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Appendix A: visual tools

The interview design

The interview was designed with open-ended interview questions to allow individual assessments and objective responses. The interviews started with broad questions about why people travel in Norway and what factors they consider in choosing a modality. Based on research, the factors, time, flexibility, convenience, costs and environment were rated. After, the questions dived into the modes of transport they used and shared their experiences to gather pains and gains about different modes of transport in Norway. Especially, the travel experiences and feelings about flying, cars, passenger boat and bus were asked. At the end, a visual storyboard was shared that showed the future 9-seater customer journey in comparison to the current way of traveling by air. The questions at the end of the interview were more specific about the 9-seater concept, services and when people would consider to choose this modes of transport. The next pages show the in-depth interview guide in Norway.

All the interviews, in-depth and on-street, were conducted in person in January in Norway. Only 2 in-depth interviews were conducted via Microsoft Teams. The interviews were recorded after giving consent and lasted about 1-1,5h for the in-depth and 10-20 minutes for the on-street interviews. The in-depth interviews included a introduction (15 minutes) about the interviewee, participant, and research topic, the interview focussed questions (50 minutes) and a 5 minute reflection about the interview. The responses were adapted based on the answers given by the participant.

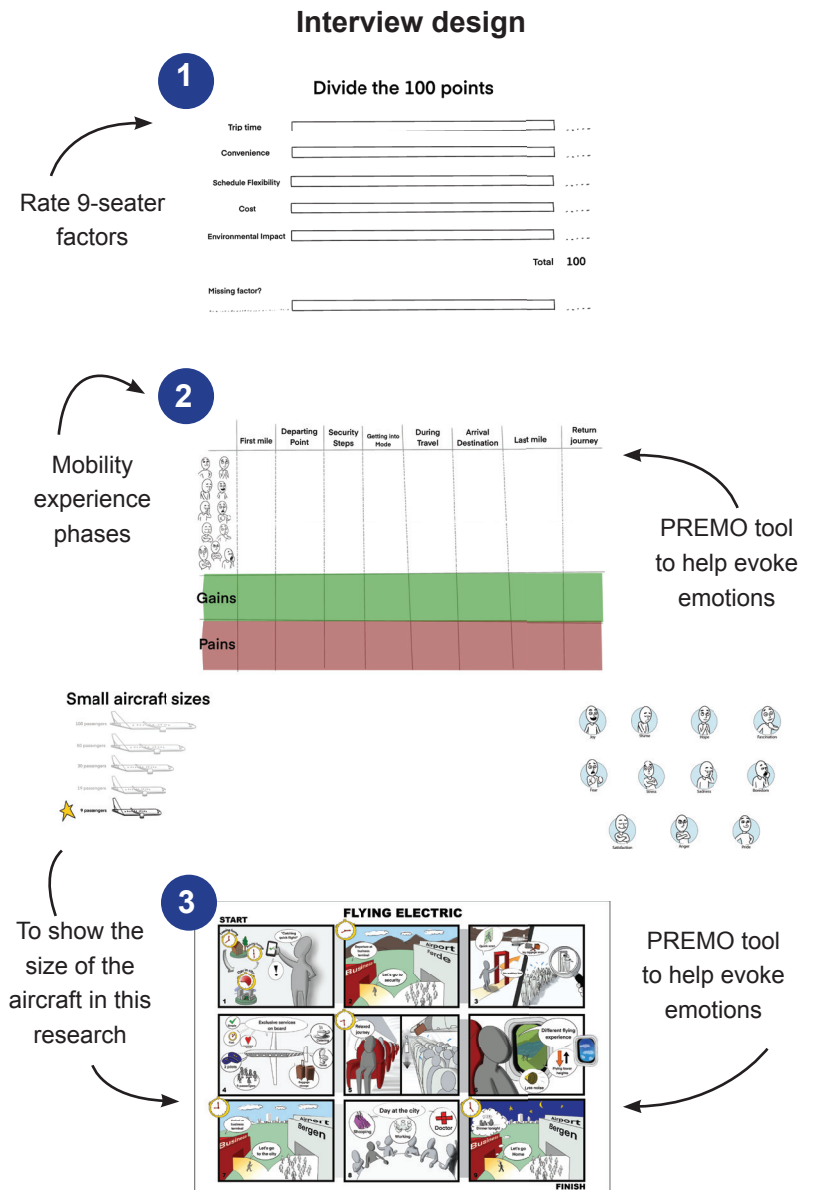


Figure 59: Interview tools used for the in-depth and on-street interviews in Norway.

