



Manual Customer Journey Mapping for Mobility – *COVID-19 version*

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Definition list

Customer journey mapping [CJM]

Customer Journey Mapping [CJM] is a tool to obtain micro-level data based on past experiences, of the interactions between the customer and the provider and the steps the customer takes along its journey (Følstad & Kvale, 2018).

Activities

Part of the journey with a specific purpose. These activities start with a verb.

Touchpoints

Possible aspects of the activity where the participant can receive external information from for example: mobility providers or the government through informative signs. These touchpoints could influence the experience of the participant and create opportunities for other parties to improve the travel experience.

Dimensions

Aspects of the activity that might influence the experience of the participant during the activity, such as the availability of the information, perceived safety, availability of seat and the travel time of a transport mode.

Before journey

Interview before the CJM starts. This helps to build a consumer profile of the participant to link the CJM results to the results of the survey.

During the journey

This consists out of two parts. The part where the participant is observed while planning the trip and the observation and scoring of the actual performance of the trip.

After the journey

An in-depth interview about the trip during the journey in which actions and scores are explained and it is discussed what could be done to make the experience better.





Executive summary

For DIGNITY this method will be used to research the experience of vulnerable-to-exclusion groups who will make a journey involving a digital aspect. With the outcome of this research, pilot regions have qualitative in-depth knowledge of the experience and feelings for a specific target group during a specific journey. This will help them to develop strategies to increase the overall experience of the journey for a target group.

This manual outlines the COVID-19 version of the Customer Journey Mapping [CJM] approach, a method used in the fields of marketing and service design to gain insight into the user perspective when making use of a service. Due to COVID-19 it is harder to partake in observations in real transport especially with vulnerable-to-exclusion people like elderly. Therefore the standard CJM manual was adjusted to make it possible to still execute this part of the research. This document only contains the COVID-19 version of the CJM approach. The most important changes from the standard practice are:

- Recruiting participants can be done through email, phone calls and local networks. Physically visiting local organisations is not recommended.
- The interview will take place, depending on the local situation, on 1,5 meter distance, through video calling or over the phone, depending on the capability of the participant.
- Instead of making an actual journey, the participants will talk through their experience of a past journey in an interview. This also means that the during the journey and after the journey phase are merged.

This approach is currently executed and evaluated in the pilot of Tilburg and the results still seem useful for further analysis of the size of the gap that vulnerable to exclusion target groups face in their mobility patterns.

In the manual, the CJM method will be used in a mobility context and therefore the approach from literature is made applicable for mobility cases. There are six steps in depth explained in this manual. The first two steps contain the selection process of the journey and the decision for the target group that will be involved. Both aspects are depending on the local context. The next step in the method is to define the activities and touchpoint that are part of the journey. This will help to further prepare the research. For this preparation phase, this manual includes a concrete checklist. After that, guidance and an explanation about the execution and the fieldwork of the research is given. In this part, templates, showcards and examples of questionnaires are given to help pilot region with concrete formats. The final step is analysing the data which will result in the CJM and the start for regions to continue the development of strategies for vulnerable-to-exclusion target groups.

After reading this manual carefully and take knowledge of the examples and templates that are added, a pilot region would be able to execute a CJM research in their own region. The research partner and writer of this document, Breda University of applied sciences (BUAs), will be available for help and questions during this entire process.





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1. Introduction

1.1. Project summary

The overarching goal of DIGNITY is to foster a sustainable, integrated, and user-friendly digital travel eco-system that improves accessibility and social inclusion, along with the travel experience and daily life of all citizens. The project delves into the digital transport eco-system to grasp the full range of factors that might lead to disparities in the uptake of digitalised mobility solutions by different user groups in Europe. Analysing the digital transition from both a user and a provider's perspective, DIGNITY looks at the challenges brought about by digitalisation. This will inform the design, testing and validation of the DIGNITY approach, a novel concept that seeks to become the 'ABCs for a digital inclusive travel system'. The approach combines proven inclusive design methodologies with the principles of foresight analysis to examine how a structured involvement of all actors - local institutions, market players, interest groups and end-users - can help to bridge the digital gap by co-creating more inclusive mobility solutions and by formulating user-centred policy frameworks.

The idea is to support public and private mobility providers in conceiving mainstream digital products or services that are accessible to and usable by as many people as possible, regardless of their income, location, social or health situation or age; and to help policy-makers formulate long-term strategies that promote innovation in transport while responding to global social, demographic and economic changes, including the challenges of poverty and migration.

By focusing on and involving end-users throughout the process of designing policies, products, or services, it is possible to reduce social exclusion while boosting new business models and social innovation. The end result that DIGNITY is aimed at is an innovative decision support tool that can help local and regional decision-makers to formulate digitally inclusive policies and strategies, and digital providers to design more inclusive products and services.

1.2. Work package structure

The DIGNITY project is broken down into six work packages. While work package 1 focusses on understanding the digital gap in general, work package 2 uses that knowledge to build the DIGNITY approach. In work package 3 methodologies and approaches will be implemented in the pilot regions.

The pilot regions in DIGNITY are:

- Barcelona, Spain
- Flanders, Belgium
- Tilburg, The Netherlands
- Ancona, Italy





Work package 3 consists of 5 tasks. The first task, task 3.1, is about framing the digital gap in the pilot region. In this task, three methods will be used to frame the digital gap in the local situation of the four pilot regions in DIGNTIY.

1. Desk research; to gather the information for the digital gap self-assessment,
2. Customer journey mapping [CJM]; to get insight in the experience of daily activities and trips of vulnerable-to-exclusion groups,
3. Workshop with vulnerable-to-exclusion groups; to discuss the outcome of the customer journey mapping.

This document is part of the second method that is described in task 3.1 and can be found in the project plan as subtask 3.1.2 customer journey mapping.

1.3. Objective of this manual

To get insights into the daily activities and trips of vulnerable-to-exclusion groups, CJM will be used in the pilot regions. This manual will give guidelines for pilot regions to do the CJM in their own local context. It will describe a step-by-step approach from the beginning until the end of the method. By following the steps in this manual, local partners will be able to execute a proper CJM themselves. At the end of this subtask, the local partner knows more about the experiences of a specific vulnerable-to-exclusion group on a particular journey. With this technique, an overview of considerations, and choices that users make in their activities and trips can be created. It also will show the difficulties and obstacles for users and the opportunities for policy and mobility products and services. This in-depth information will help the local partner to make a program, strategy, or approach to improve the experience of these vulnerable-to-exclusion group in their daily activities and trips. By using this technique for each pilot region, specific and relevant information for the regional context will be collected, which will help to make a local implementation plan. Most important is that in the end, this method is helping the pilot regions to frame the gap and come up with useful information for their local context. If adjustments for journeys, questions or target groups need to be made, it is possible.

1.4. Uncertain circumstances related to COVID-19

Due to the limitations of the current COVID-19 situation in Europe, new restrictions pop up rapidly in all the pilot countries and the restrictions can loosen up or get stricter in a matter of days. This makes executing research, especially involving real journeys challenging and often impossible to execute. Within Dignity the project deals with the COVID-19 situation by being on the safe side of the restrictions. This means that if it is allowed to execute the CJM face to face but you don't perceive it as safe, you can use this COVID-19 version manual that offers a COVID-19 proof CJM approach. This COVID-19 version of the CJM manual was designed in a way that it is possible to





do the Customer journey mapping on a distance without risking the health of the participants or researchers.

As a research partner, BUAs adjusted the manual to help pilot regions to interpret and adjust the CJM-guidelines in such a way that they can be used in the current situation of the pilot region. Please note, that there are still two versions available of this CJM manual.

- The standard version of the CJM manual (Oct 2020). Document is named: Manual Customer Journey Mapping for Mobility.
- This COVID-19 version of the CJM manual (Nov 2020). Document is named: Manual Customer Journey Mapping for Mobility – COVID-19 version

1.5. Outline of this manual

The aim of this manual is to explain step by step the activities to undertake to develop a CJM.

In chapter 2, the theoretical basis of CJM is described. Then it is briefly explained how this translates to the context of DIGNITY and the background is given to understand the rest of the document. After the literature review, the practical process of this approach is explained and described in the following chapters.

Chapter 3: *Define Journey*, goes into detail about what can be seen as a journey within CJM and provides guidelines to define a relevant journey for the pilots. Chapter 4: *Define Target Group* outlines who the subject of this research should be and how to approach them. After these two chapters, the pilots have the tools to select a relevant journey and target group that could aid them in their search for inclusive mobility services.

In chapter 5: *Define Activities and Touchpoints of the Journey*, lists the expected experiences of the user to select relevant activities, touchpoints, and dimensions. By gathering input for these experiences, the points of friction in of a journey should become clearer In chapter 3, 4, and 5 the research subject, target groups and journey has been established, after which the steps needed in order to carry out the research are described.

In chapter 6: *Prepare the Research*, the preparations needed beforehand are described and explained. Which information needs to be gathered and supplied to the appropriate parties? What precautions should be taken? And what equipment needs to be gathered beforehand?

Next, in chapter 7: *Execute the Research*, the steps that make up carrying out the research with the participants are outlined in detail. The different actions needed in the different phases of the interactions with the users are discussed and detailed.

Finally, an explanation of how to process the gathered data and to assembly the CJM is described in chapter 8: *Analyse the Data*.





2. Theory of Customer Journey Mapping

The COVID-19 Customer Journey Mapping [CJM] is a tool to gain a deeper understanding of the interactions between the customer and the provider and the steps the customer takes along its journey (Følstad & Kvale, 2018). CJM originated from the field of marketing (Singer, 2015) but is also used in a broader context like services and design (Rosenbaum, Otolara, & Ramirez, 2017) to obtain micro-level data based on past experiences. COVID-19 CJM, in DIGNITY, combines two qualitative research methods. Namely, executing a small survey and an in-depth interview in which you ask the participant, based on a past experience, how they execute certain steps of the journey, what score they give that action, why they gave that certain score and what would need to improve for a higher score.

The application of customer journey mapping in the field of mobility and especially inclusive mobility research proofed to be quite limited after an extensive literature review. Therefore, this chapter will first describe the general approach of customer journey mapping. Thereafter, how it translates to the field of mobility after which it goes more into depth about an already executed similar case study in Madrid. After this chapter, you will know what the general approach of CJM is, understand what kind of data it collects and know in what context to use it.

2.1. Customer Journey Mapping in literature

According to Følstad & Kvale, (2018) there is no established coherent approach for CJM. Attempts to align approaches have been made to create a consistent method to be able to compare maps on a scientifically sounds basis (Hong, Han, Chun, & Hong, 2016). It was scoped if it was possible to adjust the method of Hong, Han, Chun, & Hong, (2016) to the context of mobility. Their method, as often in attempts to align, did not fit the aim and capabilities within DIGNITY and their method proofed to be beyond the scope of the small-scale approach intended in this research. Therefore, the method described in this manual is an adjusted interpretation of the more traditional conceptual theory for Customer Journey Mapping as described by Rosenbaum, Otolara, & Ramirez, (2017).

