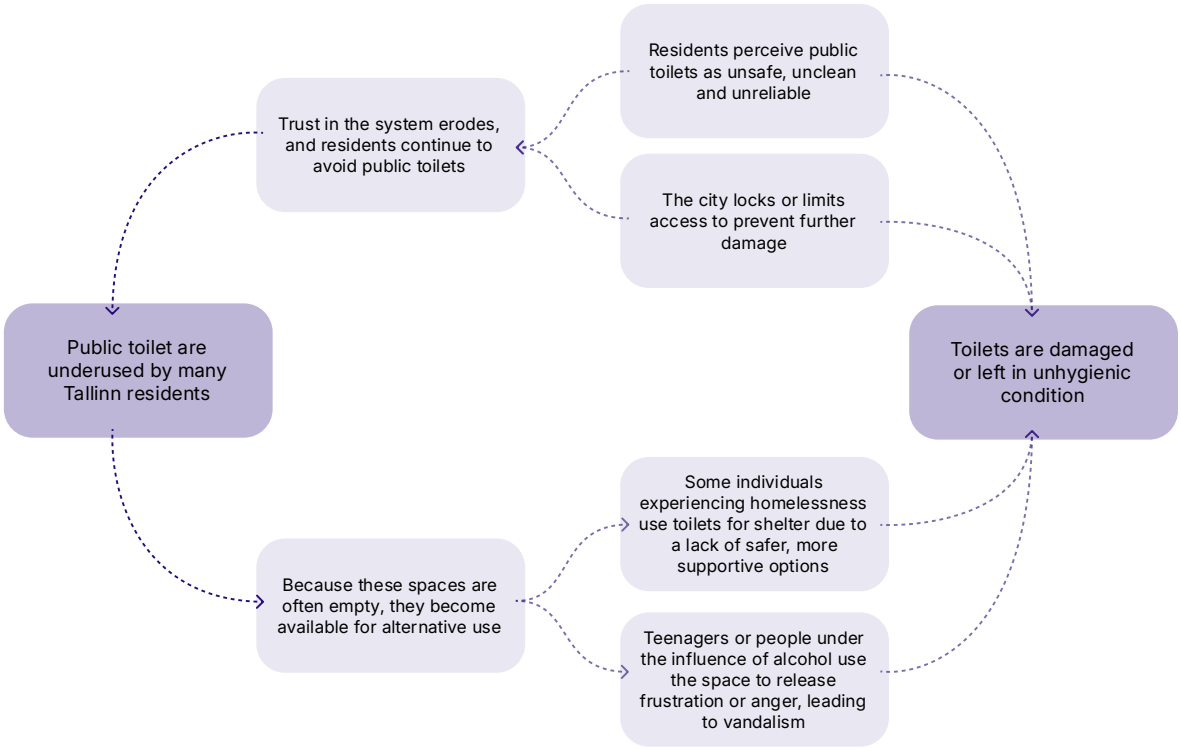


Figure 20. Visibility–trust and maintenance–vandalism story-loop diagram.

Within this cycle, two intertwined dynamics stand out:

> Maintenance–Vandalism Spiral: Insufficient maintenance after vandalism increases vulnerability to further damage, accelerating the decline of toilet conditions
>
> Visibility–Trust Spiral: When toilets are physically or socially invisible, they are perceived as unavailable, reinforcing distrust and avoidance

In order to understand the core reasons behind these story loops, I needed to look deeper into the hidden cultural, structural, and emotional forces that sustain them over time.

To explore these deeper structures, I used Causal Layered Analysis (CLA) (Inayatullah, 1998), a futures-oriented method that examines issues across four levels: litany, systemic structures, worldviews, and myths/metaphors. This is how those levels presented themselves:

> Litany (visible symptoms): Public toilets are dirty, locked, or avoided; residents seek alternatives in cafés, malls, or by staying close to home.
>
> Systemic structures: Responsibility for public toilets is fragmented across departments, with minimal coordination or preventive strategies; toilets are treated as marginal rather than essential infrastructure.
>
> Worldviews and paradigms: Public toilets are still seen mainly as technical necessities and financial burdens rather than as essential public infrastructure that supports dignity, inclusion, and everyday mobility.
>
> Myths and metaphors: Cultural narratives frame toilets as “unpleasant necessities” rather than shared public goods, reinforcing emotional distance and societal neglect.

To further synthesise the insights and envision possibilities for change, I applied an adapted CLA model, contrasting the current system with a desired future.

This layered perspective allowed me to step beyond surface problems and to consider what values and cultural assumptions might need to shift for meaningful change to occur. It became clear that Tallinn’s public toilet challenges are not simply operational flaws but deeply rooted in how public space, care, and infrastructure are culturally perceived.

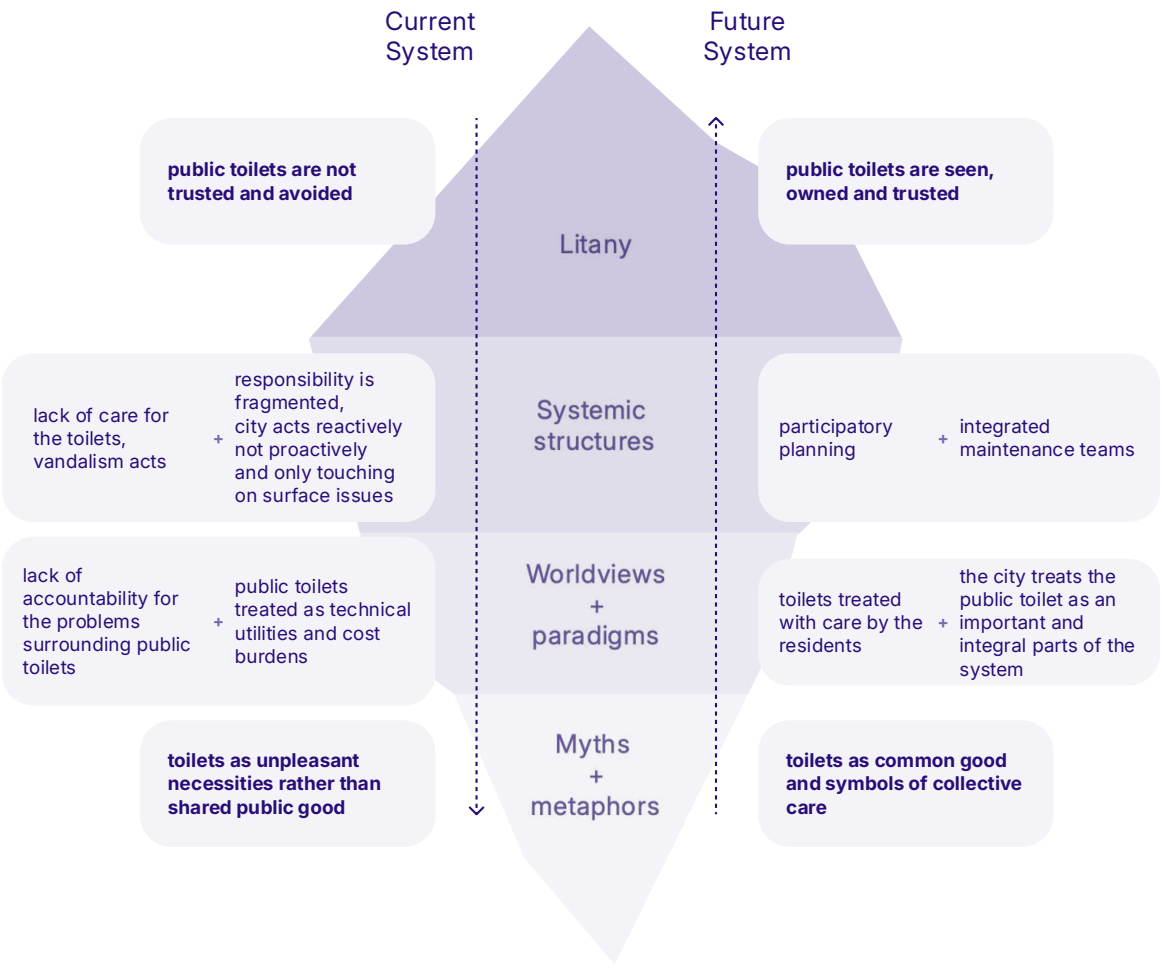


Figure 21. Causal Layered Analysis of public toilet provision in Tallinn
Adapted from Inayatullah, 1998.

This realisation shaped the opportunity statement that guided the next stages of my design exploration:

> How might we create visibility, trust, and a feeling of ownership towards public toilets so that they become genuinely accessible and inclusive for all residents of Tallinn?

Rather than treating toilets as isolated service units, this framing repositions them as relational spaces – essential to urban equality, dignity, and the rhythms of everyday life.

4.6. Identifying and Evaluating Intervention Points

With a clear view of both surface-level story loops and deep-structure dynamics, I asked where small shifts could trigger larger system changes.

I began by applying the ZIP-Analysis method to identify potential Intervention Points - specific locations in the system where change could be introduced. These points were then

assessed using the hierarchy of leverage points (Meadows, 1999) to evaluate their potential to generate systemic transformation.

The hierarchy ranges from shallow parameters to deep paradigms, with the most powerful leverage points situated at the level of mindsets. In addition to identifying such high-leverage points, it was also critical to address systemic barriers that constrain the functioning of the system and the movement toward change. While not at the highest positions in the hierarchy, they play a key role in enabling change elsewhere in the system.

Mapping the identified intervention points onto Meadows' hierarchyrevealed four systemic leverage opportunities:

> Improving information flows: To counteract distrust, consistent, clear, and accessible information about toilet locations, conditions, and accessibility must be made visible and regularly updated. This includes information flow between the public, civic and commercial actors. Small interventions, such as improved signage or real-time digital maps, could have a great effect on building trust.
>
> Strengthening positive feedback loops: Increasing the visibility and physical presence of toilets can stimulate usage, which in turn fosters familiarity, care, and trust. Each positive experience reinforces future expectations and behaviours.
>
> Shifting mindsets and paradigms: Changing how both residents and institutions perceive public toilets – from expendable cost burdens to collective assets of civic dignity and care – is essential. Narrative-building, co-ownership campaigns, and symbolic actions can gradually realign public and institutional mindsets.
>
> Reducing delays in response cycles: Implementing rapid-response maintenance practices can prevent minor damages from escalating into visible neglect, breaking the cycle of avoidance and distrust.

These insights made it clear that improving public toilet access in Tallinn would require interventions across multiple levels simultaneously, apart from simple technical improvements and cultural, emotional, and systemic shifts.