Appendix B: pilot test

Pilot of the in-depth interviews

Two interview pilots were conducted with travelers in the Netherlands to test the questions and the visual tools. The pilot validated the questions asked and how the visual tools were interpreted. Feedback on the interviews was used to improve the interview set-up.

Results of the in-depth pilot

Learnings from the pilot test showed that the interview questions should follow a natural conversational way, non-repeating questions, the most important questions at the start of the interview set and the interview should not be too long to keep the participant enthusiastic. The visual tools should be big enough to see read, clear colour usage and one scenario should be designed with one persona to avoid confusion.

Pilot of the on-street interviews

The on-street method was pilot tested at Rotterdam-The Hague airport before conducting the interviews in Norway.

Results of the on-street interviews

The learnings from the on-street pilot showed that the objective of the questions in combination with the visual tools should be clear and only in one way interpretable. Structure the interviews in asking questions about the current travel experiences of the mode they are using, or about testing the 9-seater concept. 2 different approaches are advised due to time constraints of the participant. Also, passengers who are waiting and do have some time to spare are the best passengers to ask questions, since they like to overcome their waiting time. Otherwise people feel rushed and not willing to participate.

Pilot day learnings



Auto device, visual tools and cookies for participants

visual tools without text, people do not read texts. Only small text balloons.



Rotterdam
The Hague airport



Departures: people were busy and not very talkative, since they are on a time schedule



Arrival: people waiting have the time to talk and were helpful

Figure 60: Pilot set-up at Rotterdam-The Hague Airport to test the first version of the interview design tools.

Appendix C: interview guide

Research Questions	Method 1	Method 2	Method 3
1. What factors determine a passenger's choice of transport mode?	X	X	-
1.1 Which transport modes do people use in Norway? Why?	X	X	-
1.2 Why do they choose these modes?	X	X	-
1.3 How do they evaluate trip time, costs, flexibility, convenience, and environmental impact?	X	-	-
2. How do passengers experience existing travel modes on the Førde–Bergen route?	X	X	X
2.1 How do they experience the car, bus, ferry, passenger boat and domestic flight? Why?	X	X	X
2.2 What emotions do they have when using a specific mode? Why?	X	X	X
2.3 What pains or gains do passengers have when using this mode?	X	X	X
3. How do passengers evaluate the 9-seater concept?	X	X	-
3.1 When would they consider using the 9-seater concept?	X	X	-
3.2 What motivates them to use the 9-seater concept?	X	X	-
3.3 What barriers hold them back to use the 9-seater concept?	X	X	-

In-depth interview guide in Norway (60 minutes)

The goal of the interview is to understand travel experiences in Norway. This interview is part of the graduation thesis to understand people's travel behavior to design new ways of transport. The data will be used for the graduation project of the SPD Master and is published publicly after graduation. This interview is confidential. The data cannot be traced back to you and the data are anonymized by using participant numbers instead of personal data. Your participation in this study is entirely voluntary and you can withdraw at any time. You are free to skip any questions. There are no wrong answers to the questions asked, since the questions are about your opinion.

The interview guide is built up in such a way that we start with broad questions and during the interview the questions

become more specific.

General question about travel habits

These questions are general questions about travel habits.

- What modes of transportation do you choose when you want to travel?
- Why do you choose a certain mode of transport?
- When do you choose a certain mode of transport?
- What aspects do you pay attention to when you travel with a mode of transport?
- How far in advance do you plan or book your travels?

Questions about travel patterns of different modes

- How would you describe your travel experience using a car in Norway?
- How would you describe your travel experience of a bus?
- How would you describe your travel experience of a ferry?

- How would you describe your travel experience using a plane in Norway?

Probes for all modes:

- o Probe: what emotions, feelings, words, come to mind?
- o Probe: what was your most stressed moment?
- o Probe: what was your most convenient moment?

Understand the needs of passengers who travel by plane

- What emotions, words, feelings come to mind when you travel by plane? Why?
- What positive emotions, words, feelings come to mind when you travel by plane? Why?
- What negative emotions, words, feelings come to mind when you travel by plane? Why?

Questions about 9-seater adoption factors

For the following aspects—trip time, convenience, schedule flexibility, environmental impact, and costs—I will provide you with a tool to rate how important each factor is in your travel by plane. Please explain your ratings for each factor.

