

Creating an Informed Journey

Design for Government 2023



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Executive Summary

This report is a summary of a collaborative project with the Finnish Ministry of Transport and Communications (LVM) to address the vision of the National Transport System Plan 2021-2032, Transport 12, of constructing accessible travel chains in Finland.

Through our initial discussion with the project partners, we gradually untied the complexity of the current transportation system and mapped out each stakeholder's role within it. This helped to narrow down our focus on the user's level. One of the critical themes that caught our attention was the accessibility of information because of its relevance to the users. Verifying this insight with further user interviews and desk research, we defined that accessible information means accessible travel which became the foundation for our final proposal.

Considering this finding, we explored the diversity of definitions of information from the user's perspective. The issues such as availability and silo of information are pervasive in the current system, causing users to not be able to access the information needed for a smooth and easy travel. Therefore, we reframed our direction to understand how the information finds the user. Another important finding was the passive role of users.

To address the findings, we benchmarked international projects with similar issues and presented them at another co-workshop to get more inspiration for the final intervention. In the end, most of our findings emphasised the same necessity - a channel for distributing critical information to users throughout their travel. Inspired by this, we propose CIS, Centralised Information System, as our final solution.

CIS is a dynamic system that can fundamentally overcome the challenges of accessibility of information in the current system. It leverages critical factors that could have a bigger impact on the broader transportation system. The basis of this system is a centralised channel that collects all sorts of relevant information from different platforms, such as service providers' apps and social channels. It then filters the important information to be communicated to users through the service providers. The benefit of this system is not only transforming how the information is communicated in a timely manner but also transforming the users into active providers of the information. To make this intervention implementable, we give a step-by-step introduction to the process so that our partners can have a realistic blueprint to follow.

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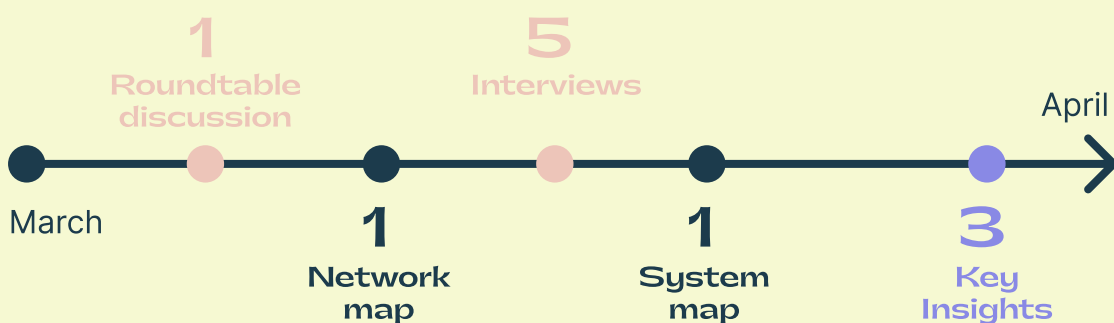
01 Accessible Travel Chain

The Finnish government aims to promote Finland's competitiveness, sustainable economic growth and regional accessibility through the National Transport System Plan for 2021-2032. One of the critical puzzles of the proposed vision is the creation of an accessible transport chain. Many developments have been made by the government and service providers to advance the future Finnish transport system. However, individual actions taken to address the accessibility of travel without a coherent plan can lead to the whole plan producing unsustainable results and not having a systematic change in the future transport system.

The project brief was provided by the Finnish Ministry of Transport and Communications (LVM) and aimed to identify the gaps in the transport system and define the actions to be taken to achieve the goal of an accessible travel chain. The partners and stakeholders involved in our process were LVM, Traficom, Fintraffic, Väylä, VR, and user representatives from specific accessibility groups.

02 Research Process

Given the complexity of the brief, we carried out the first phase of our research together with other two groups working on the same topic. As the research evolved, our group gradually decided to focus on an important part of public transport accessibility, namely the information flows between users and service providers. Along the way, we used research methods such as roundtable discussion to better understand the project brief. Interviewing stakeholders and mapping out the transport system helped us delve deep into the system dynamics. In the end, we synthesised and finalised the research into a series of valuable insights that we believe hold the potential for change.



Roundtable Discussion with Stakeholders

Our journey began with a roundtable discussion (*Picture 1*), a collaboration workshop with representatives from LVM, Fintraffic, Traficom and Vöylä. The session was divided into two. In the first interactive activity, we mapped the connections between different actors and analysed the dynamics at play, while in the second part participants were divided into two groups for a common interview. Some of the key questions concerned the meaning of 'accessibility groups', the definition of 'accessible travel chain' and their expectations from us.

From this initial discussion with our partners, we identified two connected challenges, discrepancy in communication and accessibility of information.



Picture 1 Roundtable discussion, second part (image by Gabriel Fuentes)

Discrepancy in Communication

There is an underlying issue in the complex transport system, which is a lack of collaboration and communication between different actors. We knew each organisation interprets the same plan through its own lens, resulting in distinct requirements and expectations from our roundtable discussion. While decision-making bodies deliberate the project's path forward, local providers require clear practical guidelines to follow.