When Mapping a Customer Journey, the map itself consists of two axes. The horizontal axis indicates the activities, events, and interactions that occur in time (Crosier & Handford, 2012). These moments are referred to as activities. Rosenbaum, Otolara, & Ramirez (2017) describe these activities as moments where the user is made to think of or makes preparations related to the service, moments during the utilization of the service, and moments after utilizing the service. Examples of these activities in the context of mobility would be: going to a bus stop, finding out which bus to take, check-in or buy a ticket, find a seat in the bus, keep an eye out for the bus stop, check out and get out of the bus. These touchpoints are then combined with the 'vertical information axis' that contains the experience and feeling of a user/ customer/ target group during the activity (Crosier & Handford, 2012). When combining the touchpoints in time on the horizon axis with the feels and experiences on the vertical axis, a graph like in Figure 1 can be made to see what kind of activities someone undertakes for their journey and how this affects



their feelings and emotions along the way. More explanation on **touchpoints**, especially in the context of this approach, can be found in chapter 5.

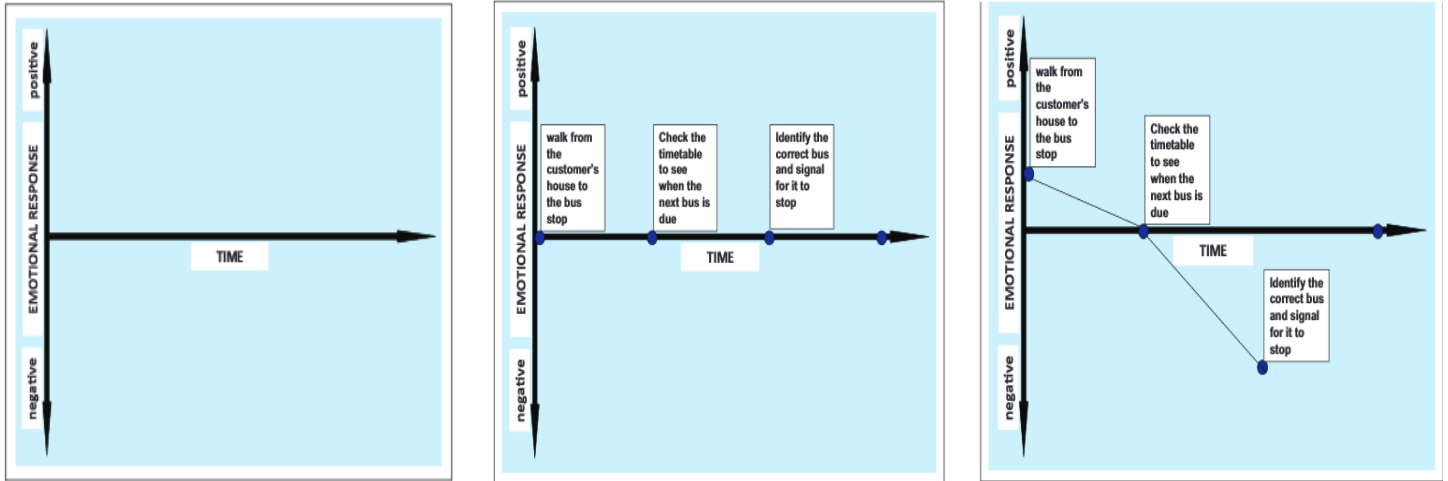


Figure 1 Example of the two parts that make up a Customer Journey Map (Crosier and Handford, 2012)

2.2. Customer Journey Mapping as a tool to gain micro-scale qualitative data

The mobility ecosystem can be divided into three scales: Macro, meaning on a national or city-wide (legislative) level; Meso, meaning the (mobility) providers situated between (local) government and the users; And micro, directly in the behaviour or sphere of the user. The purpose of this approach is to gain an intricate and actionable understanding of the degree of mobility challenges in the selected target groups. Much research into mobility and excluded groups already exists. However, it is often focussed on quantitative data on a macro level (Keyson, Rafferty, & Lyons, 2003) & (Uteng, 2006). This approach is shaped to provide more micro-level qualitative data suited to combating the unique problems of different target groups. Through this approach, it is possible to gain a grasp on not only what is perceived directly by the users as a problem, such as in round-tables or discussions, but the full course of actions that are or are not taken. Combining the user perspective as well as the expert's knowledge will prove to be a good start towards creating effective solutions to decrease mobility exclusion in the selected target groups. Furthermore, due to the general lack of research into this topic on this level of depth (Jeekel, 2014) further research greatly adds to the basis of knowledge available.

Employing CJM in this sense can give valuable insights and answers to specific situations, groups or questions. It should, however, be noted that it is very intensive, which leads to smaller sample sizes and narrows the scope of the project. CJM should then be employed not as a singular approach, but as a supplement to a larger approach with a greater scope such as a widely cast survey.



DIGNITY will use a similar approach, with ten participants, that is divided into three steps; before the journey, during the journey, and after the journey. In the before journey customer profiles are developed by a small survey. After that they need to figure out how to get to a predefined location. During the journey the participant is observed while traveling and asked to describe their level of emotion at certain activities. During the after journey an interview will follow to gain an understanding of the motivations of those scores and find practical challenges and barriers on a micro level based on real situations. Depending on the local situation in the pilot region the target group and type of journey will differ, but the underlying principles remain the same. The collected data will be analysed in a structured way and in the workshops with the vulnerable to exclusion target groups the results will be validated.

2.3. Case Study

Since, the use of CJM is quite new in the mobility research, there is not a wide variety of case studies DIGNITY can take inspiration from. Fortunately, there are a few case studies that took quite similar CJM approaches as DIGNITY will do. An example of one of these case studies took place in Madrid. The Spanish project was brought into action when a research concluded that there was a yearly decline of (physically- and or mentally) disabled bus users (Goldin, 2018). This came as a surprise because the national bus services in Spain regularly updates their services to be accessible friendlier for disabled users.

To give some context, Madrid is marked as the second most popular tourist destination in Spain. Making tourism (part of the tertiary sector) the largest contributor to the Spanish economy (Nordea, 2020). Along these tourists there are of course disabled passengers present. To continue attracting a wide variety of passengers, Spain has invested large amounts of money into infrastructure. The large amount is seen as a good investment as they would later gain profit from the revenue generated by tourism (Vila, 2014). Although monetary motives are justifiable for high investments towards creating an inclusive transport system so, are having humane interests. In fact, Spain has one of the world's biggest public-private partnership between the government and civil society concerning universal accessibility (between the Institute of the Elderly and Social Services (IMSERSO), and Fundación ONCE for the Cooperation and Social Inclusion of Persons with Disabilities).

Despite the close interest for the disabled target group and investing a large amount of money into infrastructure, Spanish officials were surprised to see that there was still an annual decline of these passengers. Undeniably the question that first arose for the researchers in Spain was, why? Simply asking the question proved not to be enough, so the providers went to experience it themselves. This way they did not miss out on any subtle details that could have influenced the user's travel opinion. And thus, came the CJM to use. As said before, the Spanish experiment took similar steps to what DIGNITY plans to do. The researchers first started with a questionnaire, from then on, they collected the reviews left by their target group. This would help them form the base of their questionnaire. Subsequently, they tagged along with the user while asking the questions of their prepared questionnaire. Afterwards the Spanish researchers reviewed the findings from





their interviews, implemented the data into a CJM format and drew conclusions from it. The CJM proved to be a fragile tool but is still capable in achieving the goals set by a project. In fact, the Spanish research team gave as remark, “We have been able to maintain a good consistency between the objective, the pain points marked in the customer journey, the challenge specification and the final solution.” (Goldin, 2018).

3. Define journey

The first step in Customer Journey Mapping for DIGNITY is to define the journey for this task. It is important to select the journey carefully and to choose a case that is relevant to the local situation. The journey could consist of all kinds of activities that are related to mobility and digitalization. It is vital for DIGNITY that a digital aspect is part of the journey. The journey, as it is called, does not have to be an actual journey. It could be a segment of a journey such as finding information about a specific trip, buy an online ticket or search for the nearest bus stop using the internet or a specific app. Examples of a journey for this research are

- Take the bus home to the train station using a digital ticket or smart travel card
- Book, find and unlock a shared vehicle for the first time
- Navigate with an app on smart phone to a specific place
- Use smart phone/digital payment for car parking
- Buy a ticket at the train station using a ticket machine
- Find and book a taxi or shared ride online/using a specific app

In the examples above, you see that some journeys consist of multiple activities, whereas others cover only one specific activity. It is up to the region to decide the complexity and scope of the journey for this research.

3.1. How to define the journey?

There are several ways to define the journey for this research. As mentioned above the following aspects need to be covered; 1) mobility related, 2) included a digital aspect, 3) relevant for the local situation. To define a journey that is relevant for the local situations, a pilot region can use the questions below to decide on a specific journey.

- Are there specific elements of the Meso-level of the digital gap self-assessment that are important for the region? Information from this self-assessment could help the region to have a clear view of the current availability of digital mobility solutions in the region.





- Are there any new apps or mobility systems that are recently implemented in the region? This could be interesting to use for the research to see how vulnerable-to-exclusion groups experience these new apps or systems.
- Are there new innovations related to digitalization and mobility that will be implemented in the near future? The outcome of the research could give insights in the experience of new users and what problems they face using the product.
- Are there specific stakeholders or industry partners that the local government is collaborating with regarding digitalization in mobility? Those companies or stakeholders might have a relevant case to use for this research.
- Does the region/local government have insight into the specific mobility issues of vulnerable-to-exclusion groups? Suppose a specific problem or issues is known by the local government. In that case, it might be chosen for this research to collect more in-depth knowledge about the experience of these people regarding the mobility product.
- Is it possible to investigate the journey based on a past experience of the user? This is the next best thing if a physical journey is not possible due to COVID-19 restrictions.





4. Define target group

4.1. Description of the vulnerable-to-exclusion groups

DIGNITY defined a vulnerable-to-exclusion group as **a group of people with (one or more) similar characteristic(s) that have a higher risk of exclusion and inequity**. The vulnerable-to-exclusion groups that are relevant for DIGNITY are those who might experience mobility poverty due to the digitalisation of mobility products and services. It might be that they have limited digital skills, don't understand how to use the product or service, that fewer mobility options are available to them or that they face other difficulties during their travel to work, the supermarket or friends and family. Based on the Description of Work (DoW) and the literature review conducted within Deliverable 1.1 of DIGNITY, the following vulnerable-to-exclusion groups were identified:

- Older people: people that are aged 65 years old and over;
- People with disabilities: people with a capability loss that limits them in daily activities;
- Inhabitants of rural areas: people living in areas with <1000 households per km²;
- Women: people who identify themselves as women;
- People with low income: people on a minimum salary or who receive government support with their income;
- People with low education levels: people with basic education or no education;
- Migrants: people who were born with a different nationality from their country of residence.

The same seven vulnerable-to-exclusion groups are described and distinguished in Deliverable 2.1 Digital gap Self-assessment. For this manual, it is relevant to understand that different vulnerable-to-exclusion groups exist. It might seem that the identified groups are mutually exclusive. That is not the case. An individual can meet the characteristics of more than one group. Therefore, it is good to collect information about age and gender (and if possible, country of birth, education and income) from participants in the research.