- What does trip time mean to you when you travel by plane?
- What does convenience mean to you when you travel by plane?
- What does schedule flexibility mean to you when you travel by plane?
- What does environmental impact mean to you when you travel plane?
- What does cost mean to you when you travel by plane?
- o Probe: which factor is most/least scored? Why?
- o Probe: do you miss a factor? Why?

Part 2: the storyboard small electric aircraft proposition

- When would you consider travelling by a small electric aircraft?
- o What barriers are keeping you from traveling by this small electric aircraft?
- o What would increase your likelihood to adopt this aircraft

proposition?

Now I will ask you specific questions about the services in the door-to-door journey. First, I start with a more general question, after that more detailed questions follow according to the different phases of traveling (before, during and after travel). (15 minutes)

- What services do you expect when flying with this small electric aircraft in your total door-to-door journey?
- What services do you expect when you arrive the departing business terminal?
- o Probe: how do you expect the booking system to work? E.g. phone, laptop, at the airport.
- o Probe: how would you expect to receive transparent upfront information? (Mckinsey, 2023)
- o Probe: what do you expect about the first-mile access to the departing airport? (McKinsey, 2023)
- o Probe: how would the departure schedule influence your decision to use the small electric aircraft? (Inga TØI, 2023)
- o Probe: what are your expectations for check-in services?
- What services do you expect at security?
- o Probe: what is your expectation for passport control at the airport?
- o Probe: what do you expect in terms of waiting times at the airport? (LYGG, 2024), (Skypal, 2024)
- What services do you expect before boarding the aircraft?
- o Probe: how do you expect luggage services to be handled when using this aircraft? (Skypal, 2024)
- What services do you expect on board?
- o Probe: how important are toilet services on board?
- o Probe: how do you value catering services during the flight?
- o Probe: how would you feel about having flight attendants on board?
- o Probe: how would you value to be seated together with your travel companions? (LYGG, 2024)
- What services do you expect at the arrival business termi-

nal?

o Probe: how would you like to receive services after you have landed?

• What services do you expect for your last-mile journey to your destination?

o Probe: how do you expect to transfer between other modes of transport and this aircraft at the airport? (McKinsey, 2024)

• What does cost mean when traveling with this small electric aircraft?

o Probe: How much more would you be willing to pay for a small electric aircraft compared to the current way of flying?

o Probe: how do you feel about paying more for this aircraft service if it offers simpler processes? E.g. such as reduced security checks.

o Probe: What are your thoughts on a subscription model for regular use of this service?

o Probe: how would group deals influence your decision to use this service?

Demographic characteristics (3 minutes)

- Your name
- Age
- Family status
- Hobbies
- Work/study

On-the-street interview guide travel experiences

Part 1: explorative questions about travel behavior (6 minutes)

General question about travel habits (2 min)

- Why do you choose [mode]?
- When do you choose [mode]?

o Probe: why do you choose to travel by [mode] over other types of transport?

• What aspects do you pay attention to when you travel with [mode]?

• How far in advance do you plan to travel by [mode]?

• How would you describe your travel experience using a [mode]?

Understanding the needs of passengers who travel by plane

• What emotions, words, feelings come to mind when you travel by [mode]?

• What positive emotions do you have when you travel by [mode]? Why?

• What negative emotions do you have before you travel by [mode]? Why?

Part 2: the storyboard small electric aircraft proposition

• When would you consider travelling with this type of aircraft? Why?

o Probe: what barriers are keeping you from choosing this small electric aircraft?

o Probe: what would increase your likelihood to adopt this aircraft proposition?

• What services do you expect when flying with this small electric aircraft in your total door-to-door journey?

o What services do you expect at the departing business terminal?

o What services do you expect at security?

o What services do you expect at boarding?

o What services do you expect on board?

o What services do you expect at the arriving terminal?

o What services do you expect for your last-mile journey to your destination?

Willingness to pay in relation to the small electric aircraft proposition (2 minutes)

• What would be your willingness to pay, when traveling with this small electric aircraft?

o Probe: how do you feel about paying more for this aircraft service if it offers time-efficient travel?

o Probe: how much more would you be willing to pay for a small electric aircraft compared to the current way of flying?

The on-street interviews were used to see how passenger experienced their mode while they were traveling. Those interviews were clustered quick-and-dirty in Miro to see if there were **new themes or clusters** that popped up compared to the in-depth interviews.