Recognising that no single action could transform the system, I developed a coordinated set of interventions designed to target different layers of change over time. The interventions were planned not as isolated projects but as interdependent actions intended to spark reinforcing loops of positive change.

The future-oriented vision developed through Causal Layered Analysis (CLA) also played a role here, helping to articulate what a more caring, visible, and inclusive public toilet system might look like and clarifying the types of systemic shifts the interventions should aim to support.

This future framing, together with the systemic insights and leverage points outlined above, shaped the design process described in the next chapter.

5. Design Interventions

Based on the systemic patterns and leverage points identified earlier, I developed three connected interventions that respond to different parts of Tallinn's public toilet system. Rather than solving everything at once, they are designed as small, reinforcing steps – each opening space for the next. They engage different layers of the system: infrastructure, information flows, trust, narratives, and participation.

To better understand how these interventions might influence change over time, I adapted the Multi-Level Perspective (MLP) model (Geels, 2002). The MLP framework shows how transitions happen in complex systems. It suggests that small-scale innovations (niches) can, under the right conditions, influence the dominant practices and structures (regimes), especially when wider societal expectations and narratives (landscapes) begin to shift.

In this adapted version, the three interventions – the People's Toilet Map, the People's Toilet Award, and the Public Toilet Prototype – are positioned as niche-level experiments. They aim to challenge how the city currently approaches public toilets and to contribute, over time, to broader shifts in how toilets are seen and cared for.

The diagram (Figure 22) shows how these interventions relate to regime practices and landscape narratives over time. The horizontal axis traces a path from the present situation through a transitional phase toward a future where public toilets are visible, trusted, and understood as shared civic infrastructure. Arrows indicate how niche initiatives can gradually influence other layers of the system.

The following sections (5.1, 5.2, 5.3) describe each intervention in more detail, outlining their design rationale, intended systemic leverage, and early feedback gathered during prototype testing.

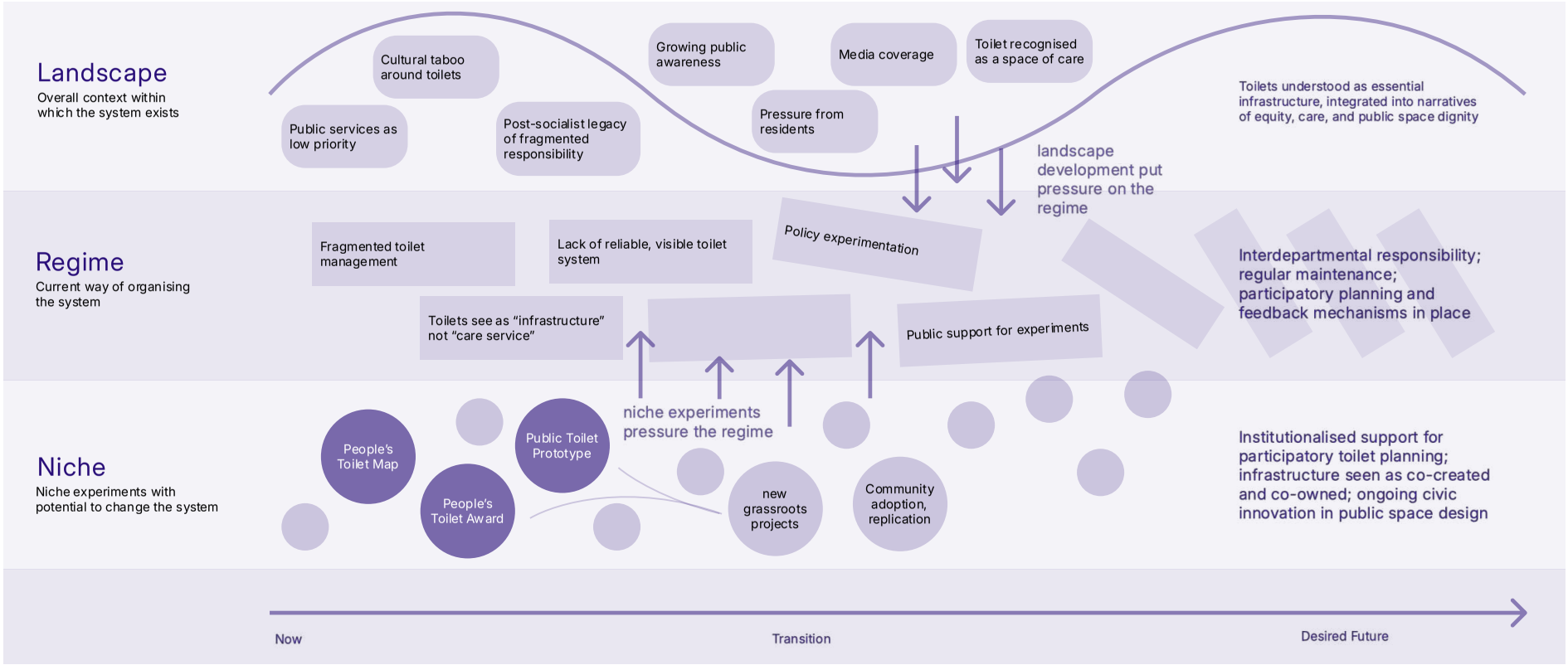


Figure 22. Multi-level perspective diagram showing the proposed design interventions as niche-level experiments.
Adapted from Geels, 2002.

5.1. People's Toilet Map

One of the most striking insights from this research was not only that public toilet provision in Tallinn is uneven, but that many toilets already present in the system go unnoticed and unused. This invisibility was especially evident in the feedback from women participants, who described public toilets as "untrustworthy" and instead relied on private venues, mapped their own internal "toilet routes," or used the toilet "just in case." These behavioural patterns pointed not only to a problem of distribution but of perception – what I came to understand as a systemic barrier of visibility.

In response, I developed the People's Toilet Map: a participatory mapping tool designed to visualise and share qualitative knowledge about public toilets in Tallinn. Rather than defining toilets by their formal ownership or technical classification, this map is structured around user's experience of access:

Toilet I can walk into freely – no restrictions

Toilet I should ask to use – located in a business, unofficially public

Toilet I have to pay for – coin, card, or app required

Toilet that isn't here, but should be – a location in need of a toilet

The prototype was implemented as an open Miro board where participants could mark locations, add personal notes, and comment on safety, comfort, or other qualities. Instructions encouraged short, honest stories: a way to shift toilet-related experiences from private discomfort into shared civic insight. The format also included an anonymous posting option, reinforcing emotional safety and privacy.

This approach was inspired by insights from participatory workshops, field observations, and expert interviews, as well as the observation that mapping was already happening informally. Many participants remembered where "the good toilets" were and avoiding areas with none. Yet this tacit knowledge was not captured in official maps or city planning documents.

By bringing everyday experience into view, the People's Toilet Map contributes to improving information flows and challenging the invisibility of essential infrastructure. At the same time, it begins to reframe public toilets as something that belongs to all of us, not just as a municipal responsibility but as a shared concern, co-shaped by those who use and care about them.

Initial feedback on the prototype confirmed this potential. Participants suggested linking the map with official city channels or collaborating with the Estonian Inflammatory Bowel Disease Association (EPSS), which maintains its own digital map but lacks accurate municipal data. While this kind or partnership was already part of the concept, the feedback confirmed a strong desire for the institutions to take action. The map was seen by participants not just as an informative resource, but also as a way to communicate to the city that change is both needed and possible.

Ultimately, this intervention aims to make toilets visible not only on the map, but in the public conversation. It is created as a tool for sharing stories and insights, recognising gaps, and creating space for collective awareness, dialogue, and eventual policy influence.

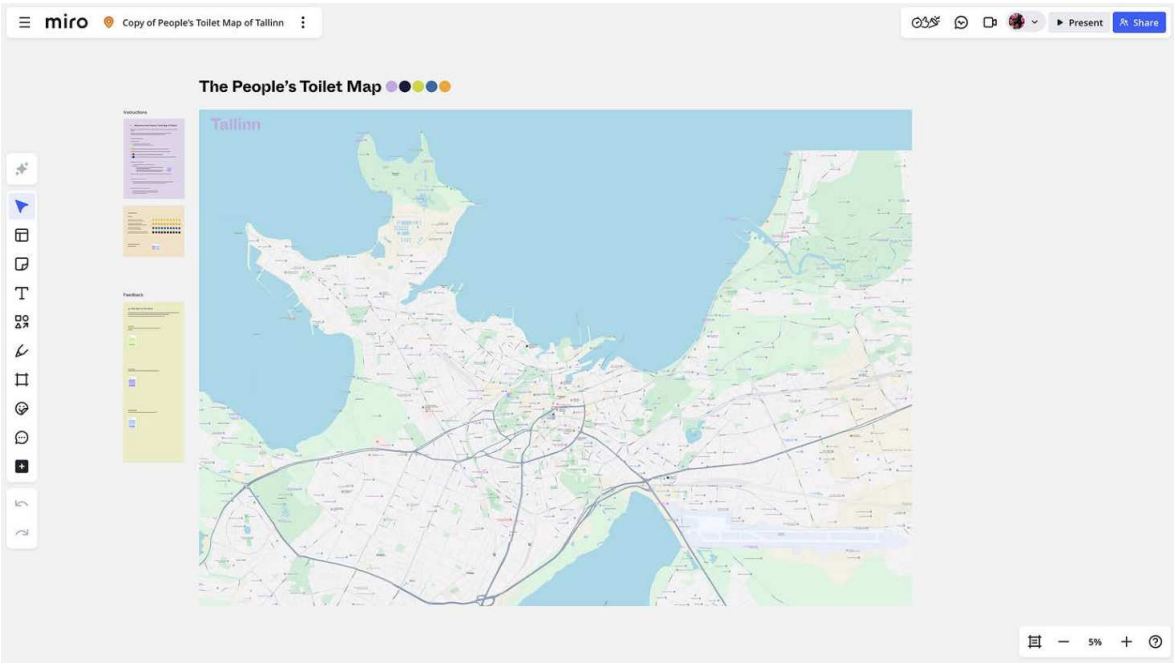


Figure 23. The People's Toilet Map prototype

5.2. People’s Toilet Award

Building on the idea of reclaiming public toilets as shared civic spaces, I developed a second intervention: the People’s Toilet Award. Where the People’s Toilet Map aims to make toilets visible and open to critique, the Toilet Award adds another layer – celebrating what already works and strengthening positive associations.

The award invites residents to nominate and vote for the best public toilets in Tallinn, recognising those that are clean, accessible, safe, and easy to find. Rather than focusing on weaknesses and problems, it encourages participants to recognise and take pride in spaces that already work.