During the discussions, a chief officer from Fintraffic, one of our partner service providers, posed a question: "How can we realistically achieve an accessible travel chain and create a step-by-step plan?". Hence, one thing to keep in mind is aligning and effectively communicating the value of each service provider in the system.

Accessibility of Information

Another critical point that emerged from the roundtable discussion was the accessibility of information. In this case, by information we mean all the data that users should be able to access in order to travel easily without impediments. This necessity also appears to be cross-cutting in all the accessibility groups and to the needs of each user. For example, a chief officer from Fintraffic mentioned that *"The problem is that even for non-disabled it's extremely difficult to even find the way, not to mention the kind of accessible way. (...) Then there's the slush and snow, and it makes it even worse. The data is not static. It's very dynamic."*

Whether one has any physical limitations, suitcases, pushchairs or simply the need to get from point A to point B smoothly, one must be able to plan their journey according to their needs and be sure of reaching their destination safely. This information is not only about planning but also about real-time communication of any changes or unforeseen events in the planned route. Since the roundtable, it has become clear to us that **providing accessible information is essential to achieve the goal of an accessible travel chain.**



Interviews

To explore more the identified issues, we continued to gather insights through individual interviews, asking more specific questions from other stakeholders who were not present at the roundtable. These included service providers like VR and HSL. For this phase, we particularly focused on understanding travel accessibility from users' perspective. Two specialists participated in the interviews to share their knowledge with us.

The first one is an accessible travel specialist, who is writing a blog about personal travel experiences as a wheelchair user. As the interviewee had travelled around the world comparing different national and international public transport systems, we felt that it would be very helpful to hear the thoughts on accessibility in transport as well as on our findings. On top of that, the interviewee also gave us extensive information on accessibility level in the local context.

During our talk, the accessibility expert emphasised the importance of accessibility of information as she remarked: "I would like it, in general, if there was an easy way to share accessibility information quickly and conveniently". The concept of information was brought up many more times during the discussion. One of the critical points of the interview was that finding accessibility information from all platforms throughout the journey is crucial.

"Real-time, up-to-date, accurate information found on the internet is essential, otherwise trips may not be made. People get discouraged and don't go."

– An accessible travel expert and travel blogger



The second specialist interviewee was a representative from Kynnys, a cross-disability organisation which focuses on the basic human rights of persons with disabilities. We were given a glimpse on the condition of travel accessibility at a national level. From the discussion it emerged that the coordination of different services to enable disabled people to travel without burden across the country has been improved, but is not quite ready yet. For example, it was suggested that there should be a centralised channel for the users to get the information from.

Based on the interviews, we can conclude that the information should be coordinated between each service provider and other system stakeholder for it to be consistent and accessible for everyone.

Systemic Analysis

Considering the importance of the information context in our brief, we gradually oriented our research and looked at the problem of accessibility from this angle. In the last phase of our exploratory journey, we asked ourselves how information is currently collected and how it is then communicated to end users.

Our next step was to visualise and summarise our findings, and we did this by mapping the information flows (Figure 1). We started by placing the information that is relevant to the user's journey in the middle. Then we traced how it is gathered (on the left), and when and through what channels the user seeks it (on the right).

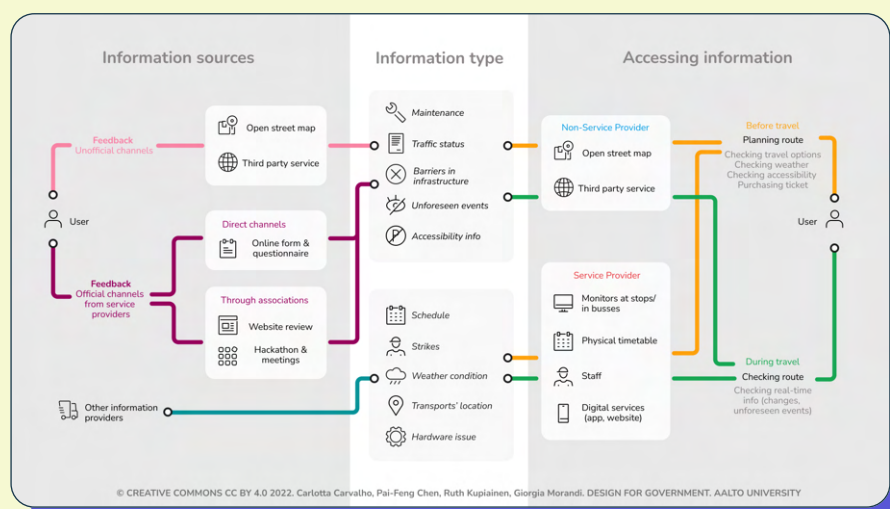


Figure 1: Information flows roadmap (source: Authors)

From here, we highlighted certain gaps in the system that cause blockages in the information journey to the user, which led to the insights below:

1 Poor communication of real-time information (Figure 2): relevant information regarding travel (such as accidents, malfunctions, temporary inaccessibility of stops, or means with full capacity) is not collected and made available for users in real-time. This undermines the reliability of means of transport and makes it difficult to plan one's journey in advance.