Health-related air travel

Some passengers rely on flights for specialized medical treatment unavailable in their residency.

"I am a heart patient, and I take the plane to Bergen for treatment."

If people have the time, they act in a sustainable way

Some travelers accept longer travel times to reduce their carbon footprint. They use the bus over flying, since they have time to spend more time on traveling.

"I travel 9 hours by bus instead of flying 1 hour, because it is better for the environment and I have the time to travel."

Willingness to switch to 9-seater for sustainability

Environmental conscious bus traveler was open to switch to 9-seater flights, since it is a less polluting mode.

"I'd choose this mode tomorrow if available, it's more sustainable."

Paying for 9-seater because of sustainability

Travelers with financial flexibility are willing to pay more for eco-friendly options like the 9-seater.

"I have the money, and the environment matters to me."

Passing the world onto the next generation

Passengers who are older want to change their travel behavior, since they have traveled all their lives and now feel responsible to do something back.

"I see the snow disappear, I want to do something, since I know how beautiful the world could be."

Seamless pre-arranged last-mile integration

Rental car processes should be integrated in the total journey.

"I'd prefer to book a car I can get into immediately to drive to my destination."

Dependent on passenger boats if you live on fjord-island

Passenger boats are a time efficient mode that connects islands to the other places. The boats do not have congestions like busses and arrive directly in the city centre.

"For me the bus takes 2x long than the passenger boat. Or by car, I never have a parking place in the centre, so this is the most suitable for me."

Passenger boats adapt frequencies to rush hours

More boats depart at rush hour moments to accommodate the high passenger streams. Especially in the mornings and evenings starting from 6-9 and 4-7.

"I always have a seat and it is the fastest travel mode for me to get to my work."

Appendix E: Auto-ethnographic research

This paragraph explores my own travel experiences in Norway to better understand how people experience different transport modes. By using these systems myself, I gained insight into how booking, timing, and travel services worked in practice. I also traveled with my parents and reflected with them about the journey, adding personal perspectives to the data.

I documented key moments through photos and notes, capturing both the emotional and practical sides of the journey. These observations were later used to enrich the customer journeys in the final phase.

The auto-ethnographic research helped me interpret interview data in the travel context. **The new insights are presented in pains and gains per travel mode.**

Bus travel Bergen to Førde (figure 61)

The bus journey from Bergen to Førde was easy to start with—the bus station was central and well-connected to other modes. Boarding was simple: the driver scanned our ticket and helped with luggage, with no need for security checks. Inside the bus, you could pick your own seat, and the ride itself felt relaxed and comfortable. The ferry stop halfway offered a nice break to stretch, use the toilet, or enjoy the view. Arrival in Førde was also in the city center, and the driver gave a heads-up five minutes before we arrived.

Still, there were some frictions. Getting to the bus on time was stressful, as buses sometimes arrived earlier than shown in the app. At the platform, there was little information, so I followed others to make sure I was in the right place. Boarding took time due to long queues, and once inside, storage space for big bags was limited. Finding seats together was tricky, especially when people were already scattered throughout the bus. The space was tight, making it hard to move around. After the ferry, it was unclear how much travel time was left, and the total 3.5-hour ride left me feeling tired.

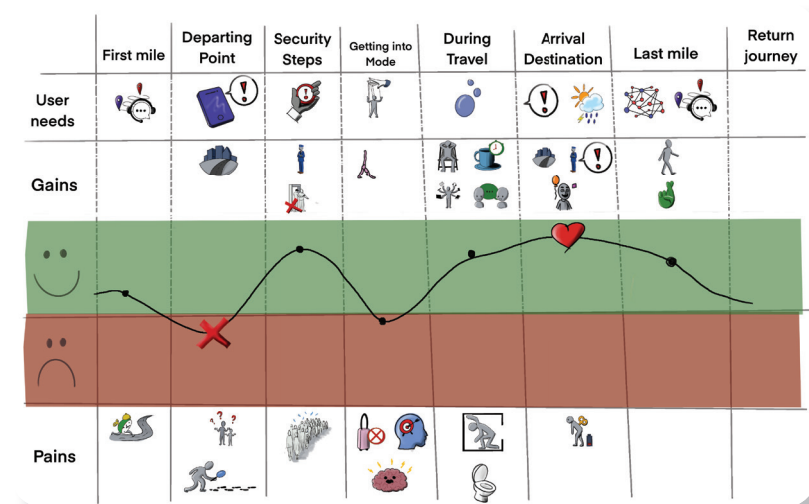


Figure 61: auto-ethnographic journey of the bus travel

Passenger boat Floro - Bergen (figure 62)

Taking the passenger boat was convenient in terms of location, the departure and arrival points were both right in the city center, making access easy. The waiting area at the terminal was warm and had toilets, and boarding was fast with no security checks. Once on board, there were plenty of seats, and the ride allowed time to relax or do something else. Upon arrival in Bergen, I could simply walk to my final destination.