The prototype was implemented as an open Miro board, where participants could nominate a toilet by adding its location, short description, and an optional photo or sketch. Others could vote by dragging green dots onto their favourites. As with the map, anonymity options were provided to ensure openness in participation.

This intervention was inspired by insights from the workshops and informal stories shared with me during the research process. Surprisingly, participants mentioned a lot positive experiences with toilets, remembering some for being unexpectedly clean, reliable of beautiful. By creating space to recognise and celebrate such examples, the award supports a shift from avoidance to engagement.

Initial feedback on the idea was positive. Participants welcomed the tone of the project and expressed curiosity about how it might grow in the future. Some wondered whether it might eventually become an official event or be taken up by the municipality or advocacy organisations such as EPSS.

The long-term vision for this intervention would be to develop it into a recurring, city-wide event – perhaps tied to World Toilet Day or IBD Awareness Day. This could include an award ceremony, press attention, or even small public installations.

While playful in tone, the People's Toilet Award supports deeper systemic goals: strengthening positive feedback loops (by celebrating what works), shifting mindsets (by reframing public toilets as worthy of care and pride), and encouraging emotional ownership of public infrastructure.

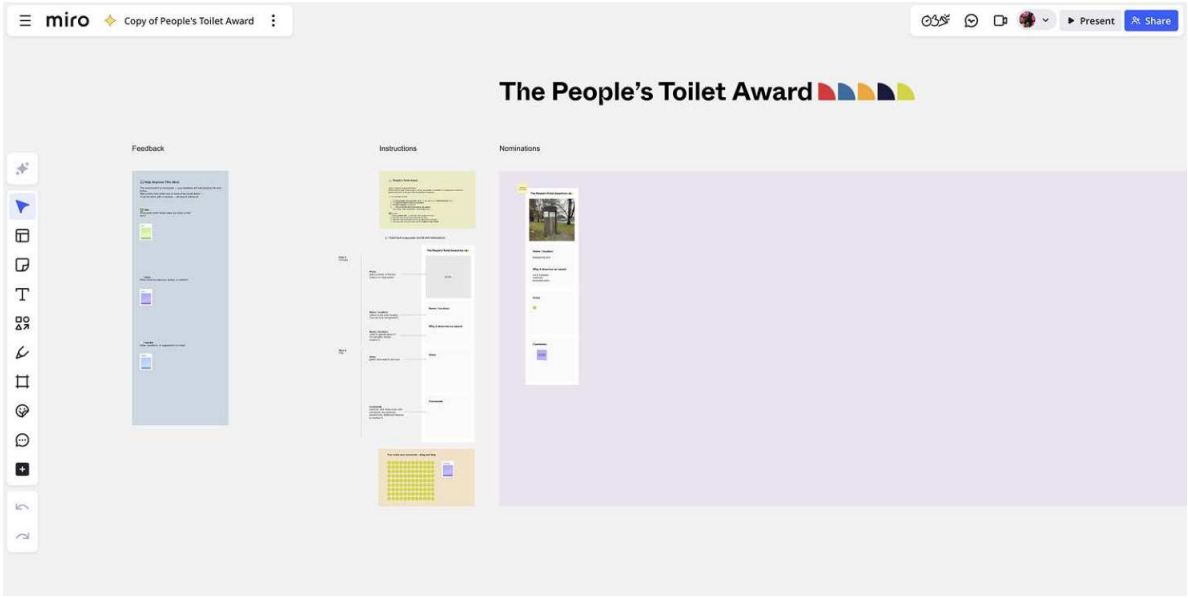


Figure 24. The People's Toilet Award prototype

5.3. The Public Toilet Prototype

The third intervention differs in nature from the previous two. While the People's Toilet Map and the People's Toilet Award focused on information flows, visibility, and shifting public mindsets, this proposal moves into the physical realm. It presents a prototype for a multifunctional public toilet that demonstrates what accessible, inclusive, and community-valued toilet provision could look like in Tallinn. The goal was not to design an architectural icon, but to reimagine the public toilet as a civic space, which recognises the emotions, needs, and experiences expressed throughout the research.

This intervention was directly shaped by insights from the participatory workshops. Participants questioned what a public toilet should be – not solely a sanitation facility, but a place tied to safety, care, expression, and emotional release. Stories revealed that toilets often serve as spaces to pause, to hide, to cry, to care for children, or to write messages on walls. Participants stressed that these informal, often invisible uses must be openly acknowledged in public toilet design rather than ignored or penalised.

A repeated point of reference was the Tokyo Toilet initiative – a project by The Nippon Foundation that reimagined public toilets across Shibuya with the help of prominent architects (The Nippon Foundation, n.d.). While the initiative attracted attention for its architectural design, what resonated most with participants, and shaped this intervention, was not the cultural shift it achieved. Toilets became visible, cared for, talked about; no longer places of avoidance but spaces of civic pride. Participants viewed Tokyo Toilet not as something unreachable but as an example of dignity and visibility - public toilets people would actually want to use and care for.

Another important influence came from Clara Greed's argument that toilets should be integrated with other services and public buildings - such as libraries or tourist centres - both to reduce the maintenance costs and to ensure informal supervision (Greed, 2010). This idea of integration – spatially, socially, and symbolically – shaped the core of this prototype.

The proposed site for the intervention is the location of an existing container-style public toilet near Tallinn's Balti Jaam train station – one of the most centrally located yet most avoided toilets in the city. Despite being open year-round and maintained twice daily, the current facility is often vandalised, poorly maintained, and associated with discomfort, danger, and neglect. It is also a shelter for people experiencing homelessness or substance use, which reflects systemic failures rather than individual problems.

The proposed toilet design proposes a refreshing change to this situation, creating a space which is multifunctional, inclusive, and community-facing. It includes:

- 24/7 access with on-site staff, responsible for light maintenance, providing information, offering support, and directing visitors to additional services.
- Inclusive cubicles with step-free entry: a wheelchair- and ambulant-accessible units, shower, baby-changing station, and private sinks, shelves, and waste bins in each cabin.
- A mix of gendered and unisex cubicles, offering options for varied comfort and safety needs.
- A shared hygiene area with mirrors and washbasins for self-care without occupying a toilet stall.
- A quiet indoor rest space, providing a place to pause, sit, or shelter without pressure to consume.
- A small communal kitchen corner, offering tea, coffee, and water, with potential to incorporate food-sharing initiatives.
- An outdoor “rage corner”, equipped with gym-style equipment to offer a physical outlet for stress and frustration.
- Graffiti, art and message walls, inviting personal expression and reducing unsanctioned vandalism.

These features were grouped into functional zones and visualised through a floor plan, an axonometric visualisation, and external and internal views. The visuals, along with explanatory descriptions, were uploaded to a Miro board, where participants could leave their comments and reflections in their own pace.

Figure 25. The Public Toilet Prototype - axonometric view

Responses were enthusiastic but pragmatic. Many praised the attention to emotional needs, care, and inclusivity, but also raised important operational questions:

- Who would staff and maintain the space, and how would their roles be defined?
- Would the presence of vulnerable groups deter broader public use, or could design and supervision mediate diverse use?
- Could community ownership be fostered over time to prevent neglect and vandalism?
- Could partnerships with NGOs or volunteer groups help support the communal kitchen or other activities?

Some participants proposed further steps, such as organising co-creation workshops with residents, NGOs, and city representatives to refine the concept, or introducing scheduled activities like poetry readings, yoga, or quiet hours to encourage regular, respectful presence.

While many of these ideas go beyond the immediate scope of this thesis, they point to the prototype's potential as a catalyst for wider systems change. This design does not attempt to

solve the systemic crisis of toilet provision alone. It is a niche-level intervention and a symbolic proposal – a provocation toward what public toilets could be, if we designed for care rather than neglect. It connects back to the systemic patterns discussed earlier: increasing visibility and trust, reducing damage through presence and pride, and fostering ownership by blending function, culture, and expression into one shared civic space.

The three interventions – the People's Toilet Map, the People's Toilet Award, and the Public Toilet Prototype – were not designed to solve the problem on their own. Each responds to a different part of the system, based on what was shared by participants, observed in the field, or surfaced through mapping.

What connects them is not a master plan, but a set of shared values: visibility, care, dignity, and the belief that toilets should be part of public life, not left at its margins. None of these ideas are new. But placed in context, they offer a way to move – slowly, collaboratively – toward a city that treats public toilets as a shared concern, rather than a technical afterthought.

6. Discussion

This thesis aimed to explore the public toilet provision in Tallinn and its role in shaping equitable access to public space, particularly for women and other underrepresented groups. The research adopted an adaptive, iterative, and systemic lens, using participatory methods to centre the lived experience of residents. Through a feminist literature review and empirical activities focused on inclusion, the research revised its original hypotheses in response to Tallinn's specific context and participants' insights.

In this chapter, I reflect on how the research aim and questions were addressed, how the findings relate to existing literature, and outline the limitations and implications.

6.1. Addressing the Research Questions and Aim

RQ1: What is the current state of the public toilet system in Tallinn? What is missing?

Through field observations, workshops, interviews, and system mapping, the research revealed that Tallinn's public toilet system is fragmented, uneven, and reactive. Toilets exist both on-street and off-street but are concentrated around Old Town, prioritising tourists while leaving residential areas underserved. Provision is seasonal, with a significant increase in summer but inadequate winter access. Maintenance teams reported daily vandalism and damage, while residents encountered locked, broken, or unsafe facilities, undermining their practical availability.

What is missing is not just infrastructure, but a systemic approach integrating maintenance, user needs, and accountability. Attempts to maintain cleanliness and order fail because the underlying causes of damage are not addressed. While the city acknowledges the need for improvements, it outsourced responsibility to JCDecaux, distancing itself from direct accountability. The location plan for new toilets remains unclear, and resident voices were not included in decision-making.

RQ2: How is public urban space currently perceived by women and other disadvantaged groups?

Women and other disadvantaged groups described public space as lacking trust, comfort, and safety when it comes to finding a toilet. The research showed that many rely on avoidance strategies: sticking to familiar places, limiting where they go, or carefully planning routes around trusted facilities. Toilets were often seen as unreliable, hidden, or

simply unavailable, leading to a quiet sense of exclusion from parts of the city. This perception aligns with feminist critiques showing how formal "equality" in provision does not translate into equitable access or experience.

Women described using toilets "just in case," relying on workplaces, schools, homes, or shopping malls. The lack of trust in public toilets' reliable availability renders them effectively invisible and unavailable. The same distrust was reported by people with medical needs, such as inflammatory bowel disease, who depend on private facilities and the EPSS toilet card.

Accessibility experts highlighted that Tallinn's public space is not fully accessible for disabled residents, and many toilets labelled as accessible do not meet actual accessibility standards, such as ramps being too narrow for wheelchair users.