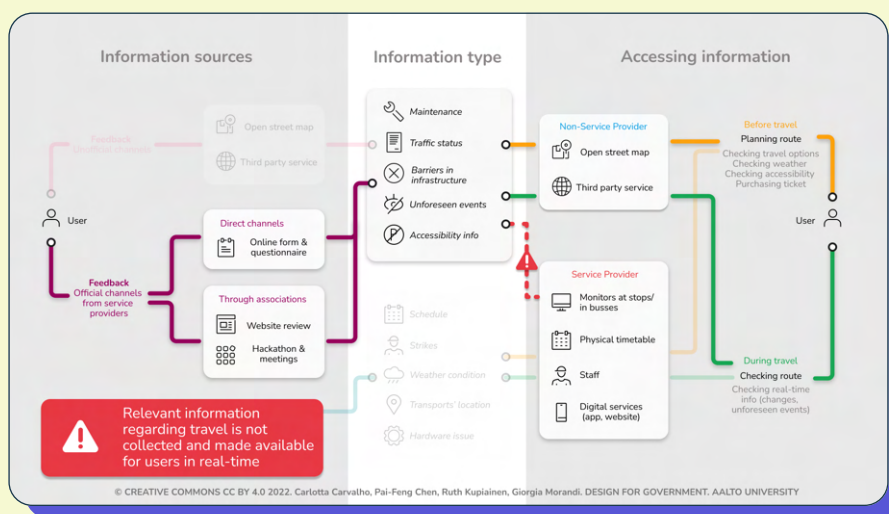


Figure 2 Information flows roadmap - first gap (source: Authors)

2 Lack of a feedback channel for accessibility (Figure 3): each service provider has different feedback channels, but the user struggles in finding the right platforms to communicate accessibility needs.

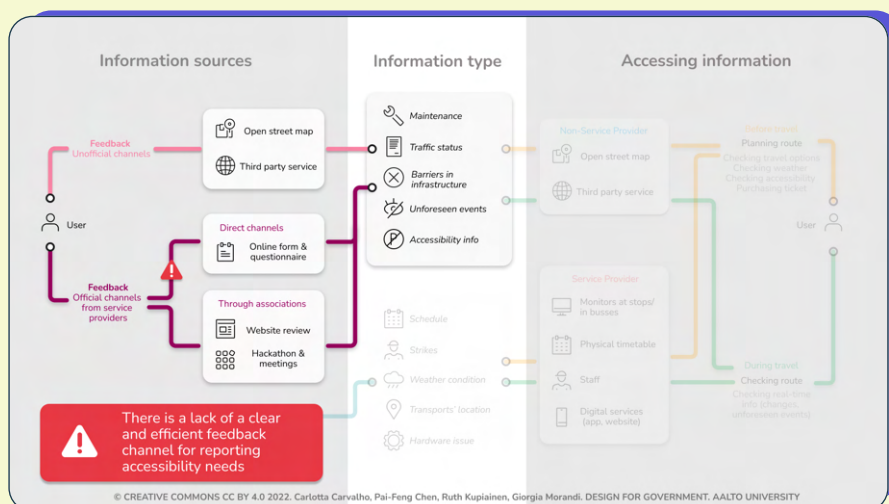


Figure 3 Information flows roadmap - second gap (source: Authors)

3 Uneven user involvement (Figure 4): when planning new solutions, service providers involve users through associations, but only at later stages of the process. Moreover, the users involved are not sufficiently representative of all the needs of the population.

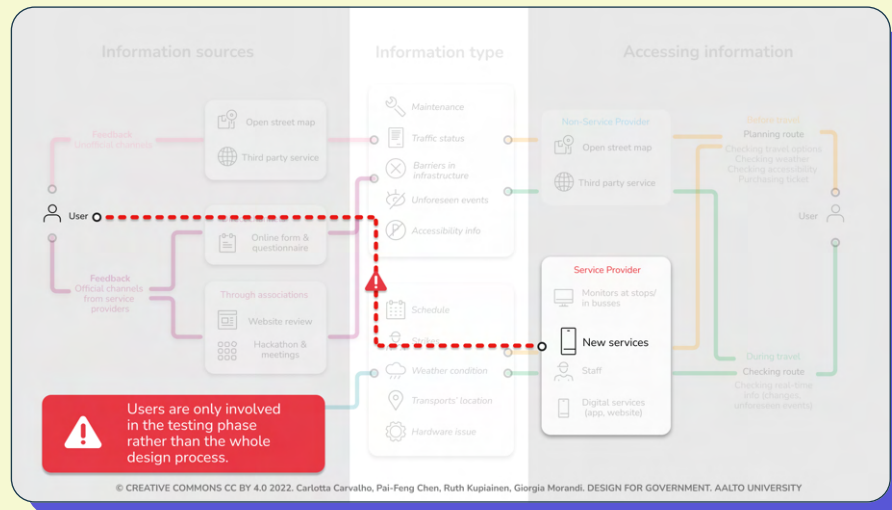


Figure 4 Information flows roadmap - third gap (source: Authors)

While delving into the dynamics of the transport system, we became increasingly aware of the importance of users' role. From being simple 'public service consumers' for whom to design accessible solutions, we understood the necessity of considering them as active participants with unique information and knowledge. Indeed, it has become clear to us that involving users throughout the entire design process is crucial to create accessible solutions and ensuring that their, or rather our, needs are put at the forefront.