4.2. Choose a target group for customer journey mapping

It is essential to identify up beforehand which target group will be selected for the customer journey mapping. The results and outcome will likely differ for each target group since they might face different challenges. It depends on what you, as a pilot, want to know for your specific region. There are at least four reasons to select a target group:

- a specific group of people is facing difficulties in the city/region
- a specific group of people is overrepresented in the city/region
- a specific group of people is supported by a local program/agenda/policy





- a specific group of people needs attention based on the digital gap self-assessment

The insights in the problems people experience during a specific journey is input for the development of further strategies to help those people with the use of digital mobility solutions. If this manual will be used for cases outside of the DIGNITY project, other target groups might be relevant to choose. Think about children, students, tourists, commuters, etc.



5. Define activities and touchpoints of the journey

5.1. Four steps to define activities and touchpoints

As mentioned in the Theory of Customer Journey Mapping in chapter 2, activities play a vital role in the process of Customer Journey Mapping (CJM). CJM is not intended to be used as a singular approach. Instead, it is a combined approach using quantitative and qualitative data. The quantitative data is, if available, derived from the survey as part of Task 1.2 in DIGNITY. The CJM will result in qualitative data, related to the experience of participants during a specific journey.

For the CJM method, the researcher will start with identifying moments during which the participant interacts with the service. These moments are then divided into three different levels:

- 1) Activities: part of the journey with a specific purpose. These activities start with a verb.
- 2) Touchpoints: possible aspects of the activity where the participant can receive external information from for example: mobility providers or the government through informative signs. These touchpoints could influence the experience of the participant and create opportunities for other parties to improve the travel experience.
- 3) Dimensions: aspects of the activity that might influence the experience of the participant during the activity, such as the availability of the information, perceived safety, availability of seat and the travel time of a transport mode.

Defining these activities is necessary to be well prepared during the execution stage of the research. This chapter of the manual will help to create a structured overview of these activities and touchpoints of the journey that is chosen for the CJM. The participants will be involved in a later stage and this pre-defined overview of activities and touchpoints will be checked with them during the interview. In order to define activities and touchpoints for the specific journey, this paragraph will explain three steps to take.

Step 1 Collecting existing information

Step one is to gather existing information. Think of informal interviews with the target group and talk with an expert or conversations with the mobility providers participating in this project. Also, a quick literature search might help to define touchpoints. When reviewing the information either from scientific papers or data sets, it is essential to note down possible touchpoints. Only keep track of touchpoints that seem relevant to this research. Upon doing so, fill in the actions a passenger would take when a touchpoint is in progress. Continue to do this process for the entire (hypothetical) journey. Common sense carries a long way. Upon completion, this will become the 'timeline'.

Step 2 Sharing thoughts

The second step is to share the template for defining the activities and touchpoints you have created after taking the previous step with peers. These could be people from your team who are possibly professionals from multiple disciplines, such as, mobility providers, policymakers from



local government, and social workers. By doing this, you can receive a second opinion on missed or overlooked. Furthermore, they can provide additional information that could be re-examined. Perhaps a time-consuming process but the end justifies the means. Ultimately, the accuracy of an all-inclusive timeline will be improved.

Step 3 Adjusting old information into new

The final step is to develop the timeline into a final version, integrating all the feedback, input of others including their personal experience. The final timeline should contain the touchpoints that have been established in the previous steps including the re-visioned ones. Furthermore, the final step is to, if possible, let the timeline get reviewed once more and appropriately adjust it if needed. This would result into a realistic timeline that includes the relevant touchpoints for the CJM.

5.2. Example of activities and touchpoints for trip by train

This paragraph will give an example of activities and touchpoints of a trip using a train. This example can be used to define activities and touchpoints for other journeys. All tables include the activities, touchpoints and dimensions for that part of the journey. Table 1 will show the activities that are part of the preparation of the journey; think about planning the trip and choosing a transport mode to go to the train station. Table 2 is focusing on the activities that are part of the journey from home to the train station and at the train station. Next part of the journey are the activities during the train ride (see Table 3). The last table (Table 4) shows the activities when arriving at the train station and continue the trip to the destination.



Table 1 Activities and touchpoints for the preparation of the trip

Activities	1) Establish reason for the trip	2) Plan the trip	3) Look for schedules of travel time for the trip	4) Make preparations for the trip
Touchpoints		Physical information/map Online information/website Service centre contact by telephone	Physical information/map Online information/website Service centre contact by telephone	
Dimensions	The need to make trip Urgency of trip Availability of time to make trip	Availability of the information; <i>physical/digital map, via relative, mobility provider or social service</i> Available transport modes for the trip	Travel time Monetary costs Effort Ability	Appropriate attire Readiness of transport mode; <i>Disruptions, delays, tires (when bike use), fuel (when car use)</i>

Table 2 Activities and touchpoints from home to the train station and at the train station

Activities	5) Go from home to train station	6) Arrive at train station	7) Pay for journey at train station	8) Find information at train station	9) Wait for the train
Touchpoints	Environment Travel mode	Parking area Entrance of the train station	Ticket machine Check in system for smart travel card	Information signs Wayfinding	Waiting area Facilities Platform
Dimensions	Available infrastructure Intensity of other transport Disruptions and unforeseen activities Travel time	Availability of parking places Wayfinding to the entrance Environment of the train station	Wayfinding and information about ticket machines Usability of the ticket machine Usability of the smart travel card and check-in system	Availability of information signs Visibility of information signs Accuracy of information	Availability of facilities The need to use facilities Comfort level of platform

Table 3 Activities and touchpoints during the train ride

Activities	10) Enter the train	11) Experience the journey	12) Transfer, if applicable	13) Leave the train at destination
Touchpoints	Entrance of the train	Seats in the train Information signs in the train Train conductor Environment	Information during transfer Wayfinding	Exit of the train
Dimensions	Accessibility of the train	Availability of seats Quality of seats; <i>comfort, clean, etc.</i> Level of information Other passengers	Information about the transfer Accessibility of the trains and platform Effort of the transfer	Information about station of arrival Amount of people leaving the train

Table 4 Activities and touchpoint from the train station to the destination

Activities	14) Leave the train station	15) Go from train station to destination	17) Arrive at destination
Touchpoints	Wayfinding at train station Information signs	Parking facilities Bus stop Transport modes Wayfinding Environment	Parking facilities After care of service provider
Dimensions	Availability and visibility of information signs Usability of check-out system	Available infrastructure Intensity of other transport Disruptions and unforeseen activities Travel time	Availability of parking facilities Other after activities might be: payment, customer satisfaction survey, contact customer service if needed



6. Prepare the research

To properly conducted research, it is fundamental to be well-prepared. The following paragraph are meant to help you with the preparations for reaching the target group, preparing the journey, the data collection process, consent forms and information sheets and a checklist per phase of the journey.

6.1. Get in touch with the target group

After selecting a target group, the next step is to get in touch with this target group. Contacting the target groups might be a challenging task. This can be due to the underrepresentation of vulnerable-to-exclusion target groups in mobility research and the local political sphere. For this research, the aim is to recruit at least ten people. By using your network you will probably be able to find the needed participants. You can also use snowball sampling. This means that after an interview you ask the participant if he or she knows others in their network that would be interesting to talk to in relation to this research. These suggestions might be successful approaches to reach the target group:

- Find an NGO or association that is representative of the target group and get in touch with them
- Ask other organisations to help out: housing corporations, sports clubs, volunteer or neighbourhood gatherings, schools
- Ask via family, friends, colleagues, acquaintances whether they know people that meet the requirements.
- A last resort can be advertising

A good starting point to find local organizations is having a look at the "presenting the case studies" chapter in the DOA from page 23 till 31. Every pilot description also includes a list of local actors involved with the target group.

If you have a plan to reach the target group, it is important to get the explanation of the research clear. In the phone call, letter, e-mail or flyer you need to give at least the following information:

- A brief introduction of the research. Think about this carefully since you don't want to give them too much information to prevent behaviour that is not natural to them but that they think is what you want them to do This can influence the results. A template for this introduction can be found in attachment 1
- What characteristics are you searching for in your participants?
- How much time the customer journey mapping will take
- If they will get a reward





- Within what time period the research will take place
- How people can sign up
- How you will get in touch with them if they are interested

To further stimulate participation, stressing that we do this research to improve their experience, reimbursement of costs and a small gift could be beneficial. An idea on of our inters came up with is to order antistress squishes with the phone number of a help desks from service providers branded onto them. Of course, other gifts are possible as well. It might be a good idea to contact a mobility provider to see if they want to contribute to something as a goody bag.

6.2. Prepare the activities of the research

This paragraph will discuss the preparation of the activities that are part of the research. It will zoom into the elaboration of the task for participants, the interaction with participants and the data collection.

Participant interaction

The first interaction with the participant is during the recruitment of the participants. The recruitment can be done in several ways. Due to COVID-19 it will be harder to meet with the target group via activities or at a public places like a library or townhall. Therefore we suggest to get in touch with potential participants via an association that represents the target group, via telephone or e-mail.

After commitment of the participant to join the research, researcher and participant will agree on a day and time to execute the research. This meeting will be the actual research. Normally this research will take place face to face but now it will be through a video call, a normal phone call or a 1,5meter distance interview if the local situation allows it. It is important that participant and researcher discuss the way it will be executed. The researcher will ask in advance what would be possible for the participant (is a videocall possible?) and what the participant prefers in relation to COVID-19 (does participant and researcher feel safe to meet at a 1,5meter distance?).

During the research the researcher starts with an introduction and small social talk. Then the activities related to before the journey (such as planning the trip, finding information) will be asked about in the interview. Focussing on how participants normally plan their trip and what difficulties they experiences. If the journey would normally be an outside activity, in this COVID-19 version we stick to an interview version. This interview is based on a past experience that participants have with the journey. Based on their experience, the researcher asks about feelings and barriers of each step that is taken in the journey. The interview will finish with some questions about their overall experiences related to the journey. Depending on the journey, participant and researcher this interview will take 1 to 2 hours.

After the research, there might be interaction between participant and researcher related to the outcome of the research, an extra thank you via (e-)mail or some administrative work. Make sure



as a researcher that you can always contact the participant after the researcher (address, telephone number or e-mail address).

Data collection

The data collection of the research consists of the follow items:

- Intake survey
- Questions for each activity of the journey: short questions that will be asked for each activity of the journey (specific about level of emotion). The activities of the journey can be better specified and explained using pictures/photos of the situation.
- Interview data collected about the experience of the (past) journey

Firstly, the participant will be asked about some general characteristics, experiences and skills in a short intake survey. This can be filled in by the participant himself or asked by a researcher at the beginning of the research. Secondly, for each activity of the journey the participant will be asked to give a number to their emotions and feelings that they had during this journey in the past. The outcome of this questions is based on what participants could remember of their experiences. It is preferable to use short repeating questions to focus on the activities. In this manual we propose to use one question about their emotional state using numbers and pictures from 1 to 10. This question will be asked for each sub-activity of the journey (see chapter 5). Figure 2 shows an example of how the scale for this question might look like. Thirdly, interview questions will be asked after all activities of the journey are discussed. The researcher can elaborate on the gradings by asking questions to the participant to explain their grade and try to add feeling they could remember they had. The researcher will use the activities and touchpoints of chapter 5 on the side-line. The reasoning for this is so that the researcher does not lose track of what questions need to be asked or were asked. The importance of having the exact same touchpoints for each trip is to at the end have a comparable sheet. As the saying goes "you can't compare apples to pears", so will the reasoning apply for this research as well. The comparative results will help with drawing relevant conclusions.