RQ3: How does insufficient toilet provision impact women's experience of urban space?

The lack of sufficient, clean, and reliable toilets limits how freely women can move through the city, where they feel they belong, and how comfortably they can take part in public life. Many women described how they have to plan their routes carefully, think ahead, or avoid certain places because they cannot count on a toilet being available when needed. This quiet, often invisible barrier ends up reinforcing deeper inequalities in who can fully access and feel at home in the city.

Stories confirmed that women rely on trusted spaces, plan around toilets, or avoid certain areas altogether. Playgrounds emerged as a particular challenge: without nearby toilets, mothers bore the responsibility of managing children's needs, reinforcing gendered care roles.

RQ4: What are the common needs of women in public space, and what barriers prevent their participation?

The research identified core needs: reliable availability, accessibility, visibility, safety, and inclusivity. Workshop participants prioritised these needs over aesthetics or design. Barriers included poor maintenance, lack of information, physical inaccessibility, distrust of conditions, and the emotional burden of negotiating access through private venues or informal strategies.

Participants' insights confirmed that infrastructure must go beyond technical compliance to address emotional and social dimensions. The research showed that while fixture counts may appear sufficient, women's needs extend further - to safety, cleanliness, comfort, and facilities supporting care responsibilities.

Addressing the Research Aim

This research set out to explore how Tallinn's public toilet system could be improved to make the city more inclusive and equitable, especially for women and other disadvantaged groups. What the findings showed was not just a lack of toilets, but a deeper systemic problem. A pattern became clear: people avoided public toilets because they did not trust them, because they were dirty, broken, unsafe, or locked. That avoidance meant the toilets were used less, which left them more vulnerable to vandalism or being used as informal shelter. Then they were closed or left damaged, which only increased the distrust and avoidance. It became a reinforcing cycle.

To break this cycle, the underlying causes need to be addressed – not just fixing toilets as isolated problems, but shifting how they are seen and valued. At the centre of this issue is the way toilets are treated: not as a shared part of civic life, but as unpleasant necessities nobody really wants to claim responsibility for. If toilets are to support inclusion and equality, they need to be seen and treated as public goods – visible, cared for, and shared by the community.

This research proposed three interconnected interventions to start shifting the system: the People's Toilet Map, the People's Toilet Award, and the Public Toilet Prototype. Each focuses on a different part of the system, aiming to improve information, rebuild trust, increase visibility, and change how toilets are talked about and cared for. These interventions are small steps, but they aim to open up new ways of thinking about public toilets as part of shared, inclusive urban life.

6.2. Linking the Research to Theory

Public Toilets as Multidimensional Infrastructure

The research confirmed Greed's (2003) argument that public toilets intersect with many aspects of social life, including health, gender, care, and cultural norms. Participants described toilets as spaces not only for basic needs but for rest, privacy, emotional relief and managing care responsibilities - aligning with Greed's idea that "all human life is there."

Participants' distrust of cleanliness, safety, and availability reflected what Greed (2003, 2019) and Paulus (2023) describe as a persistent neglect of toilets in planning and policy. In Tallinn, toilets were not only physically lacking but symbolically undervalued, echoing Paulus's (2023) critique that procurement-based approaches reduce toilets to technical installations rather than recognising their social, emotional, and civic roles.

The pattern of toilets being overlooked until they fail also reflects Star's (1999) insight that infrastructure becomes visible only when things break. Participants' avoidance, dissatisfaction, and distrust highlight how toilets are at once materially present yet absent from effective urban planning, reinforcing Greed's (2010) critique of technocratic oversight.

Public Toilets, Spatial Justice, and Gendered Urban Space

The research supported feminist critiques (Greed, 2010; Kern, 2020; Beebeejaun, 2017) showing that women's needs in public space extend beyond numerical equality of facilities. Although Tallinn does not exhibit an imbalance of urinals and cubicles, participants emphasised needs for safety, cleanliness and privacy. These qualities are often lacking in the on-street toilet provision, making them perceived as unusable, effectively reducing the real number of available options. When combined with women's more complex, care-related mobility patterns (Kern, 2020), this experiential barrier amplified an existing underprovision: toilets that do not meet experiential needs do not realistically "count" for women navigating the city. It was also highlighted that toilets are lacking particularly in residential areas or near playgrounds, which further limited women's freedom to participate fully in urban life.

Participants' stories - avoiding certain neighbourhoods, cutting outings short, or planning routes around trusted toilets reflect what Greed (2010, 2019) described historically as "bladder's leash". While the visible gender inequalities of earlier urban planning have shifted, the research shows that this constraint persists in subtler ways today: when women's greater needs for privacy, cleanliness, and safety are not recognised, toilets may appear "available" on paper yet remain effectively inaccessible, continuing to limit women's mobility.

This limit to mobility in urban space, can be extended to the notion of spatial justice. Beebeejaun's (2017) argues that spatial justice is enacted not just through formal rights but through everyday practices of presence, movement, and participation. Therefore, without the real availability of toilets in all urban areas, women cannot assert their rights fully.

Public Toilets as Embodied Experience

Participants' accounts reflected Barcan's (2010) framing of toilets as ambiguous spaces: necessary yet culturally marginalised, intimate yet public. Their personal stories described uncomfortable encounters with vandalised, dirty, or poorly functioning toilets – bringing feelings of anxiety, vulnerability, and disappointment. This aligns with Corradi et al.'s (2020) findings that toilet use can evoke psychological distress, especially in poorly maintained environments. The most acute emotional discomfort, however, arose when a toilet expected to be open was found locked or damaged at a moment of urgent need. Participants described how such disappointments left lasting distrust, shaping a broader reluctance to rely on public toilets at all.

At the same time, participants' desire for dignity, comfort, and emotional security reinforces the UN Human Rights Council's (2019) definition of adequate sanitation as requiring not only safety and access but also dignity and acceptability. The findings confirmed that functional provision alone does not ensure inclusion; toilets must also meet emotional and embodied needs.

Public Toilets as Part of a Complex System

The research applied a systemic lens, drawing from Sevaldson's (2022) Systems Oriented Design. By mapping relationships between avoidance, neglect, vandalism, and closure, the research identified a self-reinforcing cycle of toilet failure, similar to the systemic patterns described by Meadows (2008).

Participants' narratives supported Paulus's (2023) critique that Tallinn's toilet system suffers from fragmented governance and a procurement-driven approach that overlooks user needs. Rather than isolated technical problems, toilets emerged as intersections of infrastructure, institutional responsibility, cultural norms, and social practices.

By centring lived experience and participatory mapping, the research made visible gaps that official inventories missed, reinforcing Greed's (2010) critique that technical planning metrics overlook experiential realities. These insights point to the need for not just technical solutions but a cultural shift towards recognising toilets as shared civic infrastructure grounded in care and collective responsibility.

6.3. Implications and Next Steps

This research highlights that improving public toilet provision in Tallinn requires more than technical fixes or increased infrastructure. It calls for a cultural and institutional shift: towards recognising toilets as shared civic goods, embedded in systems of care, dignity, and collective responsibility.

The proposed interventions – the People's Toilet Map, People's Toilet Award, and Public Toilet Prototype – are designed as niche experiments to activate multiple leverage points, improving information flows, rebuilding trust, increasing visibility, and shifting narratives. Their goal is not to "solve" the toilet problem in isolation, but to open space for reimagining public toilets as relational, cared-for, and integral to inclusive urban life.

Future work could expand these interventions through deeper collaboration with municipal departments, enabling co-created strategies that integrate resident insights with institutional planning. Engaging cross-departmental actors in mapping, scenario-building, and participatory prototyping could help address the siloed governance structures identified in this research.

The study also suggests broader lessons for urban infrastructure planning. Toilets exemplify invisible infrastructures: taken for granted until they fail, simultaneously absent from policy and hyper-visible in their neglect. Recognising these paradoxes invites planners to attend not only to material provision but to cultural narratives, emotional associations, and informal practices shaping infrastructure use and meaning.

Finally, the research contributes to international scholarship by offering a perspective from a post-socialist European context, where toilet provision reflects unique historical, cultural, and governance patterns. It shows that while global patterns of gendered inequality, embodied discomfort, and infrastructural neglect hold true, local dynamics matter: the solutions must be grounded in context, co-created with users, and responsive to systemic interdependencies.

In this light, toilets are not trivial amenities but barometers of care, equality, and civic inclusion. Improving them is not only a technical challenge, but a social, cultural, and political one – and an opportunity to reimagine public space as truly public, for all.

7. Conclusion

This thesis set out to explore public toilet provision in Tallinn through a systemic, participatory lens, asking how the public toilet system could be improved to support a more inclusive and equitable urban space, particularly for women and other disadvantaged groups. By foregrounding lived experience, combining systems mapping with co-creative methods, and situating the findings within feminist and spatial justice theory, the research has offered both a critical analysis of existing provisions and a set of speculative, actionable interventions.

In doing so, the study contributes to the wider discourse on public toilets by adding a contextually grounded, culturally specific perspective from Tallinn – extending a conversation that has largely centred on other geographies. It highlights how public toilets function not only as sanitary infrastructure but as relational spaces embedded in emotional, social, and systemic dynamics. Addressing their absence or neglect requires more than technical fixes – it calls for a shift in mindset towards recognising toilets as shared civic infrastructure worthy of care, investment, and collective responsibility.

By approaching public toilets as both material and symbolic, visible and invisible, this research invites us to rethink what counts as essential urban infrastructure and whose needs are recognised in public life. The interventions proposed here are not solutions in themselves but invitations to imagine, experiment, and co-create new futures for public space.

Ultimately, creating an inclusive city begins with recognising the right to infrastructure that supports dignity, care, and presence for all. Sometimes, change starts in the most overlooked places.

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Appendices

Appendix A: Workshop Recruitment Poster

Appendix B: Participatory Workshop Results

Appendix C: Cultural Probe Booklet

Appendix D: Interview Consent Form

Appendix E: Toilet Typology Map

Appendix F: Gigamap of Tallinn's Public Toilet System

Appendix G: Design Intervention Proposals

Appendix A: Workshop Recruitment Poster

project: toilet

co-creating fairer public toilets in Tallinn

Join us for an evening of discussion, discovery and design. We want your input to help shape a future where everyone feels comfortable and welcome in our public spaces.

No experience needed – just bring your experience and ideas.

20.11.24 18:00-20:00
EKA, Room A501

This workshop is part of Master's thesis research conducted by **Agata Kowalska** (SDSI, University of Lapland) and **Theresa Roth** (PBSA, University of Applied Sciences Düsseldorf), with collaboration from the Estonian Academy of Arts. Your contributions will remain anonymous and help shape a fairer public space for everyone.