03 Design Intervention

Our research insights were then presented to our stakeholders at the end of March, during the mid-term presentation. From that session, we were able to gain valuable feedback that helped us narrow our focus down. To prioritise the problem area, we reframed the sequence of our research questions. **Poor communication of real-time information** became now the main issue to focus on. It consists of three other parts: (1) lack of coordination between stakeholders, (2) uneven user involvement, and (3) the need for feedback channels.

We understood that the three interconnected issues would be addressed as a ripple effect when focusing on the main issue. Our new narrowed-down focus was to facilitate accessibility information flow between users and service providers and build a smooth travel experience at a local level.

Benchmarking

To get reference points and inspiration, we looked at how other international providers tackle the problem of information in transport chains.

Sidewalk Development Program - user involvement (Figure 5): Implemented in Seattle, US, this project focuses on user involvement. The aim is to tackle the issue of having no information regarding pavements and their condition, especially when it comes to the wheelchair users and their difficulty to travel through these places. The solution of the Sidewalk Development Program is getting the information to provide suggestions for alternative routes. To do so, the users are asked to map out the area with a specialised mobile app to identify the problems a wheelchair user might encounter.

The benchmarking case gave us the idea of how user involvement happens not only in the workshop, but is also a part of the executing force. This idea supports our findings and insights. Therefore, in our final proposal, the user's direct involvement is critical to make the change happen.

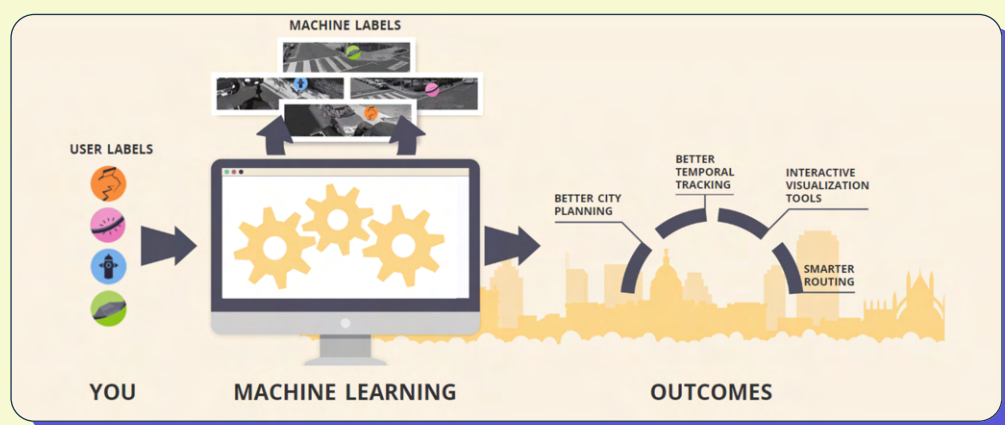


Figure 5 Sidewalk Development Program (source: PROJECT SIDEWALK website, n.d.)

INIT - The future of mobility (Figure 6): Located in Chesapeake, USA, INIT is a global provider of technology solutions for buses and rail systems, ensuring passengers are consistently well-informed. Dispatchers efficiently and conveniently deliver crucial information through various channels, such as social media, apps, and third-party applications, employing semi-automated methods. This technology grants users unrestricted access to extensive journey details whenever they require it. In the event of a disruption, INIT anticipates swift problem resolution and the immediate availability of alternative travel information.

This benchmarking case inspired us to take into consideration the advancement of technology. With the help of new technology, many implementation difficulties that were once considered impossible are feeble nowadays. Therefore, while putting the focus on conceiving a human-centred solution, we should also think about how technology can be part of this. This point turned out to be a pivotal part of our final solution proposal as we wanted to utilise automation to process information.



Figure 6 init (source: init website, n.d.)

Ideation Session

After benchmarking findings, we shared them with our partners in the ideation session (Picture 2 and 3). During this guided activity, we discussed what would be more feasible in the Helsinki area since we are working at a local level. The main purpose of this ideation session was to present our benchmarking cases as well as rough ideas to the partners to generate discussion about future feasible solutions.

Throughout this session, the focus was on how to transform the role of the user and make them an active part of the final solution. In fact, previously the emphasis was only on how to coordinate stakeholders to create a service. However, as we brought user participation into the discussion, our partners were inspired and started to envision what kind of role user involvement could play in the future travel chains and what stops the user involvement from happening at a deeper level.



Picture 2 and 3 Ideation session
(images by Gabriel Fuentes)

After the ideation workshop, we synthesised the findings as follows:

- The user is currently not involved in the decision-making process which slows down the ability to provide for their needs.
- Why are the citizens passive? How can we encourage the user to participate in the project?
- Feedback is spread out through different channels which makes it difficult for service providers to answer the users' needs.
- How can we create empathy from the stakeholders' side towards the user and create a feeling of partnership rather than competition (between stakeholders)?