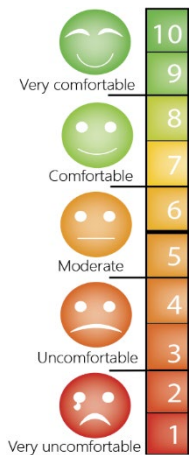


Figure 2
Example of the grading scale

6.3. Customer Journey Mapping checklist

During the customer journey mapping a researcher needs to prepare multiple things. We discussed the recruitment of the participants and preparation of the interview afterwards, but there are some other things that are not yet mentioned or described which are important for a researcher to be aware of. In this paragraph a checklist is made to give an overview of things to arrange and prepare in a structural way. The overall checklist can be found in attachment 2. The

tables are categorized in the stage of the research. Table 5 shows what needs to be arranged for recruiting the participants.

Table 5 Checklist to recruit participants

Prepare	Material	Purpose	Checklist
Personal detail form	Document	A short introduction of the project and the researcher	
Contact people (NGO/ associations) who are in contact with the target groups	Contact numbers	To get in touch with the target group and recruit participants	
Information sheet	Document or PowerPoint presentation	Inform the participants about what you expect from them during the research. Example in attachment 3	

After the participants agree to join the research, the researcher will make an appointment (day and time) to execute the research. In Table 6 the items are listed to be arrange in the first stage of this research.

Table 6 Checklist for before the journey

Prepare	Material	Purpose	Checklist
Location to meet or way to talk (video call, phone call)	Address, app, e-mail address or phone number	Discuss with participant whether face-to-face meeting is possible (1,5 meter distance) or if participating via video call or phone call is preferred.	
Consent form	Document	Let participant sign a form that data, information and photos can be used for this research. Example in attachment 4. This could be send to their home or via e-mail.	
Equipment to make notes	Smart phone or pen and paper	The research might want to make notes of specific situations	
Safety measurements	Face and/or mouth mask	Depending on the current COVID-19 situation additional protection can be used if meeting face-to-face	
Introduction of the journey	Document	Detailed description of the research day (task for participant, what to expect, what to do in certain circumstances)	
Questionnaire	Paper or other device	To ask some general questions before the 'journey' will take place	
Specify journey for the participant	Document	Explanation of the journey that you would like the participant to have in mind (past experience)	



When the introduction and first part of the research is finished, the participant will be asked about the journey. Table 7 shows the checklist of what to prepare for this part of the research.

Table 7 Checklist for interview about the journey

Prepare	Material	Purpose	Checklist
Photos or pictures of activities of the journey	On paper or digital	Arrange pictures or photos of each activity of the journey to make sure the participant knows what activity you are talking about.	
Interview questions	Paper or on device	Ask questions in terms of emotions and reconfirmation on earlier given answers	
Record the interview	Videocall, app, voice recorder	Make sure the whole interview is recorded and test the approach in advance.	
Equipment to make notes	Smart phone or pen and paper	The research might want to make notes of specific situations	
User's Reward	Small gift, gift card, etc.	Compensation of partaking in the research. This could also be send via mail.	





7. Execute the research

After all the preparations for the customer journey it is now time to execute it. As has been described in the theory, a journey consists out of the before journey, the during the journey and the after journey. This applied method talks you through the steps you need to take to execute the mapping. Note that in this COVID-19 version, the outdoor activity of the journey is replaced into an interview. Therefore the phases during the journey and after the journey are combined into one phase of the research.

7.1. Preparation and introduction

When executing the customer journey, it is foremost important to be on time. It would be wrong to give a bad impression before the journey even started. Some participants might be a bit nervous. This is understandable since they have to do a task that they might find difficult with someone they might yet don't know that well. Therefore, it is important to make the participant feel comfortable and trusting to get good, real results. Introduce yourself and ask them to do the same. If you feel that they are still nervous and some more chit chatting would help, do so before you start the interview.

After introducing yourselves, talk through with the participant what the goal was of the customer journey. Check if they have been informed correctly and know what the process will be. If this is not the case explain them that the goal of the customer journey mapping is. That there are no wrong answers and that we would like them to react intuitive when it is about feelings.

Explain that for the customer journey we will process the interview anonymous and that we will never publish their name. Add that we would like to record the interview and ask in case of a video call or face to face meeting if we can use some screenshots or photo's in later communication about the research. Explain that you will only use this data within the project to promote the results and that after five years, after the end of the project, all the personal data will be deleted.

Ask them if the goal, process, and the collection of information is clear and if they still want to participate. If so, ask them to sign the consent form. You might have done that in advanced via e-mail or mail. An example of this consent form can be found in attachment 4. If they are not comfortable with continuing the customer journey you can ask them if there is anything, they want you to explain clearer that might take away their hesitation to participate. If they still do not want to participate, always stay friendly, express your understanding, pay for the drinks if needed and say your goodbyes. Don't worry, this will most likely never happen if they are informed correctly prior to this meeting.





7.2. Before the journey

Congratulations, you have come this far! Say that you will now start the before journey phase of the customer journey and will start recording the interview. Start with a short questionnaire that you can find in attachment 5. These are the same questions that were asked in the survey of task 1.2. This has three main benefits. One, it is possible to compare the participant profile with the results from the task 1.2 survey. Two, the customer journey mapping gives a verification of how well the stated performance in the survey explains the actual performance of the participants. Three, all the cities have already translated and standardized the questions for the survey saving extra work. The only exceptions to this, is question five, where the option to travel by bus train or bike was added. This also resulted in the erasing of the word digital in question five. When investigating mobility poverty, the new question number nine might come in handy. If this is not necessary for your pilot, you can leave it out. You can either send the survey in advanced per mail or via e-mail. Or you can choose to ask the questions by yourself and write down the answers of the participant. Choose the best option of you and the participant.

We suggest that you digitalize this survey in your own language and add the data to the excel sheet via the link to the digital survey in attachment 5 to standardize the results of the survey. We used Microsoft form to develop this database which automatically generalized this layout. If you have access to Microsoft forms, we suggest doing the same and we would happily share our digital survey to translate. If not, try to make the output of your survey match the added database

7.3. Interview about the journey

After the short survey you explain that we will now start with the second part of this interview. During this phase the participant need to think about a specific journey. Explain the participant what kind of journey you want them to think about (the journey that is chosen in the previous steps).

Finding out where to go

Start with the first questions about the first activities of the journey. These activities include the preparation and planning the trip and will also elaborate on the chosen transport mode. The participant will explain how they normally would plan a journey as specified, for example by using a digital device, relying on personal network, relying on a help desk of a commercial company, using a copied booklet, etc.

If you have a face-to-face meeting with the participant, ask them to perform the task. Observe how they perform the task and elaborately note down the answers to the questions of attachment 6. In case of an online meeting, videocall or phone call where it is not possible to observe the participant while performing a task, ask them to think of a real example and let them





describe step by step how they performed the task. Note down how they would normally perform the task with the examples and be elaborate in the answers to the questions of attachment 6.

'experience' the journey

The researcher will ask the questions of the interview that are categorized per activity of the journey (see chapter 5). Besides the score that best defines their level of comfort (attachment 7) that you will ask for each activity, questions can be asked about the different touchpoint that are related to the activity. In this way you point out several aspects of the activity to make sure the participant take those into account while 'judging' the experience of the activity. An example of this interview for the pilot city Tilburg can be found in attachment 8. When all the activities are done, some final questions will be asked about the total journey (attachment 9). This would normally be the after-journey interview but this COVID19-version makes it part of the interview about the journey. We advise to do a semi-structured interview with the participant. This means that the interview is prepared in advanced and questions are defined (structured) but there is some space for participants to dive into a specific part or experience they want to elaborate (semi-). This method will help the researcher to have a structured approach and makes it easier to analyse and compare the data of the participants to draw conclusions. On the other hand, this whole research is about experience of users, therefore it is key that they feel their emotions, feelings, thoughts can be said and shared for this research.

For the interview some things are important to take into account.

- Start with the planning/preparation phase of the journey
- Continue with questions for each activity of the journey. Finish every activity with a score on the emotional scale to make their judgement/experience more specific.
- Ask some general question about their overall experience and feelings of a journey like specified.
- Verify the touchpoints and activities of the journey that where defined in the preparation phase with the participant
- Ask to elaborate on the scores they gave. Why they gave that score?
- Leave time and space to express their feelings during specific parts of the journey
- Add questions that are related to general travel, whether this was a new experience and if they would like to do this in the future and why
- Use own notes to ask some specific questions about answers they give during the interview (this might vary for each participant).
- Inform the participant what will be asked in the next questions

If a participant will give short answers and the researcher is not (yet) satisfied, ask the participant to further explain the answer that is given. Do not give suggestions for participants what they could answers because that will influence the reaction of the participant. If the researcher has limited





experience with interview techniques, please prepare well, practice in advance and read guidelines from research knowledge websites.

After the interview, stop the record equipment and thank the participant. Explain to the participant what you and your team will do with the information and when the research is expected to be finished. Ask if the participant wants to know the outcome of the research when the results are available. If so, collect their contact details. Mention that the research is now officially over. Say that you thoroughly enjoyed it and hope the participant enjoyed it as well. If there are no more questions say goodbye.



8. Analyse the data for the Customer Journey Map

The penultimate step to drawing conclusions and concluding the research is to analyze the data received from the questionnaire and the interview. The data consists of the answers to the survey, the scores given for each activity and other interview answers about the journey. The following paragraphs explain the methods and reasonings to reaching a well analyzed CJM.

8.1. Survey analysis

The first task is to analyse the survey. You should have 10 participants and with that information you will be able to fill the data set in attachment 10. With that information you should be able to fill in the required data for Table 8. This is the statistical summary of the results from the survey. The (n=10) indicates the number of respondents. If you have for example 17 participants, it is (n=17). The questions are translated to number as in in the example for question 1: "In the last 3 months, how often (on average) have you used a computer? Please include use in any location (home, work or any other place)" (every day or almost every day = 1, at least once a week = 2, less than once a week but at least once in the last 3 months = 3, I last did this more than 3 months ago = 4, I have never done this =5). The calculation of the average, the standard deviation, the minimum, maximum and range should work automatically. If you have more than 10 cases, you will have to adjust the range of the calculation in excel. This is easily done by putting your mouse on the calculation, click and you see which cells are selected. You can then adjust the range of the calculation. Do not include the don't know question in calculating the average, standard deviation, minimum, maximum and range. If they answer do not know, delete that count, and adjust the computing to the number of the left cases. If you need help with this part, you can always contact us.