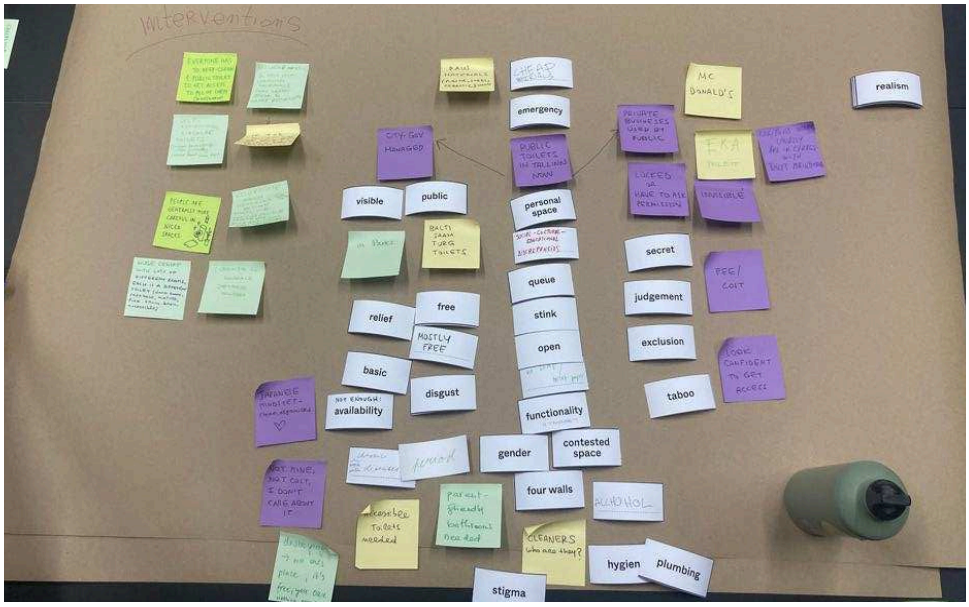
To register, scan the QR code or email ja.agata.kowalska@gmail.com

_projecttoilet

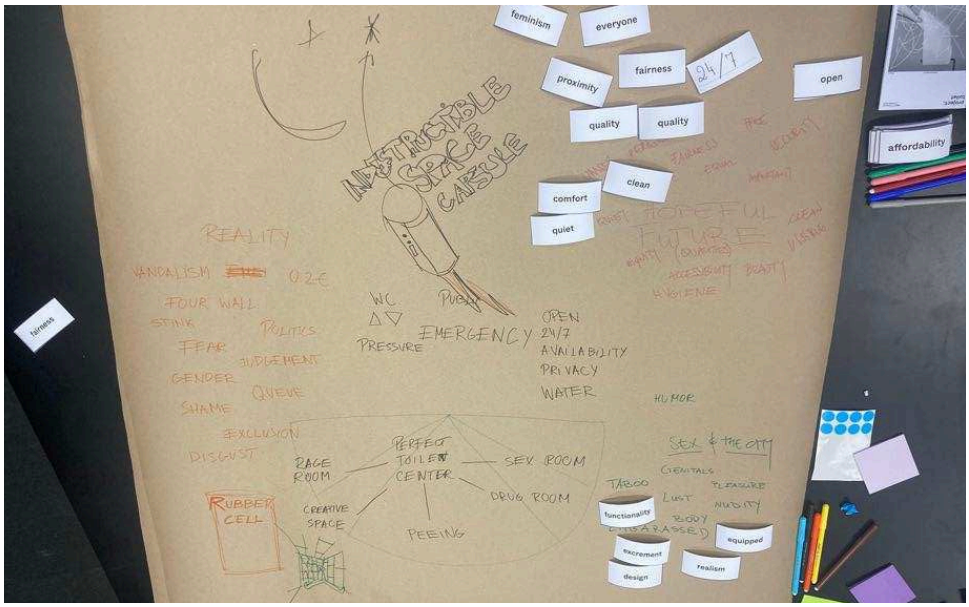
Appendix B: Participatory Workshop Results

Final maps created by participants during the problem discovery workshop combining current and desired Tallinn public toilet system

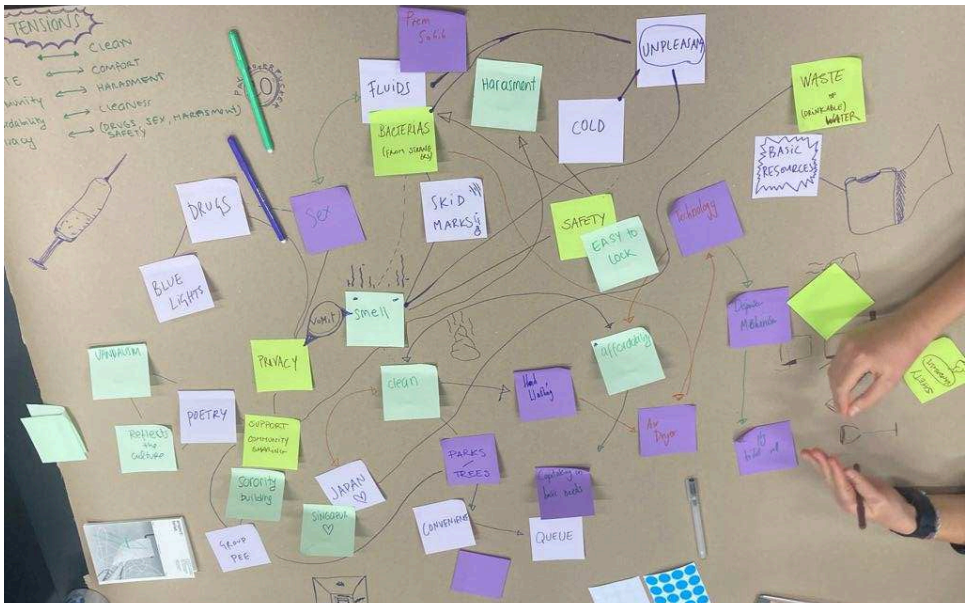
Team 1



Team 2

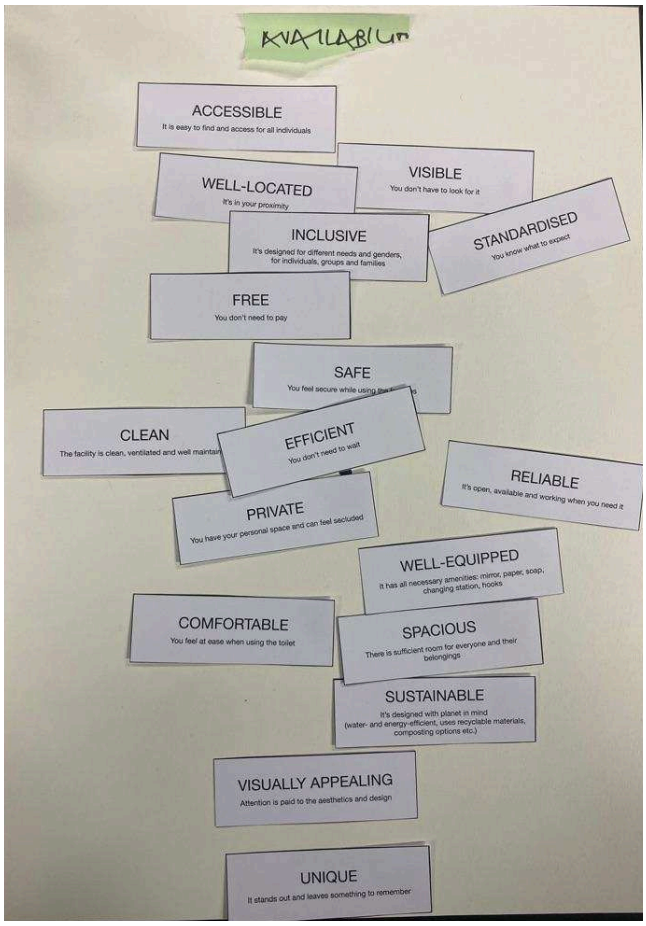


Team 3

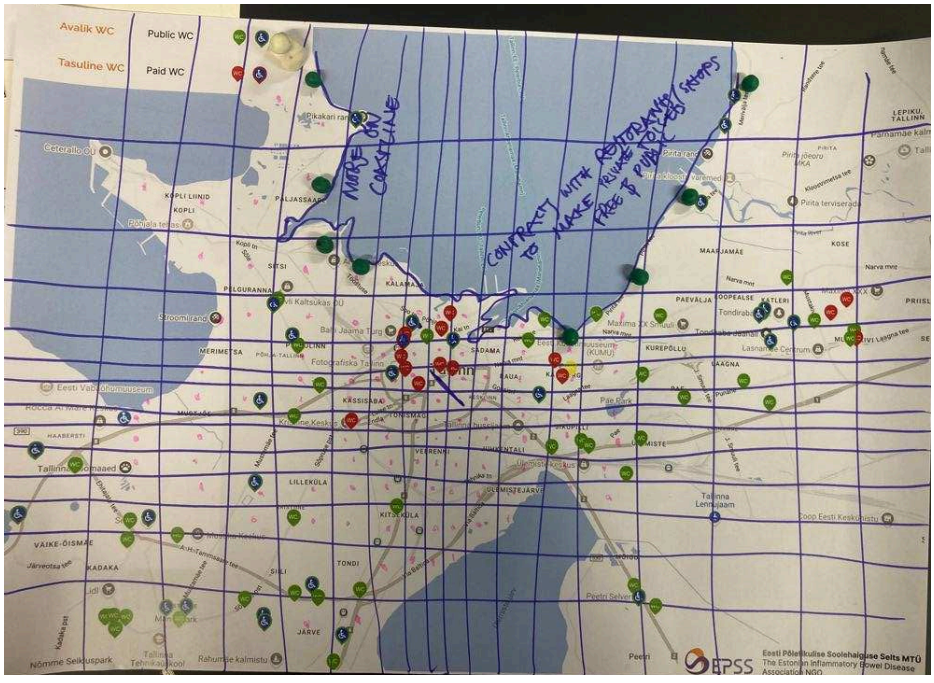


Results of the story-sharing workshop

Toilet needs card-sorting exercise result



Co-creation exercise
- an idea for a “toilet grid”
- an equal distribution of toilets based on a walking distance-informed grid



Appendix C: Cultural Probe Booklet

info

In this project, we seek to uncover the hidden layers, exploring how physical spaces like toilets intersect with spatiality – morality – emotion. By delving into the language, (mental) geography, and personal stories connected to public toilets, we aim to spark a deeper understanding of their role in our lives. Together, we will reflect on our individual movements through the city, examine societal and cultural attitudes through shared associations, and create stories that highlight both the challenges and the transformative potential of public toilets.