These arguments will be addressed in the final solution.

Leverage Points

With all the research in mind, we questioned ourselves where the change could happen in order to make the travel system more accessible. To identify where to place our proposal and the type of interventions to design, our next step was referring to Donella Meadow's *Leverage Points: Places to Intervene in a System* (Meadows, 1999). This list is structured in a way that one can see the effectiveness of their intervention. The so-called 'places to intervene' (*Figure 7*) are divided into four groups (in increasing order of effectiveness): physical part of the system, information and control, rules and paradigms.

To start the small changes in this complex information system, and to eventually produce bigger changes in the broader transport system, we chose to focus on three points that should be the foundation of our proposal:

- **Evolving the structure of the information system,** by promoting collaboration between stakeholders and transforming the users' role from passive to active.
- **Defining the rules of the information system,** by creating new regulations and setting a standard for sharing information.
- **Structuring the information flows through co-creation sessions** bringing together all the stakeholders, including citizens.

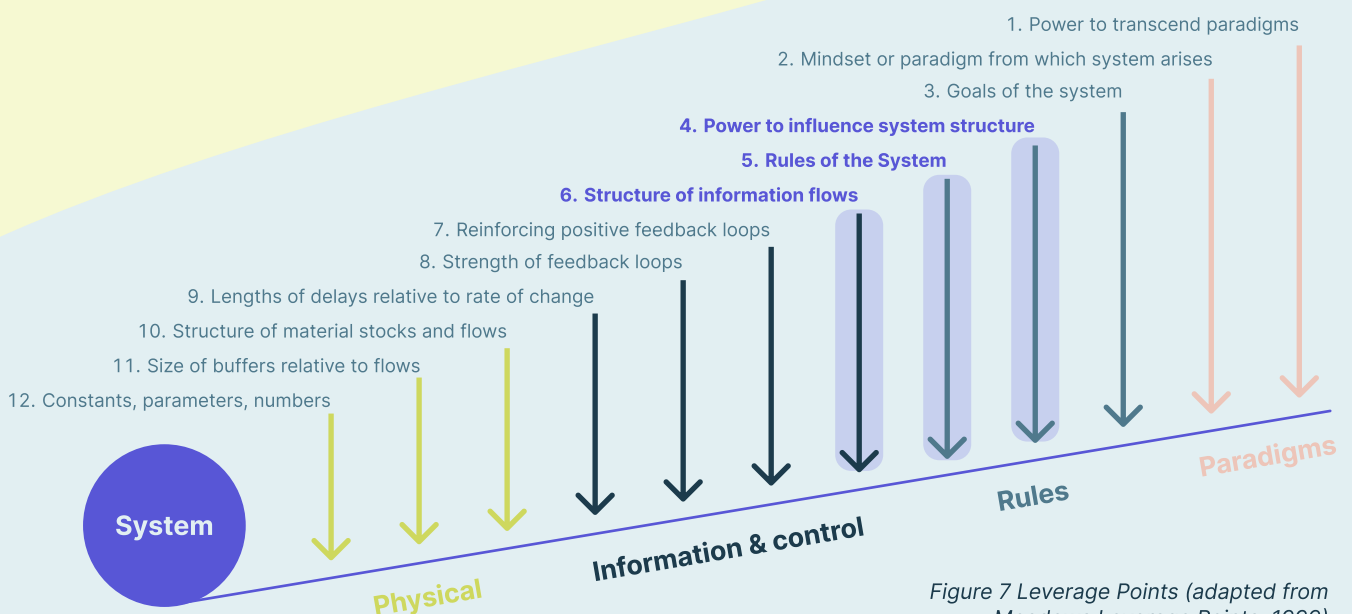


Figure 7 Leverage Points (adapted from Meadows Leverage Points, 1999)

04 Design Proposal

Creating an Informed Journey - From Disconnected Information to Networked Information

CIS - Centralised Information System

We have established that accessible information means accessible travel. Currently, relevant real-time information is not always made available to users. Our final proposal for accessible travel chains at the local level is a platform with a central database for collecting, processing and communicating real-time and accurate information to the users. Collaboratively built and developed by the users and service providers, the system collects valuable feedback from users that service providers can then utilise to supply users with real-time information. This helps the users to better plan their journeys increasing accessibility.



Figure 8 CIS logo

Public and private service providers, agencies, municipalities and users all contribute to the input of real-time information. Users can provide updates on events that happen on the spot, through different feedback channels, such as the ones from service providers, private companies and social media. The system filters, verifies and analyses both feedback and information input through an AI-based platform (Figure 9), trained by a specialist team. The processed information is then sent to the service providers in real-time which supplies the users with accessible travel planning. All information is made available and open for use, which means all actors involved in the system have access to it.