Table 8 Stakeholder statistics (n=10) for survey

#	Question	Average	Standard deviation	Min	Max	Range
1	Computer use (1 =every day)					5
2	Smartphone use (1 =every day)					5
3	Internet use (1 =every day)					5
4	Confidence digital trip planning (1 =high)					10
5	Bus use frequency (1 =every day)					6
6	Train use frequency (1 =every day)					6
7	Bike use frequency (1 =every day)					6
8	Car-sharing frequency (1 =every day)					6
9	Taxi use frequency (1 =every day)					6
10	Bike hire frequency (1 =every day)					6

11	Scooter or motor bike hire frequency (1 =every day)					6
12	Costs limitations (1 =not at all)					3
13	Service limitations (1 =not at all)					3
14	Infrastructure limitations (1 =not at all)					3
15	Safety limitations (1 =not at all)					3
16	Special needs limitations (1 =not at all)					3
17	Digital planning limitations (1 =not at all)					3
18	Digital skills limitation (1 =not at all)					3
20	Age					
21	Gender (1 =men)					

After calculating the statistical summary, you get a decent impression of the skills your participant have and which challenges they phase. This might come in handy when interpreting the rest of the CJM.

8.2. Interview analysis

The following task is transcribing the interviews. The recorded footage from the cameras should be transcribed into written text. It is advised to use transcribing software to create a draft of the transcription before working them through oneself, as the total interview time per participant is rather long. A good example of transcribing software is 'Atlas.Ti'. Word also has built in transcribing software and YouTube auto generates subtitles in a few days if you uploaded as a private video but the paid for version of the transcribing software are always better. If you use software, always check if the transcribing has been done correctly.

Transcribing the recorded footage might be a grueling progress, but it will help clarify what was said in an interview. Especially when there is a distracting background noise. It will also help the readers to quickly scan through what was said in an interview, find key words and identify feelings, and how the answers were further interpreted in the conclusion section. It is important to mention that transcriptions should always be verbatim, exactly as the participant said without changing wording, phrasing, or errors. The next step is to structure the information. Make an overview of both the qualitative data and the quantitative data and the open and closed questions, that is to say the answers to the open interview questions and the touchpoints responses respectively.

When structuring the answers to the open questions it is important to look at whether the answer was positive or negative, what the themes are that mentioned in the answers, and are these themes common or uncommon across the answers provided by all the participants. Once the answers have been laid out the data should be summarized and reduced to make it more manageable and easier to analyze. Creating "storyboards" for different themes or concepts, highlighting things that are common and uncommon among participants, will make it easier to



look for relations between different themes and concepts and see how they influence one another. Understanding the connections between themes or concepts is key to finding the core of the problem and creating solutions. Compare the answers from the participants with each other to get an overview of the different answers and the resulting problems, barriers, opportunities and drivers. This will help to put in perspective the challenges and solutions and the vulnerable for exclusion groups face when using transportation. Furthermore, it is usually advisable to add visualizations such as tables or graphs to make the information more manageable and easier to understand for others that were not in its development. It is important that this is done correctly since this micro level data is extremely rare and by having this kind of microlevel verified data it grants the project big opportunities for further publishing to help cities with similar challenges.

8.3. *Assembling the Customer Journey Map*

After building all the separate pieces of the CJM it is now time to assemble it. Throughout this report there has been a mention of what a CJM graph is and how to make one. The CJM graph will become a visual representation of the touchpoints and the participants emotional response to them. This has been described in chapter 2: *theory of customer journey mapping*. This map can then be supplemented with the reflection of the participants on their responses, during the semi-structured interview. By superimposing the responses of participants on the same map it might become clear where common points of friction exist, or, on the contrary, experiences vastly differ for similar participants. In Figure 3 you seen an example of a customer journey map.

For DIGNITY we made a similar template that will function as the CJM summary for each city. Figure 4 shows you the templates that will be used for this CJM in DIGNITY. They could also be found in Attachment 11. These templates will also be used for the deliverable 3.1 Framing the gap. The format is made in PowerPoint to keep it accessible and easy to edit. These templates will then be discussed at the vulnerable for exclusion stakeholder workshop of 3.1.3. to validate the collected information.



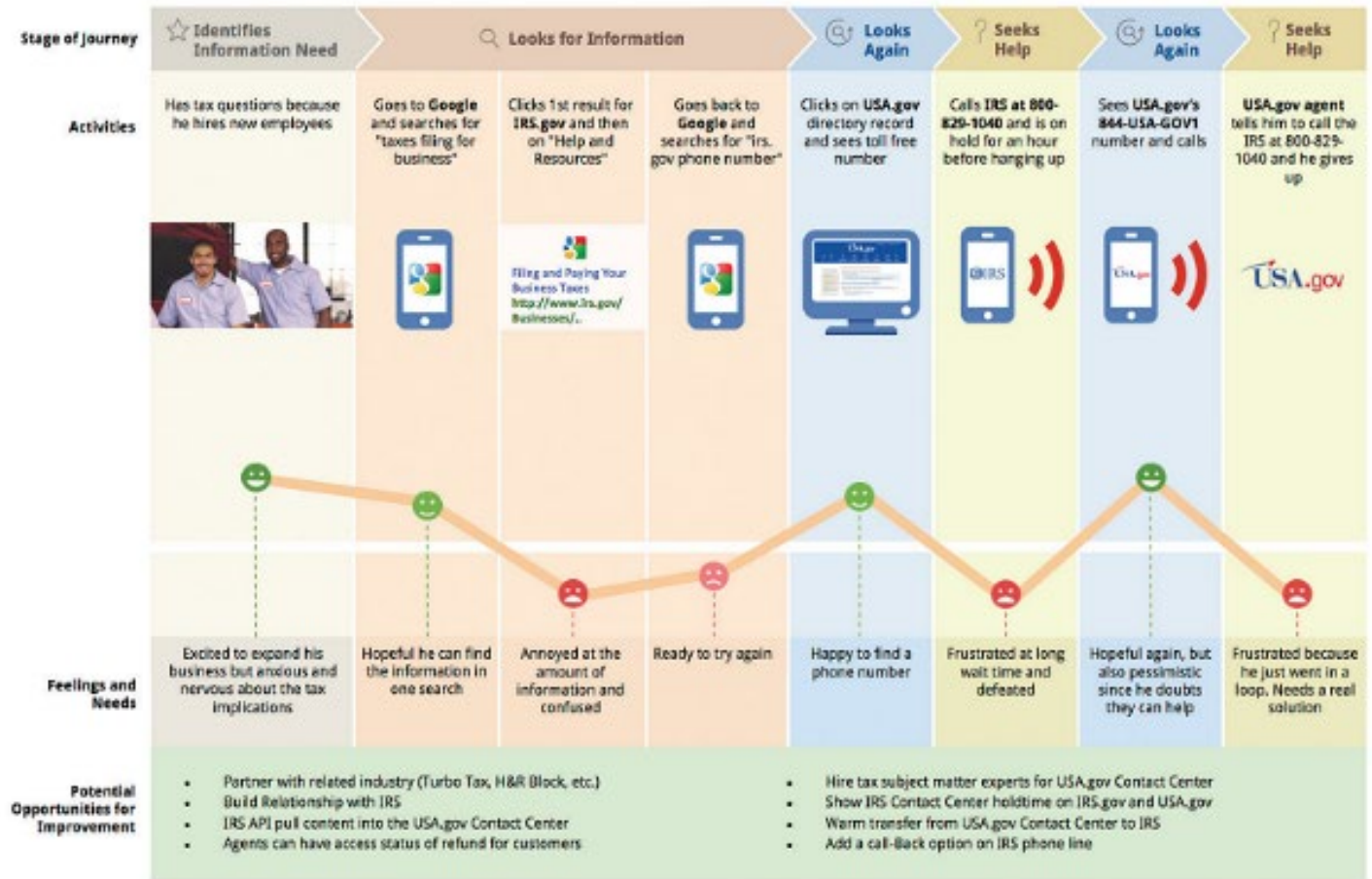


Figure 3 Example of a CJM (source: Infotoday)

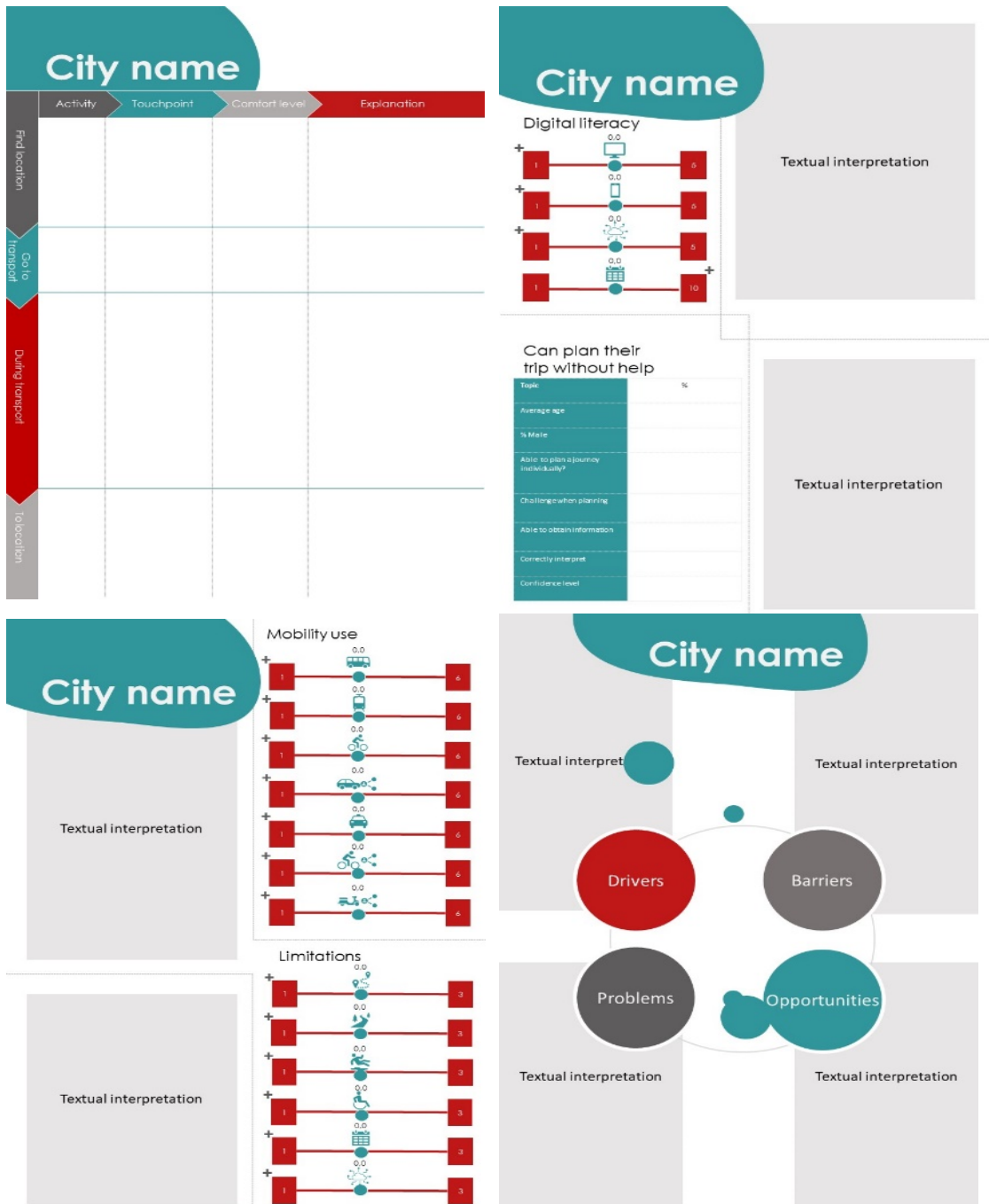


Figure 4 Templates for CJM

Congratulations, you did it!