Still, the experience had its downsides. With only two departures per day, timing was crucial, I couldn't afford to miss it. At the harbor, it was unclear where exactly the boat would dock, which made me unsure if I was in the right place. The ride itself was long and made me feel tired, especially because the waves caused some mild seasickness. The boat arrived quite suddenly without any announcement, and the short deboarding time made it stressful to get off in time. By the end, I felt worn out from the journey.

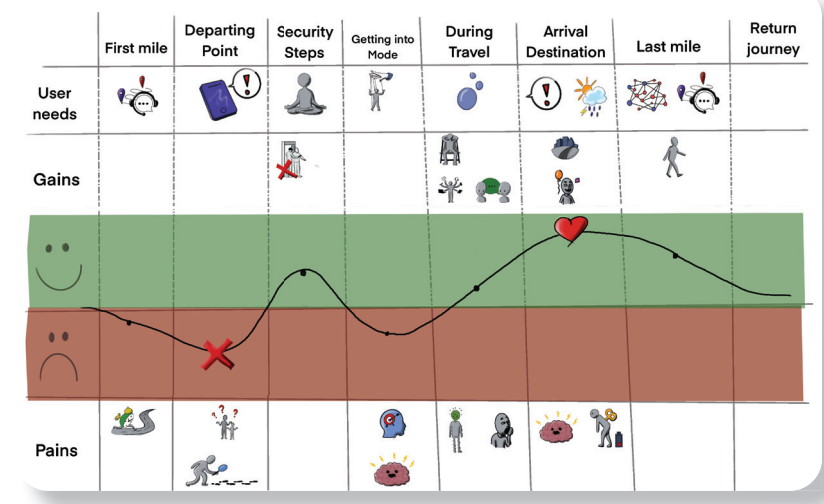


Figure 62: auto-ethnographic journey of passenger boat travel.

Flight Bergen - Floro (Figure 63)

Flying from Bergen to Florø gave me a clear view of how a journey transitions from a major airport to a small rural one. Getting to the airport was easy with a direct light-rail from the city center, though the ride itself took around 45 minutes. Bergen Airport felt familiar and well-organized, with spacious halls and clear signage leading to security. When there were no queues, the process was quick and straightforward. Boarding was smooth, with few passengers, and the stewardess clearly explained the safety instructions. The short flight was efficient, and upon arrival, Florø Airport was compact, within seconds I was outside, just a short walk to the city center.

Although the light-rail was reliable, it was time-consuming, and the airport had long walking distances to reach the gate. Onboard, the small aircraft had limited luggage space and felt cramped, with turbulence and engine noise that made conversation difficult. The noise was tiring, and after landing, there was little public transport available. I had to walk 30 minutes to reach my destination, as taxis were the only alternative.

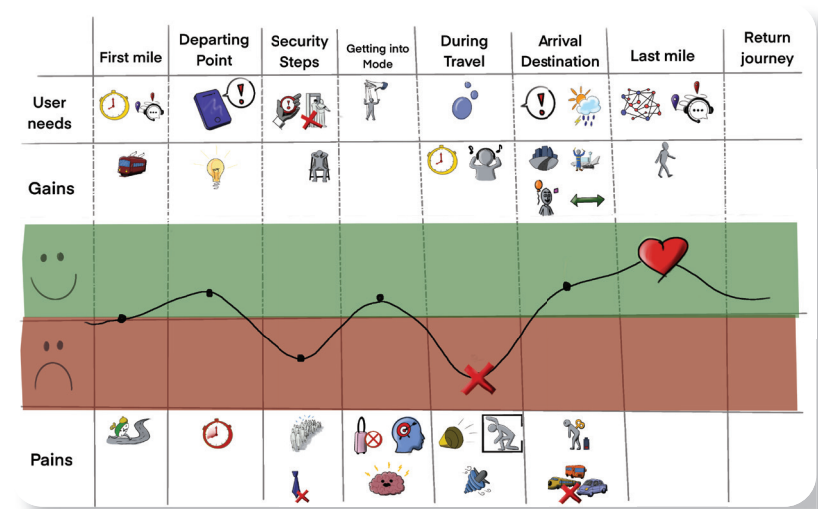


Figure 63: auto-ethnographic journey of Bergen-Floro flight.