Figure 9 CIS working framework

How to Start CIS

To get everyone on the same page and started, we propose the following action plan:

- 1 The first thing is to acknowledge the kind of information that needs to be collected. This can be achieved by bringing stakeholders and citizens together to co-creation sessions.
- 2 The second step is to generate criteria for each actor of the system to follow.
- 3 Then organise a campaign to give citizens the incentive and understanding of why their contribution is important for the system.
- 4 For the future vision of the system, a team of experts will continuously develop the platform.
- 5 This way we can reach the goal of providing accessible travel chains for every citizen.

In more detail, the solution consists of two main parts. We use the Greater Helsinki area as an example.



Step 1

A set of co-creation workshops to understand what information needs to be collected to build a smooth and accessible travel chain. Hosted by LVM, this workshop will be facilitated by service designers from the city of Helsinki. The participants are stakeholders, both private and public providers, and user groups such as users with a physical impairment, users with buggies, luggage, bikes, and elderly people. The participants are divided into 'accessibility groups', each working on a specific need. The workshop combines group work with brainstorming, debate, voting, presentation and plenary sessions. The process is divided into three phases: 'Journey building', 'Critical analysis', and 'Information clustering'.

Phase 1: Journey building

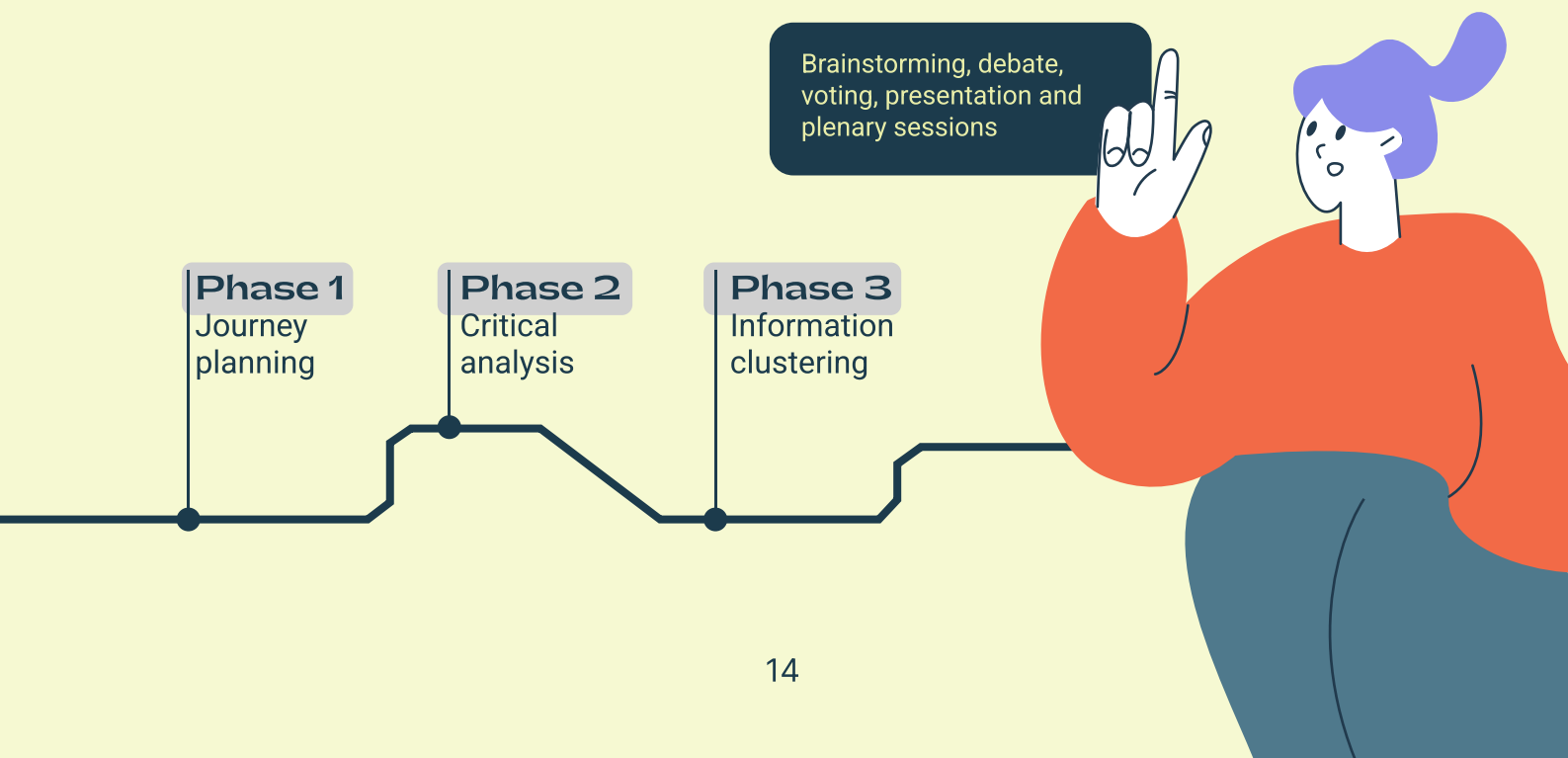
This phase describes and maps out the users' existing journey according to their accessibility group.

Phase 2: Critical analysis

The gaps and opportunities within the map are acknowledged, focusing on the information the users are and are not provided with.