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Attachments

Attachment 1: Template target group contact letter

Dear sir/madam,

As part of the European project DIGNITY we are attempting to gain a better understanding of those who use our city's mobility services and we would like your help with that. To keep mobility accessible for all. Often mobility projects focus on improving service and efficiency, yet these improvements do not always work out for everyone. The focus of DIGNITY is on speaking with travellers and asking them how they experience their journey. The goal is to identify a possible gap between what the services provide and what the users need.

We are looking for participants who sometimes experience difficulties with getting around. We have reached out to you because we understand you might have faced difficulties in this regard. We would very much like to interview you and accompany you on a journey to gain an understanding of how you plan and take your journey and to see if you might encounter challenges using these transport systems. This should take about one and a half to two hours, during which we will make a small journey. All costs will, of course, be reimbursed. Furthermore, you will also be compensated for your time with a sum of € ... (IF APPLICABLE).

If you would like to aid us in our research, please do not hesitate to contact us. You can reach us via (PHONE NUMBER), (EMAIL), (WEBSITE), or you can ask your local (LOCAL CONTACT, IF APPLICABLE). We intend to take all the interviews between (DATE) and (DATE), after which this letter will lose its relevance.

Thank you kindly for your time,

Kind regards,

(NAME)

(POSITION) (ORGANISATION) (PHONE NUMBER), (EMAIL), (WEBSITE)



Attachment 2 Checklist

Checklist to recruit participants			
Prepare	Material	Purpose	Checklist
Personal detail form	Document	A short introduction of the project and the researcher	
Contact people (NGO/ associations) who are in contact with the target groups	Contact numbers	To get in touch with the target group and recruit participants	
Information sheet	Document or PowerPoint presentation	Inform the participants about what you expect from them during the research. Example in attachment 3	
Checklist for before the journey			
Prepare	Material	Purpose	Checklist
Location to meet or way to talk (video call, phone call)	Address, app, e-mail address or phone number	Discuss with participant whether face-to-face meeting is possible (1,5 meter distance) or if participating via video call or phone call is preferred.	
Consent form	Document	Let participant sign a form that data, information and photos can be used for this research. Example in attachment 4. This could be send to their home or via e-mail.	
Equipment to make notes	Smart phone or pen and paper	The research might want to make notes of specific situations	
Safety measurements	Face and/or mouth mask	Depending on the current COVID-19 situation additional protection can be used if meeting face-to-face	
Introduction of the journey	Document	Detailed description of the research day (task for participant, what to expect, what to do in certain circumstances)	
Questionnaire	Paper or other device	To ask some general questions before the 'journey' will take place	
Specify journey for the participant	Document	Explanation of the journey that you would like the participant to have in mind (past experience)	
Checklist for interview about the journey			
Prepare	Material	Purpose	Checklist
Photos or pictures of activities of the journey	On paper or digital	Arrange pictures or photos of each activity of the journey to make sure the participant knows what activity you are talking about.	
Interview questions	Paper or on device	Ask questions in terms of emotions and reconfirmation on earlier given answers	



Record the interview	Videocall, app, voice recorder	Make sure the whole interview is recorded and test the approach in advance.	
Equipment to make notes	Smart phone or pen and paper	The research might want to make notes of specific situations	
User's Reward	Small gift, gift card, etc.	Compensation of partaking in the research. This could also be send via mail.	





Attachment 3: Information sheet

INFORMATION SHEET FOR PARTICIPANTS

Customer Journey Mapping for DIGNITY Project

DATE 2020

Before you decide to take part in this study it is important for you to understand why the research is being done and what it will involve. Please take time to read the following information carefully and ask questions if you wish. Take time to decide whether or not you wish to take part.

1. Introduction

You are being selected to take part in the DIGNITY survey because we want to get a wide range of people from across the adult population, including both people who use technology a lot and people who rarely (or never) use it. If you accept, you will be asked to participate in the survey, which will contribute to the achievement of the DIGNITY research and innovation project funded by the European Commission, Grant Agreement n°875542 - www.DIGNITY-project.eu.

Before making a decision on whether you want to participate or not, please read this document carefully. Please ask all the questions you may have so you can be completely sure to understand all the proceedings of the study and the consultation process, including risks and benefits. At all times, we assure compliance with the current legislation.

2. Overview and Purpose of the DIGNITY project

The DIGNITY project wants to grasp the full range of factors that might lead to disparities in the uptake of digital mobility solutions by different user groups in Europe. The aim is to propose solutions for an inclusive, user friendly digital transport system that takes into account the needs and characteristics of all parts of society, with particular attention to digitally excluded groups.

DIGNITY will work in parallel in four countries and with four pilot regions: Barcelona (ES), Tilburg (NL), Ancona (IT) and Flanders (B). The results of the project will provide for recommendations to design more inclusive digital transport products and services and will help public authorities, transport operators and private providers to consider the needs and requirements of all users in their decision-making processes.





The DIGNTIY project started on 1 January 2020 and has a duration of 36 months.

3. What is the Customer Journey Mapping?

The goal of the customer journey mapping is to understand which barriers you face when you travel to a new location. There are no wrong ways of executing this travel and we would like you to behave as you normally do. It is not a test to see how well you are performing and we rather get a real impression than the best impression since it will give us better insight in what barriers you face. This will lay the foundations for finding real solutions for users who might experience the same difficulties. the customer journey consists out of three parts. In the before journey we will ask you some questions about your use of mobility and how familiar you are with digital products. During the journey we will observe your travel and ask you to give an indication of how you feel during the trip. In the after journey we would like to interview you about your experiences during the trip.

4. Who is organising and funding the survey?

The survey is organised by Breda University of applied sciences and it's academy of built environment and logistics, the Netherlands in partnership with [PILOT].

5. Who is NOT eligible to take part?

If you are under the age of 16 or are an in-patient (a patient living in a hospital while receiving treatment) or unable to give informed consent on behalf of yourself, then unfortunately you are not able to take part in the current study.

6. What will happen to me if I take part? [adapt the paragraph according to the specific consultation]

You will be interviewed for 1 – 2 hours about your experience of a particular journey. No preparation is expected from your side.

7. Confidentiality and data usage

The information from the study will be recorded anonymously. audio, video or photographs will be collected only on your approval. The anonymous dataset will be shared with research partners in the project

8. What will happen to the study results?

The anonymised dataset will be shared with research partners and made publicly available. There will be no means of identifying the individuals involved.





The results from the study will be published in reports and in journal and conference papers. The results may be incorporated into a method for designers to help them to estimate what proportion of the population would have difficulty using a particular interface and why. They may also be used in further research.

9. Freedom to withdraw

Your participation is voluntary. You may refuse to answer particular questions without giving a reason. You can also withdraw from the study after starting it, at any point while you are still with the interviewer. You do not have to give a reason for doing so.

Once you have left the interviewer, your data will be added to the dataset anonymously and we will be unable to identify which record is yours. As a result, we will not be able to remove your data after this point.

10. Who can I contact?

If you have any questions or a concern about any aspect of this survey, you can contact [ENTER CONTACT DETAILS]

If you have any questions on the DIGNITY project, you can contact the Project Coordinator: Silvia Gaggi, ISINNOVA, sgaggi@isinnova.org.

Thank you very much.

[ENTER NAMES]





Participant Number.....

Attachment 4: Consent form

PARTICIPANT CONSENT FORM

Customer Journey Mapping for Digital Transport in and for Society Study

Name of Lead Investigators: [ENTER LEAD INVESTIGATORS]

Please tick box

1. I confirm that I have read and understand the information sheet dated _____ for the above study. I have had the opportunity to ask questions and have these answered satisfactorily.
2. I understand that my participation is voluntary and that I am free to withdraw at any time, without giving any reason, without my legal rights being affected.
3. I understand that this study might collect personal data (pictures, voice and video recordings), but that I am free to decline to give that data, without giving a reason.
4. I understand that all the data will be collected anonymously. The anonymous dataset will be shared with research partners. There will be no means of identifying the individuals involved.
5. I agree to take part in the above study.

Name of Participant
(Please print)

Date

Signature

Name of Researcher

Date

Signature



Attachment 5: Before journey survey

1. In the last 3 months, how often (on average) have you used a **computer**? Please include use in any location (home, work or any other place). *Interviewer: Ask participant to look at Showcard A*
 - Every day or almost every day
 - At least once a week
 - Less than once a week but at least once in the last 3 months
 - I last did this more than 3 months ago
 - I have never done this
 - Don't know

2. In the last 3 months, how often (on average) have you used a **smartphone**? *Interviewer: Ask participant to look at Showcard A*
 - Every day or almost every day
 - At least once a week
 - Less than once a week but at least once in the last 3 months
 - I last did this more than 3 months ago
 - I have never done this
 - Don't know

3. In the last 3 months, how often (on average) have you used the **internet**? Please include use in any location (home, work or any other place), and on any device. *Interviewer: Ask participant to look at Showcard A*
 - Every day or almost every day
 - At least once a week
 - Less than once a week but at least once in the last 3 months
 - I last did this more than 3 months ago
 - I have never done this
 - Don't know

4. By using a computer, how confident are you that you can successfully plan an unfamiliar, local public transport journey? *Interviewer: Ask participant to look at Showcard C*





5. How often do you use the following digital transport services? **Each partner: see comments box about translations and making the response options country-specific**

Interviewer: Ask participant to look at Showcard D for response options in each case

	Every day or almost every day	At least once a week	At least once a month	At least once in the last 3 months	More than 3 months ago	Never	Don't know
The bus							
The train							
The bike							
Car sharing (on-street car hire via the internet or an app) (e.g. Bluemove, Zipcar)							
Carpooling (sharing car journeys so that multiple people travel in the same vehicle) (e.g. BlaBlaCar, LiftShare)							
Taxi services that are booked digitally (e.g. Cabify, Uber)							
On-street bike hire (e.g. nextbike, Bicing)							
On-street scooter or motorbike hire (e.g. Yego, Lime)							
Using a mobile phone to pay at a parking meter							

6. Thinking about your regular travel within this region: to what extent do you feel limited in your travel by the following aspects? In this question, we define "limited" as wanting to travel more but feeling unable to.