Plan of underground convenience in St Martin's, London (reproduced from Sanitary Conveniences & Drainage, published in 1906)

"Unequal Victorian toilet provision for women," from Clara Greed's Join the Queue Including Women's Toilet Needs in Public Spaces. Copyright lapsed.

problem

Toilets Reflect Inequality
Historically, public toilet provision has been unequal. And it often still is. Women and marginalized groups often face greater challenges due to fewer facilities or increased needs, making current provisions inadequate.

Barriers to Public Space
A lack of toilets can prevent people from using public spaces, limiting their right to move freely and participate in city life. Without accessible sanitation, the right to the city is compromised.

A Toilet Isn't Enough
Toilets must meet the UN-defined criteria of availability, accessibility, affordability, quality, safety, privacy, and dignity to ensure they serve everyone effectively. These points are highlighted each year on World Toilet Day (19 November) to emphasize the critical role of sanitation in creating equitable cities.

Public Service, Not Just a Building
Toilets are often treated as secondary building facilities rather than essential public services. Addressing systemic issues like vandalism and maintenance is vital for making toilets reliable, safe, and integral to public infrastructure.

consent form

This research is conducted by **Agata Kowalska** (SDSI Erasmus Mundus, University of Lapland) and **Theresa Roth** (PBSA, University of Applied Sciences Düsseldorf), in collaboration with the Estonian Academy of Arts (EKA).

For questions or to exercise your rights, contact Agata Kowalska at **ja.agata.kowalska@gmail.com**

Name: _____
Pronouns: _____
Age: _____
Email: _____

By completing these tasks, I confirm that I:
Understand that this research explores public toilet provision as part of Master's theses.
My participation is voluntary, and I can withdraw at any time before submitting my tasks.

Agree to data use:
My anonymised contributions (e.g., maps, drawings, stories) will be used for analysis, academic publications, and dissemination.
Consent to photographs: Photos of the artefacts I produce will be taken and used in research and dissemination, including potential publicly accessible outputs.

Acknowledge data retention:
My personal data (e.g., email) will be securely stored for the duration of the project and deleted after its completion.
Understand my rights: I can access, correct, or request deletion of my personal data during the project and before anonymised outputs are aggregated.

☐ **I consent**

Would you like to be contacted for further participation in this research (e.g., interviews or additional tasks)?

☐ **Yes**
☐ **No**

project: toilet

Agata Kowalska
Theresa Roth

Map – Association – Story

story

We'd like to know about your experiences. Is there any memorable event you'd like to share? Or perhaps a personal reflection on the state of toilets? We're here to listen. Try to include a hero or a villain, time, place, action, and emotions to make it come alive.

association

What words describe public toilets for you? Mark those that apply from the list provided, and add any new ones that come to mind.

WC	toilet	restroom	bathroom	everyday	water			
enclosure	taboo	public	open	clean	visible	design		
privacy	realism	pleasure	health	stink	judgement			
shame	humour	emergency	disgust	important	marginalised	unisex		
queue	vandalism	delight	stigma	gender	fairness			
free	functionality	relief	comfort	everyone	biology	contested space		
personal space	quiet	basic	proximity	availability	embarassed			
equipped	technology	feminism	universal	equal	plumbing	politics		
excrement	genitals	secret	lust	beauty	pressure			
layout	body	hygiene	nudity	security	fear	four walls		
dignity	affordability	accessibility	quality	exclusion	inclusive			
.....	.....	.....	.....	.....	.....	.....	.....	.....

map

How do you navigate public spaces? Mark your usual routes and toilet stops on a map of Tallinn or on a separate blank page. Add anything you feel captures your mental map, such as emotions, conditions, or frequency of use.

tasks

These tasks on the next pages are designed to gather your insights and experiences with public toilets. Your input will help build a deeper understanding of the current situation and inspire ideas for positive change.

How to Participate:

Complete the tasks in this booklet.

Once finished, you can:

Hand it back in person.
Submit it online via this QR-Code

Stay Updated:

Follow the project's progress and updates on Instagram:
@_projecttoilet.

Appendix D: Interview Consent Form

project: toilet - interview consent form

Researcher: Agata Kowalska (Master's Thesis, Service Design Strategies and Innovations, SDSI)
Institutions: University of Lapland, Estonian Academy of Arts
Contact: Agata Kowalska, ja.agata.kowalska@gmail.com
Supervisors: Kiwoong Nam, ULapland kiwoong.nam@ulapland.fi;
Arife Dila Demir, EKA arife.demir@artun.ee

Purpose of the Research

This interview is conducted as part of my Master's thesis research, which explores how access to Tallinn's public toilets impacts urban mobility, accessibility, and inclusion. Your insights will help me understand systemic barriers and potential improvements in public space design.

What Participation Involves

- A **semi-structured interview** of approximately **30-45 minutes**, conducted in person or online.
- The discussion will be **audio-recorded** for transcription and analysis purposes.
- **You can choose whether your responses are attributed to you by name or anonymized.**
- Your participation is **voluntary**, and you may **withdraw at any time** before data analysis begins (latest March 2025).

Use of Data & Confidentiality

- The information collected will be used in my Master's thesis, which will be publicly available.
- Audio recordings will be stored securely on my password-protected personal laptop and deleted after the research project concludes unless you consent to their retention for potential future use.
- You can choose whether to be identified or remain anonymous:
  ☐ I agree to be quoted with my name
  ☐ I prefer my responses to remain anonymous

Consent Agreement

☐ I have read and understood the purpose and scope of this research
☐ I voluntarily agree to participate in this interview
☐ I agree to the interview being audio-recorded for research purposes
☐ I understand that I may withdraw from the study at any time before my data is analyzed
☐ I consent to my data being securely retained beyond the thesis for potential future research and dissemination