Phase 3: Information clustering

This is where all the working groups come together and compare their results. The output of this step is a prioritised list of actions in selected accessibility journeys.



Step 2

The second step is for making sure that Step 1 stays reliable. For that, we need to set a new regulation. In simple terms: each stakeholder of the travel system must equally and openly share the type of information decided in the workshop with the Centralised Information System. This is to standardise accessible travel chains. This system is owned by the government and overseen by the Ministry of Transport & Communications.



Effect on the User's Journey

Leena will guide us through her journey, for us to understand the current challenges users might encounter during their journeys, and how those issues are addressed with CIS.

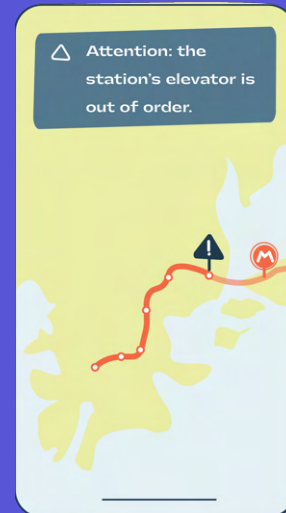


Leena

A wheelchair user commuting to work every day by public transportation from the outskirts of the city to the city centre. She is a punctual person and likes to plan her journeys beforehand to avoid any unforeseeable issues on the way that may affect her independence.

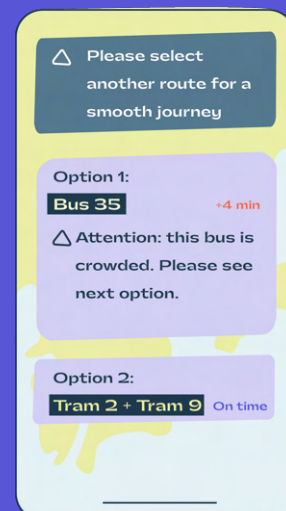
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Like most mornings, today Leena takes a metro to go to work. Before leaving home to take the metro, Leena gets a notification from her regular journey planning app. The station's elevator is out of order.



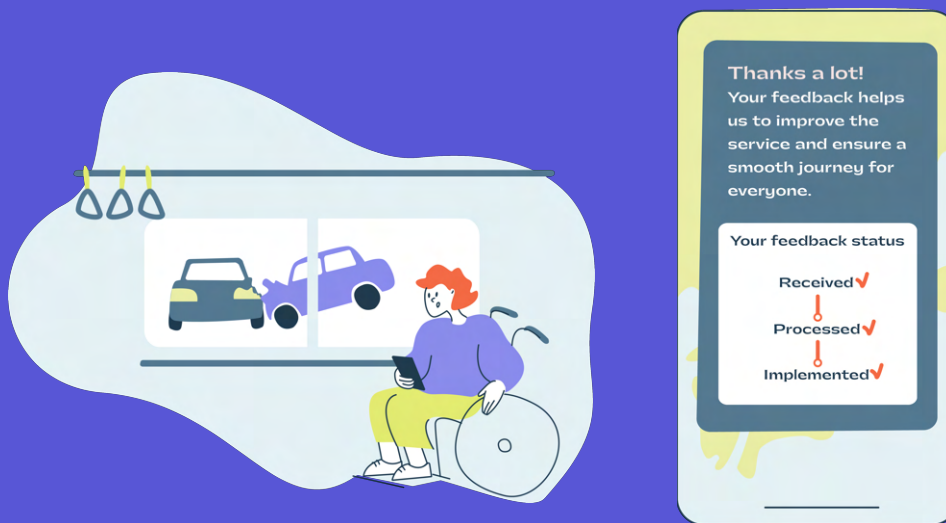
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After scanning all the travel options, the app informs that the alternative bus Leena is about to take is too crowded, not leaving enough space for the wheelchair. The app then suggests the next fastest option, taking two trams.



3

While on the tram, Leena notices a car accident that has slowed down traffic. She then checks that the situation is not updated on the app and registers it herself. Leena leaves the feedback for the service providers to improve, as she is confirmed that the feedback is heard and can be sure that the change is happening. Feeling encouraged by how smooth and reliable the system is, she feels empowered to act. All this information about the potential disruptions on the way is communicated in real-time which gives reassurance of a smooth travel and arriving at the destination on time.