Interviewer: Ask participant to look at Showcard D2

	Not at all limited	Slightly limited	Very limited
The cost of the travel			
Limited availability of transport services (e.g. bus, trains or shared vehicles)			
Limited availability of infrastructure (e.g. bus stops or bike lanes)			





Concerns about the safety of the transport services

Difficulty using the available transport due to special needs or disabilities

Difficulty planning travel before a trip because digital skills are required to do so (e.g. to look up information or buy a ticket)

Difficulty during trips because digital skills are needed to use the transport (e.g. to unlock a rented bike or show a digital ticket)

Do you feel limited because of any other reasons? If so, please specify: _____

7. Please give your age (in years):

- It is: _____
- Prefer not to answer

8. What best describes your gender?

- Female
- Male
- Prefer to self-describe _____
- Prefer not to answer

A digital version of these questions can be found via:

https://forms.office.com/Pages/ResponsePage.aspx?id=m1gzCjYA6E-oKT7Qkmr4hqIXgJye4jJki_j8BiYdrJUMVFIT09UVFFUMEM3NVFDMIRQUIU3RFdaTi4u





Attachment 6: Questions for planning the journey

The participant is able to figure out the journey independently

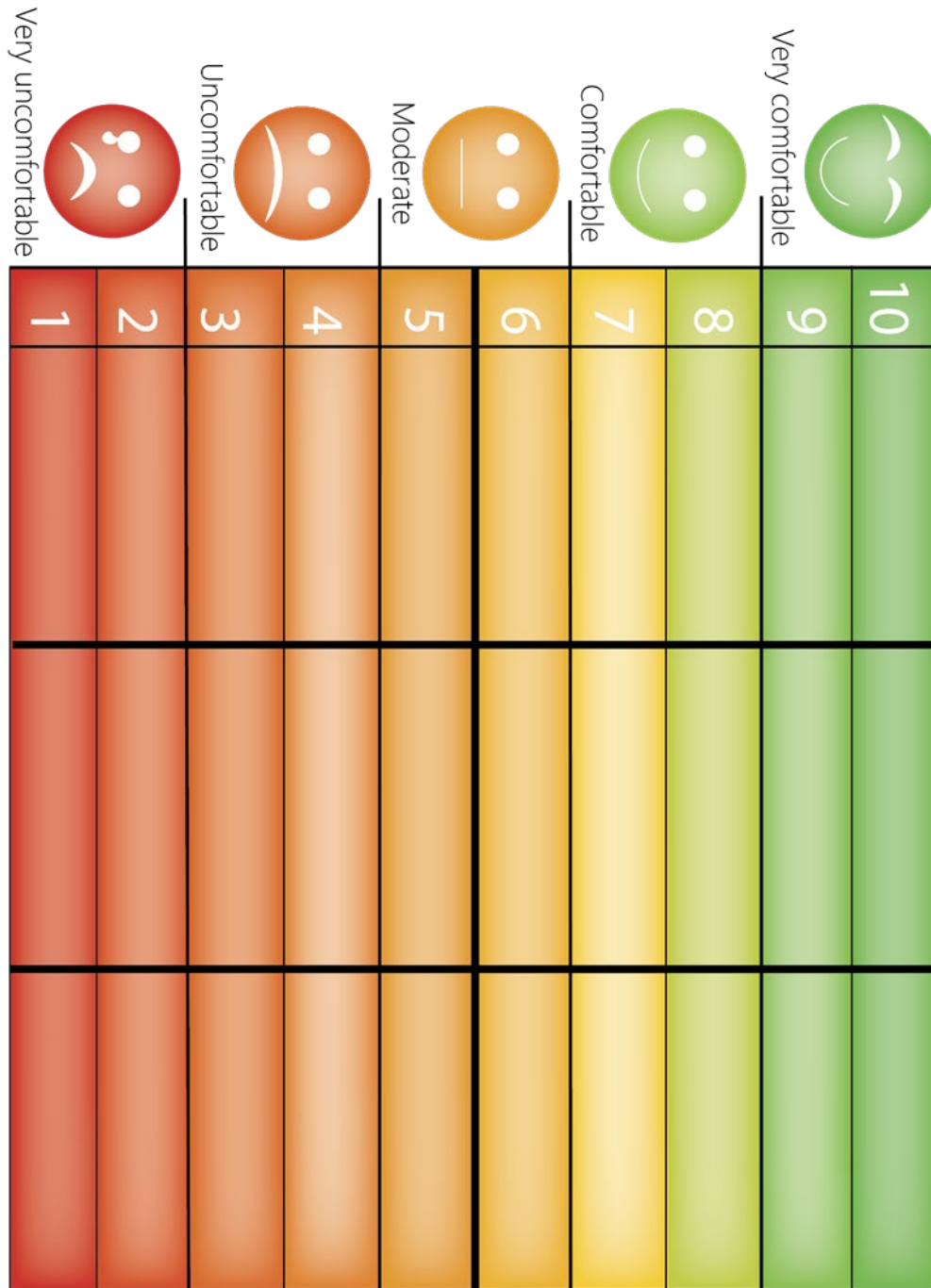
#	Participant number	Performance	Explanation
1	Which steps does the participant take to obtain the information?	Step 1 Step 2 Step 3 Step etc	
2	If they had difficulty figuring out the next step?	Yes/no	
3	If they managed to obtain the right information?	Yes/no/ partly	
4	If they can correctly interpret the information?	Yes/no/ partly	
5	If this has ever been a problem?	Yes/no/	
6	How comfortable they felt doing it and to give a score on the scale of the show card, level of comfort in attachment 7? After the score ask them to motivate their score and what could be improved to make it better.	Score 1-10	



The participant is not able to figure out the journey independently

#	Participant number	Performance	Explanation
1	Which steps does the participant normally take to obtain the information?	Step 1 Step 2 Step 3 Step etc	
2	If they find it a difficult task to perform? ask to give a score on the scale of the show card, level of comfort in attachment 7? After the score, ask them to motivate their answer and what could be improved to make it better.	Score 1-10	
3	If they always managed to obtain the right information?	Yes/no/ partly	
4	Ask them what they do if they are not able to find the right information?	Open question	
5	If they can always correctly interpret the information?	Yes/no/ partly	
6	If this has ever been a problem?	Yes/no/ partly	
In case they rely on their network, help desks or are not able to perform the task themselves ask the following questions:			
7	If they would like to be able to do this themselves?	Yes/no	
8	If so, what could help them to learn this?	Open question	

Attachment 7: Show card: level of comfort





Attachment 8: Example of COVID-19 version of interview about the journey (Tilburg)

Interview Phone version

Due to increasing local measure in relation to COVID-19 it has become impossible to conduct the Customer Journey Mapping interviews as initially hoped. In order to still continue the research project interviews will be conducted by phone. In order to keep the results as close as to what was originally intended a list of questions was made in which we attempt to acquire the responses to the touchpoints. As with the original method, the interview detailed here should be preceded by asking the questions detailed in attachment 5, and attachment 7 should be used as a visual aid if possible. It is also advisable to attach pictures to the interview, as there will be no physical trip made during the interview pictures might be able to stimulate a response.

The interview itself has been split into questions relating before embarking on the journey and during the journey.

List of questions

Pre-journey

1. When you realize you have to make a journey, does that cause an emotional reaction? Can you describe this reaction on a scale of 1 – 10?
 - a. Does the weather have an impact on how you feel?
 - b. Does the time of day have an impact on how you feel?
2. Do you usually travel together with someone in order to feel more comfortable?
3. Imagine you have to take a journey to a destination you have not travelled to before.
 - a. How would you plan your trip? Using digital/physical means or contacting others for assistance?
 - b. Do you use the public transport card? And how did you become familiar with information about obtaining and using a public transport card?
 - c. Does planning a journey bring up an emotional reaction and can you describe it on a scale of 1 - 10?
4. While planning this trip, how do you experience finding information about your trip?
 - a. Is the information easy to find?
 - b. Is the information accurate?
 - c. Do you also look at the cost of the trip as well?
 - d. And do you also look here at the effort intensity of the trip? (such as distance needed to walk)





- e. Does the searching for information bring up an emotional reaction and can you describe it on a scale of 1 - 10?

During-travel

- 5. Before you embark on your trip
 - a. How do you prepare for the trip?
 - i. Appropriate clothing e.g. umbrella, rain shoes, mouth cap, payment method
 - b. Do you experience you have too little time to properly prepare for your trip?
 - c. How do you plan to get from your point of departure to the bus stop or the station? (first mile)
 - d. Does preparing for your journey bring up an emotional reaction and can you describe it on a scale of 1 - 10?
- 6. With regard to the part of your journey between your point of departure and the bus stop or station (first mile)
 - a. Surroundings
 - i. Is there enough infrastructure available to travel safely and comfortably?
 - ii. Do you feel safe and comfortable in relation to the other traffic on the road?
 - iii. Do you experience any disruptions and unforeseen activities that prohibit you from continuing your journey (or make you late?)
 - b. Means of transport
 - i. You mentioned earlier that you used ...(transport mode, likely walking) to bridge this part of your journey, do you ever experience problems with this?
 - 1. Such as means of transport does not work
 - 2. Or journey takes longer than planned and bus is missed
 - c. Does the part of your journey between your point of departure and the bus bring up an emotional reaction and can you describe it on a scale of 1 - 10?
- 7. When you arrive at the bus stop or station
 - a. If you have used a means of transport such as a bike, scooter, or car to get from your point of departure to the stop or station, will you always be able to find a parking place for it?
 - b. With regard to the surroundings of the station or bus stop
 - i. Do you always manage to find where you need to be, especially when you arrive at a station or bus stop where you haven't been before?
 - c. Does the area around the station look or feel clean and safe?
 - d. Does arriving at your bus stop or station provoke an emotional reaction and can you describe it on a scale of 1 - 10?
- 8. With regard to payment, how do you pay for your trip?
 - a. Public transport card





- i. If you get on the bus and have to check in, do you ever have a problem with this?
 - ii. If you need to recharge it at the station, how do you experience the use of ticket machines?
 - iii. How do you check in at the station gates?
 - b. Cash / pin
 - i. If you get on the bus and buy a ticket, how do you experience that process?
 - ii. How do you deal with this during the current COVID situation?
 - iii. When you buy a ticket at the ticket machines at the station, do you ever experience problems with this?
 - c. General
 - i. How do you experience the technological aspect of check-in, gates, charging, etc.
 - ii. Is the provision of information about these services good?
 - iii. Does paying for your journey bring up an emotional reaction and can you describe it on a scale of 1 - 10?
9. When you are inside the station or at the bus stop
 - a. Bus stop
 - i. Can you easily find information about *where* and *when* your bus stops?
How/where?
 - b. Station
 - i. Can you easily find information about where your bus leaves from? How/where?
 - ii. Can you easily find information about what time your bus leaves? How/where?
 - c. Does searching for information at the station or bus stop bring up an emotional reaction and can you describe it on a scale of 1 - 10?
10. While waiting for the bus
 - a. What do you usually do while waiting?
 - b. Are there facilities you use? E.g. benches, toilets, kiosk
 - c. Do you ever miss facilities while waiting for the bus? E.g. benches, toilets, kiosk, shelter from the weather
 - d. How do you generally experience your comfort while waiting for the bus? E.g. comfortable, uncomfortable, cold, bored.
 - e. Is the bus always on time? Does it bother you if the bus is late? 5/10/15 mins
 - f. Does waiting for the bus at the station or bus stop bring up an emotional reaction and can you describe it on a scale of 1 - 10?
11. During your bus journey
 - a. Is the provision of information good, as in you know in time when you need to get out?
 - b. Does boarding bring up an emotional reaction and can you describe it on a scale of 1 - 10?