Participant Name: _____

Signature: _____

Date: _____

Appendix E: Toilet Typology Map

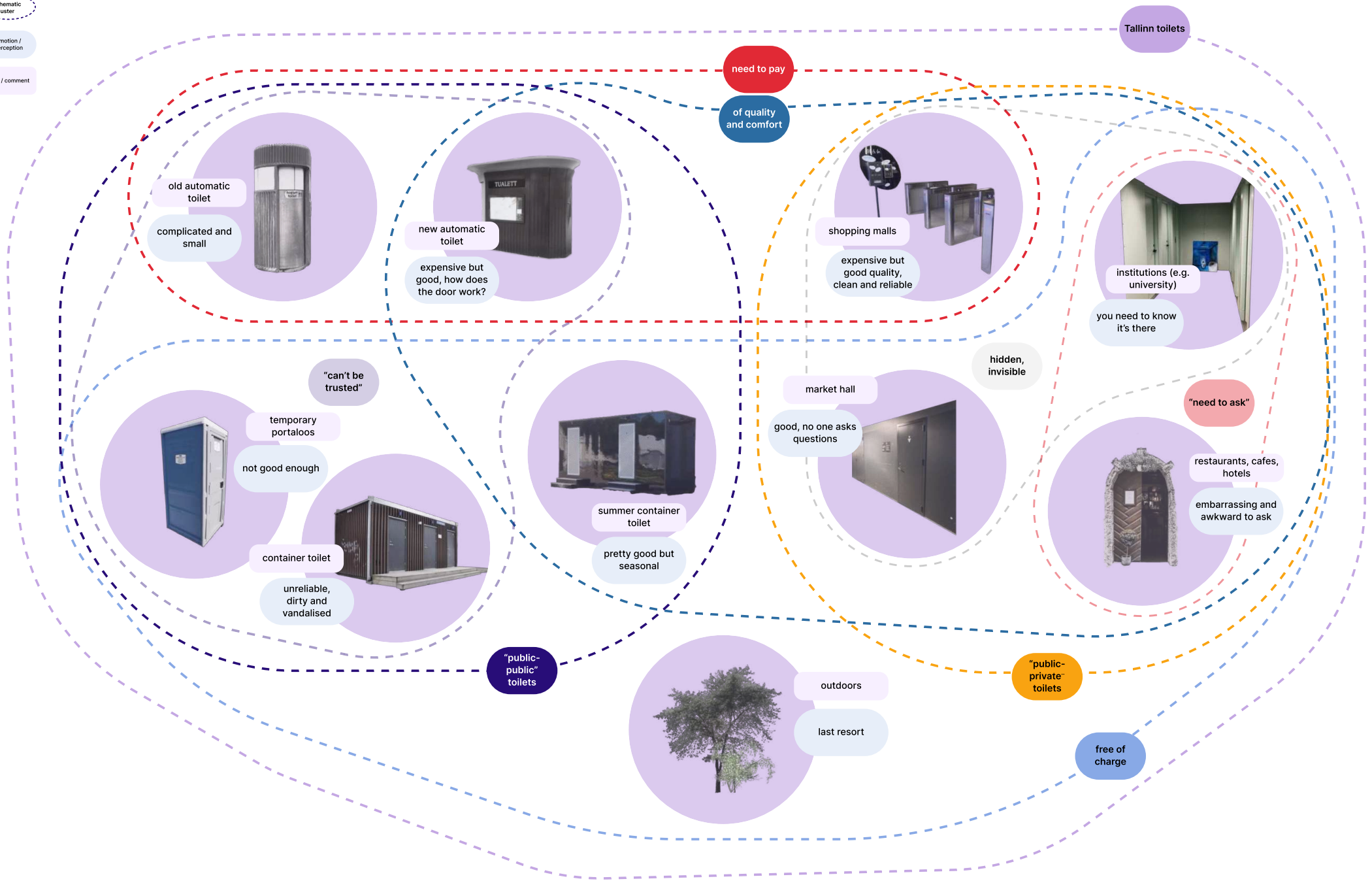
Legend: Tallinn Toilet Typology Map

public toilet type

Thematic cluster

emotion / perception

note / comment



Appendix F: Gigamap of Tallinn’s Public Toilet System

Legend: Gigamap of Tallinn's Public Toilet System

Nodes

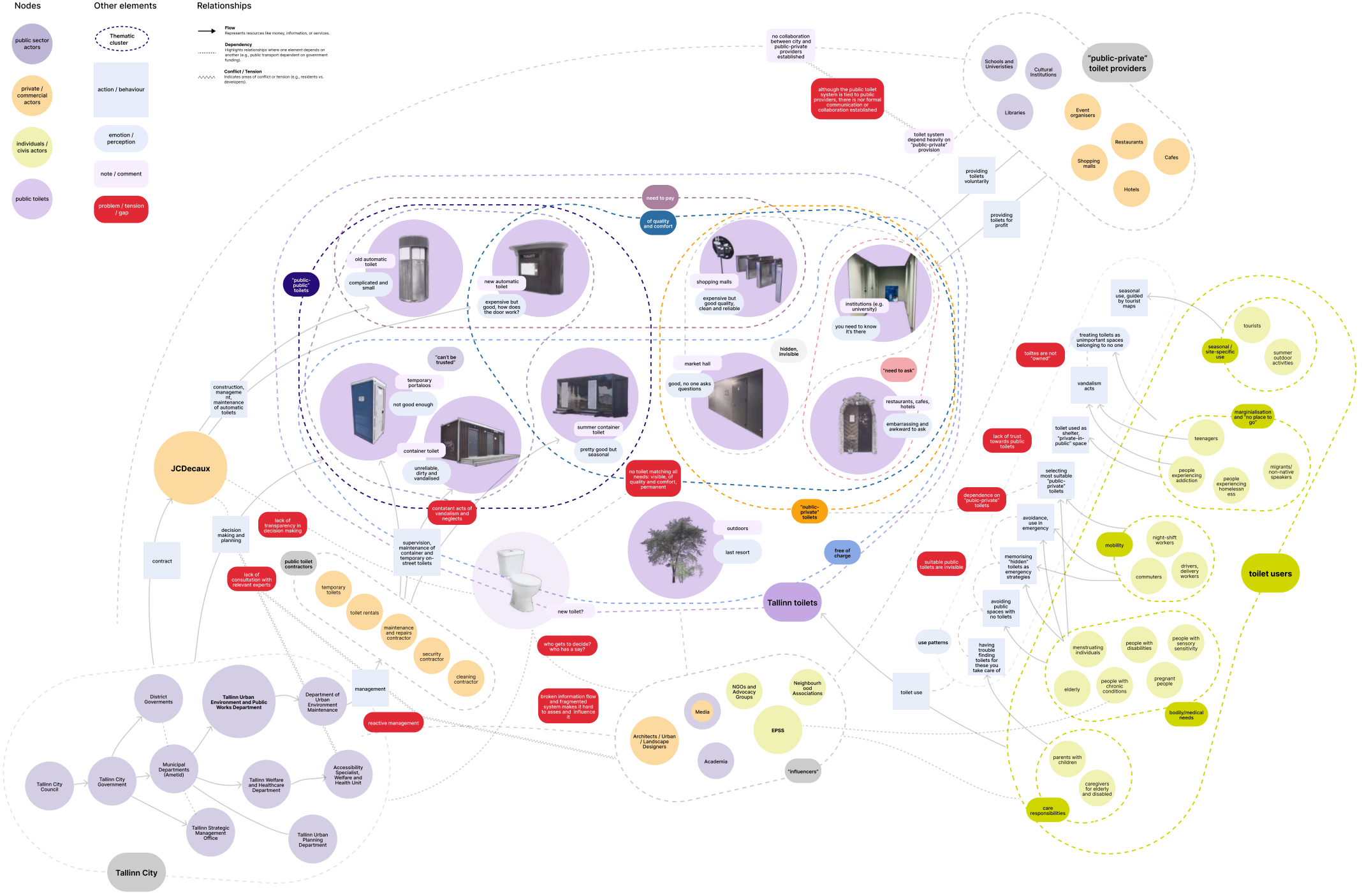
- public sector actors
- private / commercial actors
- individuals / civis actors
- public toilets

Other elements

- Thematic cluster
- action / behaviour
- emotion / perception
- note / comment
- problem / tension / gap

Relationships

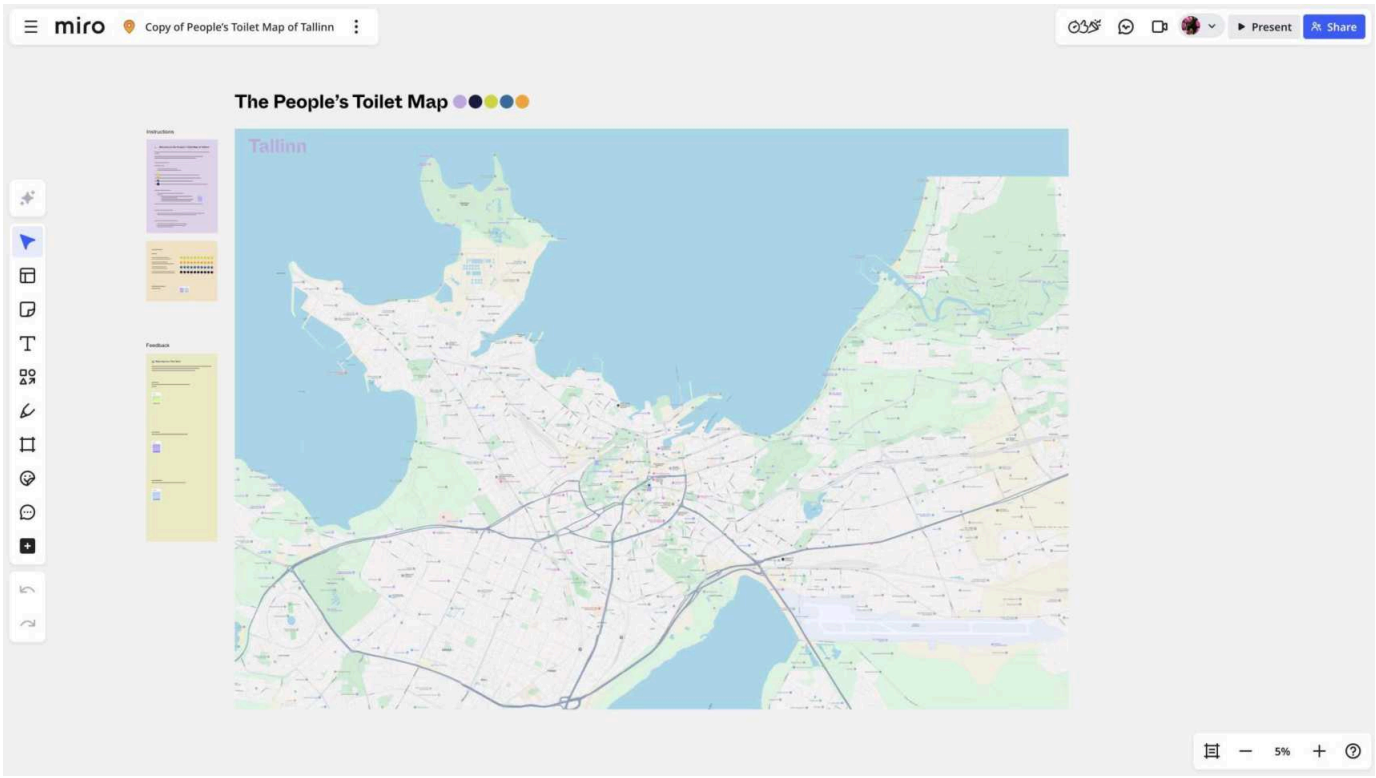
- **Flow** — Represents resources like money, information, or services.
- **Dependency** — Highlights relationships where one element depends on another (e.g., public transport dependent on government funding).
- **Conflict / Tension** — Indicates areas of conflict or tension (e.g., residents vs. developers).



Appendix G: Design Intervention Proposals

The People's Toilet Map

Miro board prepared for participant input



Instructions

Welcome to the People's Toilet Map of Tallinn!

This is a shared community map for marking, celebrating, and critiquing public toilets around the city.

You're invited to contribute your **experiences**, **opinions**, and **insider knowledge**. Together, let's highlight what works, what doesn't, and what's missing.

How to participate:

1. **Add a toilet**

- Place a dot on the correct location
- Use these colours for the right category:

Toilet I can walk into freely — freely accessible, no restrictions

Toilet I should ask to use — inside a business, not officially public

Toilet I have to pay for— coin, card, or app required

Toilet that isn't here, but should be - no toilet, but clearly needed in this spot

2. **Add your experience**

- Click and add a sticky note next to the toilet
- You can:
  - Share your experience — what worked well or didn't
  - Add a quick tip or warning
  - Comment on cleanliness, safety, comfort, accessibility
  - Or simply "upvote" an existing note you agree with

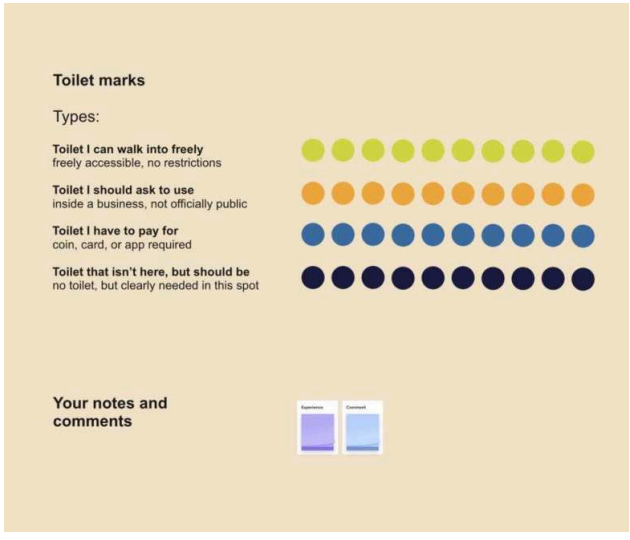
One sentence is enough. Honest stories make the map more useful for everyone!

Want to stay anonymous?

- Open this board in a private (incognito) window or log out of Miro before posting
  Your notes will then appear as "Visitor" and won't show your name

Vote for the Golden Toilet Award!