Value for the Stakeholders

Users

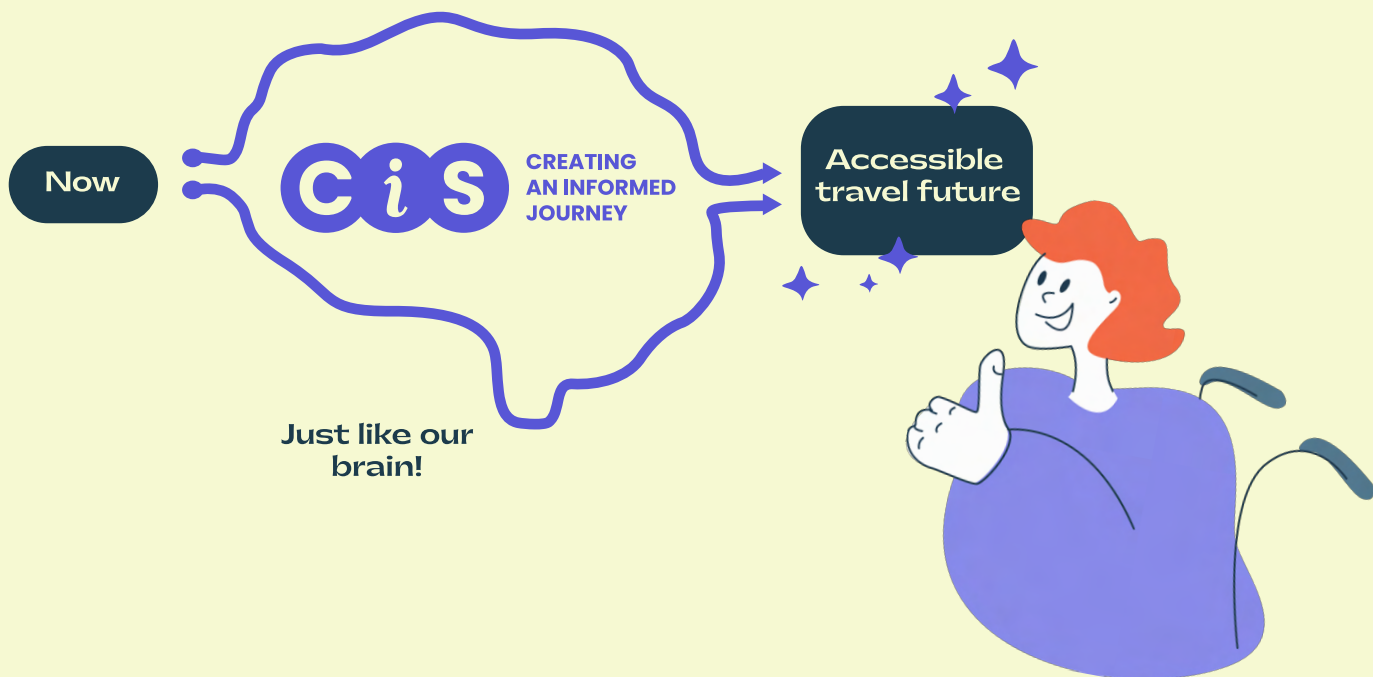
One of the biggest values for the users will be access to real-time information. This can influence important journey decisions and help plan better and smoother travels. In addition, by giving the users the possibility to report travel disruptions, they get a sense of ownership in the system and feel more empowered. Showing the progress of users' feedback builds trust. In combination with co-creation sessions, with these, the users transition from passive to active contributors to the functioning of the system. Such positive reinforcement can eventually lead the users to choose public transportation over other mobility means.

Service providers

Having a centralised information repository gives service providers access to information from other entities. The processed information will provide the service providers with verified real-time information on all travel details which will feed into bettering their own services. As accuracy creates trustworthiness, the service providers can become a reference for being a part of the best and most reliable travel platforms. Eventually, the service providers contribute to a sustainable travel chain attracting more users. By regulating every stakeholder to provide the agreed information into the centralised system, service providers can also enjoy shared responsibility.

Municipalities and infrastructure entities

Clearly defining all the contributors of the system helps to distribute and share responsibility with every actor. As well as the service providers, municipalities and other infrastructure-owning entities too, benefit from the shared responsibility. This also contributes to addressing possible problems immediately. Once an issue is detected, all actors work together to solve the problem as quickly as possible.



05 Conclusion

As specified in the project brief, the objective of building accessible travel chains is not to individually tackle each point of contact within the transportation system through separate individual efforts. **Instead, it serves as an invitation for decision-makers, service providers, and users to collaborate and collectively shape the future of travel services in a systematic manner.** By putting every stakeholder on the same page and ensuring the shared understanding, we were able to envision a cohesive plan and take into consideration the possible concerns to optimise the proposed solution.

We found that prioritising the user's perspective in this project, i.e. the accessibility of information, led us to achieve positive outcomes. Such change cannot be achieved just by increasing organisational collaboration as the user is the very reason for that collaboration. This emphasis on the user also shaped the main theme of our project, which is information. While the importance of information is evident, there has not been a deeper discussion on its nature and how it can drive significant changes in the transport system. **This realisation influenced our decision to design our final proposal with a strong focus on information.**

Our final intervention for this collaborative project reflects these approaches by aligning our partners' services to ensure equal and consistent provision of information to all users. It facilitates the communication of relevant information among stakeholders, delivering what is specifically applicable to users through multiple platforms. However, it is important to acknowledge that the composition and implementation of CIS are still a work in progress. There are still concerns regarding privacy and data storage limitations, for example, that require further development. **Nonetheless, the core of CIS is not a mere technological sorting mechanism, but rather a framework that effectively and realistically enhances the travel experience of users by providing real-time information.** We firmly believe that integrating such a framework into the future transportation system will bring us closer to the vision of accessible travel chains.



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