12. During your bus journey
 - a. Are there enough seats available?
 - i. How do you feel when you have to look for a seat in a crowded bus?
 - b. Is the interior of the bus clean or comfortable?
 - c. Is the bus driver pleasant or friendly?
 - d. How do you experience your fellow travelers during your journey?
 - e. Does travelling on the bus bring up an emotional reaction and can you describe this on a scale of 1 - 10?
13. With regard to transfers
 - a. When you need to switch, can you always find enough information on location about where to go?
 - b. Do you often have to wait a long time?
 - c. Does switching cause an emotional reaction and can you describe it on a scale of 1 - 10?
14. With regard to exiting the bus
 - a. Do you know where to go after you have disembarked?
 - b. Does switching bring up an emotional reaction and can you describe it on a scale of 1 - 10?
15. Regarding the arrival station or bus stop
 - a. Station
 - i. When you arrive at a station, do you know where to go to leave the station?
 - ii. How do you know how to travel from the station to your final destination?
 - b. Bus stop
 - i. Do you ever get off at the wrong stop? If so, what do you do?
 - ii. When you arrive at a bus stop, how do you know how to get to your final destination?
 - c. Does getting off the bus bring up an emotional reaction and can you describe this on a scale of 1 - 10?
16. With regard to the last part of your journey, between your arrival station or bus stop and your destination (last mile)
 - a. With what mode of transport do you make this part of your journey? (likely walking)
 - b. Does this part of your journey often take a long time?
 - c. Is the road busy and does it make you feel safe?
 - d. Does the last part of your journey bring up an emotional reaction and can you describe it on a scale of 1 - 10?
17. After arrival at destination





- a. Do you often have to do things related to your trip after your trip, such as contacting customer service, checking your balance, etc.?
 - b. Does arriving at your destination bring an emotional reaction to you and can you describe it on a scale of 1 - 10?
18. Is there a moment during your journey when you feel unsafe?



Attachment 9: After journey interview

We would like to ask you some questions about the total experience of a journey like this.

General questions:

- What feelings would best describe the overall experience you normally have during a journey like described? Can you motivate your answer?
- Do you often make trips like this? - if so, in which situations, how often, was this trip comparable? - if not, how do you normally travel to a destination like this one?
- Can you indicate which step in the journey made you feel most confident and why?
- Can you indicate which step in the journey made you feel most relaxed and why?
- Can you indicate which step in the journey made you feel most vulnerable and why?
- Can you indicate which step in the journey made you feel most excited and why?
- Can you indicate which step in the journey made you feel the most uncomfortable and why?
- Can you indicate which step of the journey made you feel the most frustrated and why?
- Can you indicate at which step in the journey you felt most alert and why?

Journey specific questions:

We are now going to ask some questions about a specific part of the journey. We have divided the trip into parts of activities. (submit images that support this, e.g. photos per step if available).

- During the journey you gave a score at the following activities (list all the activities). Do you recognize these activities when think of a journey you normally make?
- Would you like to add or omit another step or change something else about this sequence?
- Can you explain to me why you gave that score and what could make the score higher?

Activity	Touchpoint	Score	Motivation	Potential improvement
Activity 1	Touchpoint 1	6	Motivation 1	Recommendation 1
Activity 2	Touchpoint 2	8	Motivation 2	Recommendation 2
Extra activity 1	Touchpoint 3	7	Motivation 3	Recommendation 3
etc				

Average score

7

- On average, your score for this journey was a _____. Do you feel this score reflects your journey and motivate why?
- Do you have anything to add or would you like to comment on anything else regarding a journey like this that has not been discussed?

Thank you very much for your time and participation.



Attachment 10: Dataset CJM

https://edubuas-my.sharepoint.com/:x:/g/personal/apeldoorn_n_buas_nl/EY6IWKXXS31Ns2uU5qD9unEBOFP_oANwwSSG_xhrKg7ybg?e=91QgOK





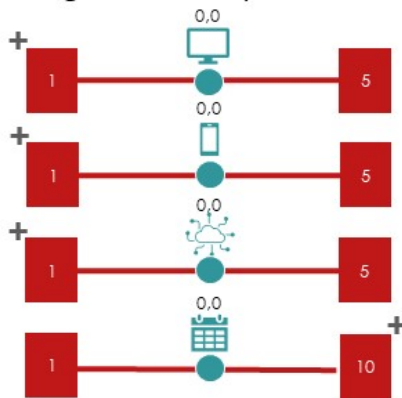
Attachment 11 CJM templates

City name				
	Activity	Touchpoint	Comfort level	Explanation
Find location				
Go to transport				
During transport				
To location				



City name

Digital literacy



Textual interpretation

Can plan their trip without help

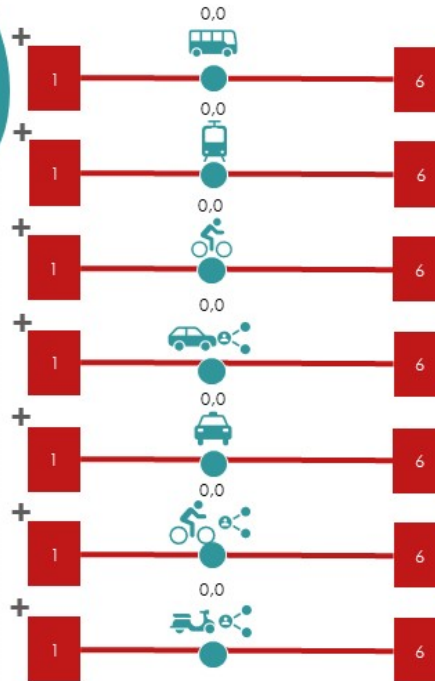
Topic	%
Average age	
% Male	
Able to plan a journey individually?	
Challenge when planning	
Able to obtain information	
Correctly interpret	
Confidence level	

Textual interpretation

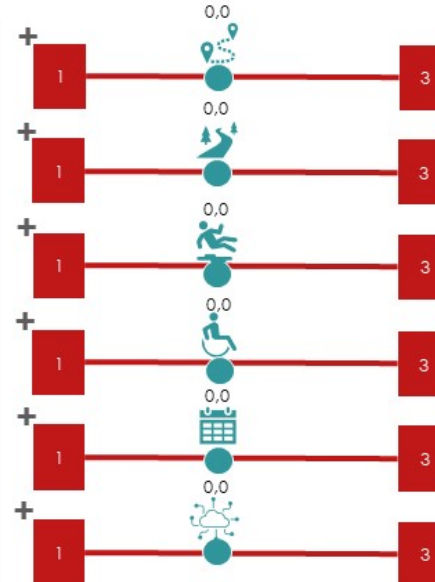
City name

Textual interpretation

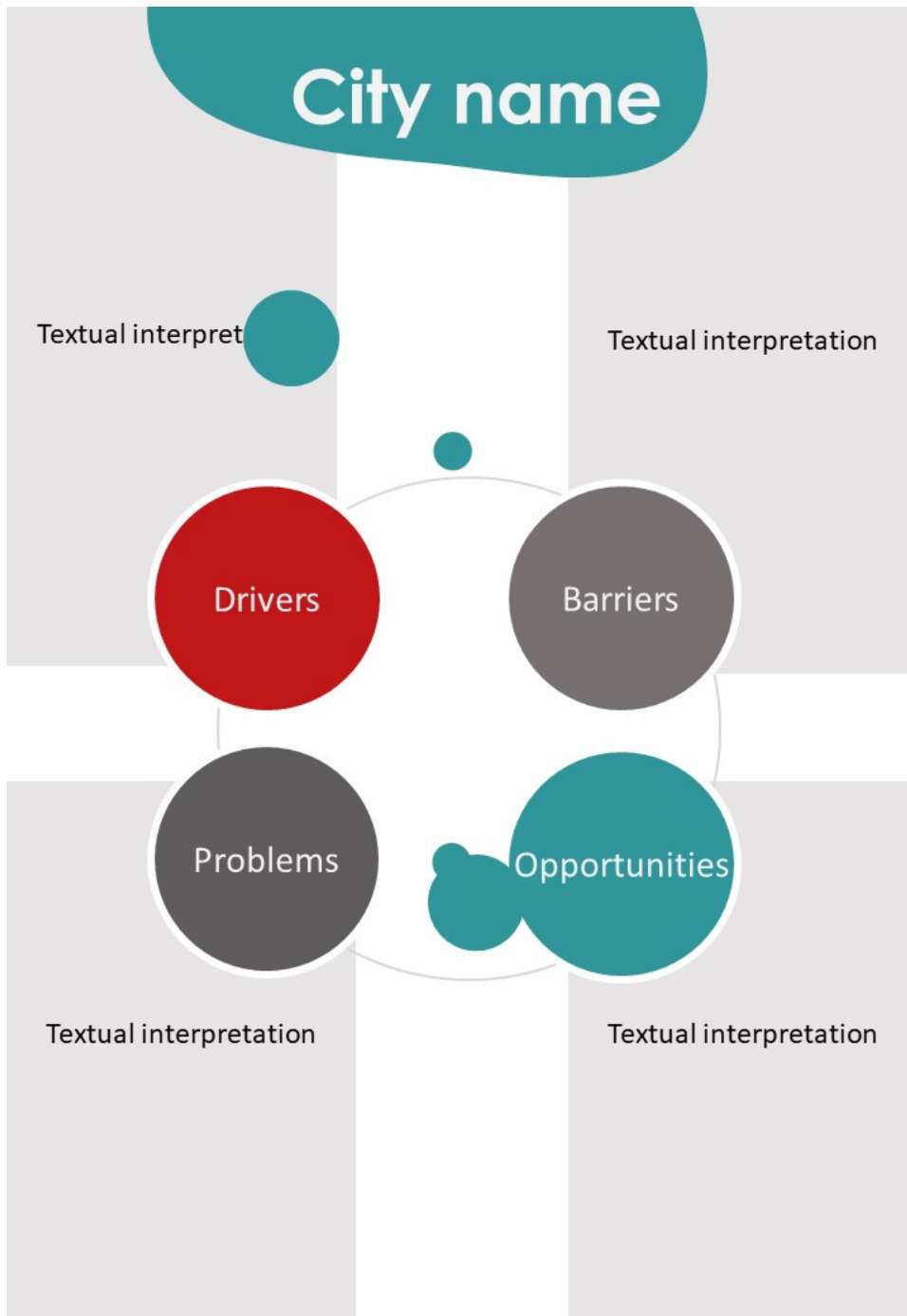
Mobility use



Limitations



Textual interpretation





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