- Scroll to the **voting box on the side of the board**
- Write the name or location of your favourite toilet
- Drop a dot next to it to vote



Toilet marks

Types:

Toilet I can walk into freely
freely accessible, no restrictions

Toilet I should ask to use
inside a business, not officially public

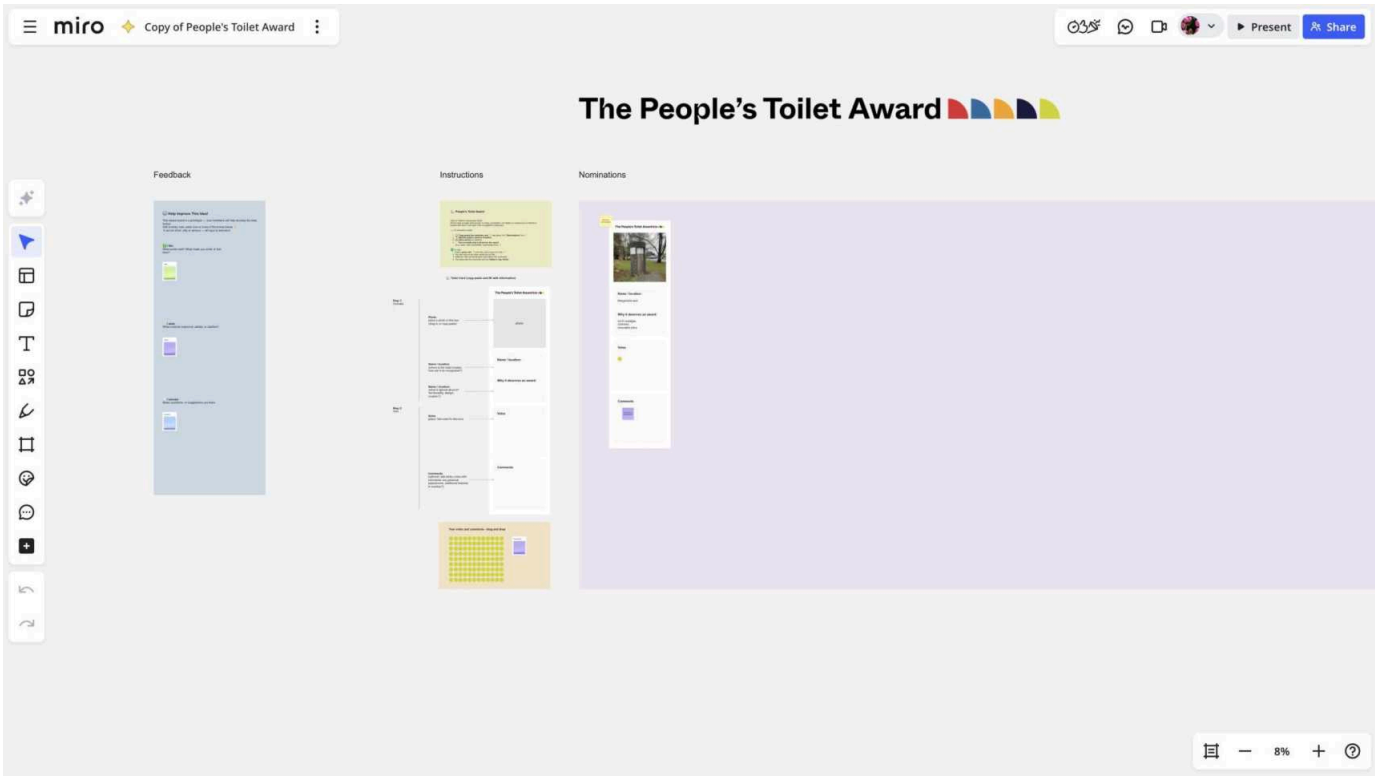
Toilet I have to pay for
coin, card, or app required

Toilet that isn't here, but should be
no toilet, but clearly needed in this spot

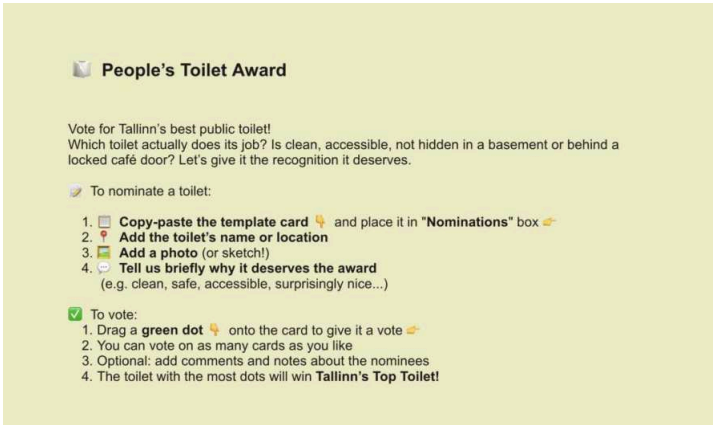
Your notes and comments

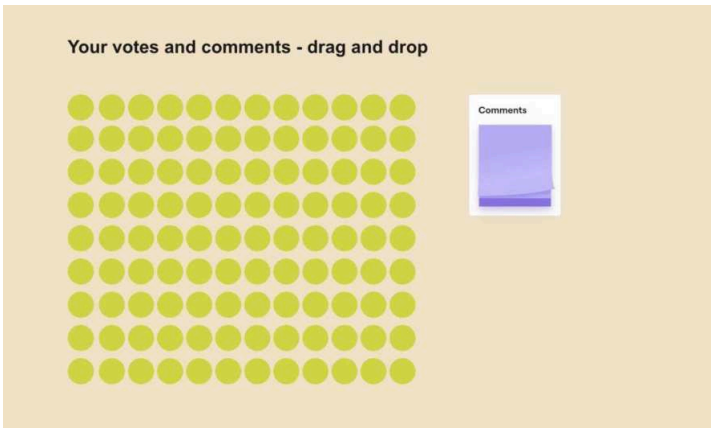
The People's Toilet Award

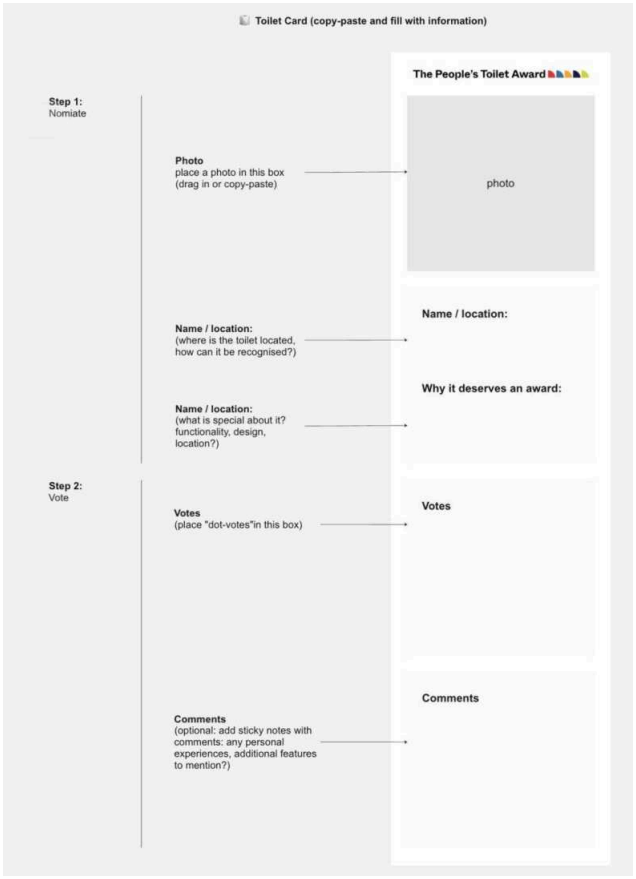
Miro board prepared for participant input



Instructions and the toilet nomination card template

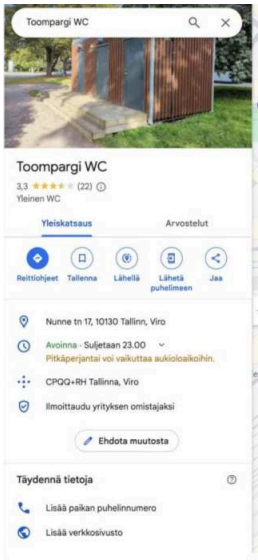


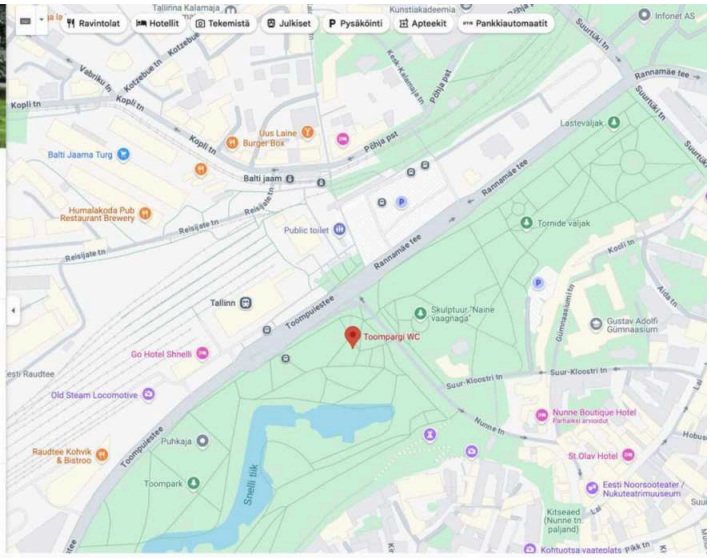


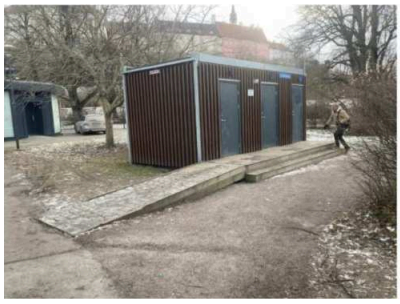


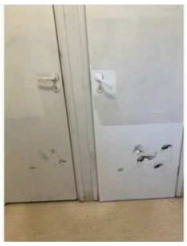
The Public Toilet

Proposal description









Current situation:

- One of 12 container-style public toilets provided by the city
- Located near Balti Jaam (central train station), open year-round from 7:00–23:00
- Free to use, managed and cleaned twice a day by the city
- Despite regular maintenance, the toilet is notoriously unclean and unreliable — frequently vandalised and often perceived as unsafe or locked
- Used by a mix of people, including those experiencing homelessness or substance use issues
- Vandalism is common and comes from different groups — from heavy use and neglect to intentional destruction
- Rarely used by local residents, who tend to avoid it due to its reputation and condition

Proposal - toilet that works for everyone:

Inspired by workshop insights, field research, and expert interviews, this is a multipurpose, inclusive toilet for all. It is designed to become a symbol of what good public toilet provision can look like — something residents can take pride in

- 24/7 access with on-site staff for support and maintenance
- Warm, welcoming, and dignified — not just about sanitation
- Inclusive facilities:
  - Step-free entry, large cabins including wheelchair and ambulant-accessible
  - Shower, changing space, baby station
  - Sink, waste bin, shelf and hangers in every cabin
  - Separate women's, men's, and unisex cabins available
- Quiet indoor seating: space to rest, pause, and take shelter
- Small communal kitchen: make yourself tea or coffee
- Community space: leave messages, write graffiti — self-expression welcomed
- Outdoor "rage corner": gym equipment to let out frustration
- Support contact: the on-site worker can direct people to shelters and services

The Public Toilet

Axonometric view

The Public Toilet

Floor plan and zoning