Flight Forde - Oslo (Figure 64)

Flying from Førde to Oslo showed how small airports can offer a smooth and time-efficient experience. The shuttle bus picked me up exactly one hour before departure. At Bringe-land Airport, everything was in one open space, check-in, security, boarding gate. The personal security check felt calm and efficient, taking no more than 10 minutes. Passengers walked straight onto the aircraft without waiting. The overall process was quick and clear, making the journey feel effortless.

However, the trip also had some downsides. The stress of catching the shuttle was real, especially since there were no public transport alternatives. The airport's elevated location made changing weather visible, creating some nervousness about flying. Onboard, the plane was noisy and compact, with frequent turbulence. Arriving at Oslo Airport involved large crowds, long walking distances, and less personal guidance. Baggage pick-up took time, and getting to the city required long-train travel. Buying a train ticket was slow and confusing.

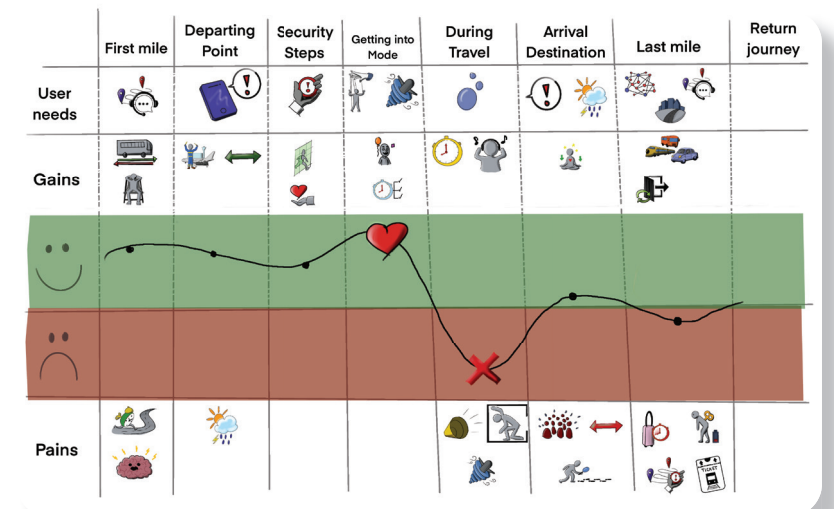


Figure 64: auto-ethnographic journey of Forde-Oslo flight.

Appendix F: Bus, passenger boat and domestic flight

8.3. Overview of travel phases per mode

This paragraph shows the different phases when traveling by car, bus or passenger boat on the Forde-Bergen route.

Bus

Bus travel consists of seven steps.

1. Bus station: passengers wait for the bus to arrive and prepare to board.
2. Boarding: scanning the ticket, storing luggage, and finding a seat.
3. On the bus: bus drives.
4. Ferry: boarding the ferry, use facilities on the ferry and return to the bus when the ferry crossing is complete.
5. Driving: driving from the ferry to the destination.
6. Arrival: reaching the bus station and leaving the bus
7. Last-mile: going to your final destination.

Passenger boat

Passenger boat travel consists of six steps.

1. Step up point: waiting on the passenger boat to reach the harbour.
2. Boarding: entering the passenger boat, storing luggage and finding a seat.
3. On the boat: being transported.
4. Arrival: reaching the destination and leaving the passenger boat
5. Last-mile: going to the final destination.

Domestic flight:

1. Orienting on the journey
2. Booking the trip
3. Departure from home
4. First mile to airport
5. Arrive at airport
6. Security process
7. Boarding the plane
8. Flying
9. Arrive at airport
10. Last mile to destination

Bus passenger journey

The bus is a familiar and widely used transport mode in Norway, especially for cost-conscious travelers and those with environmental awareness. Based on the journey mapping from Førde to Bergen, passengers value the affordability, safety, and simplicity of bus travel, while reporting clear pains around flexibility, reliability, and comfort.

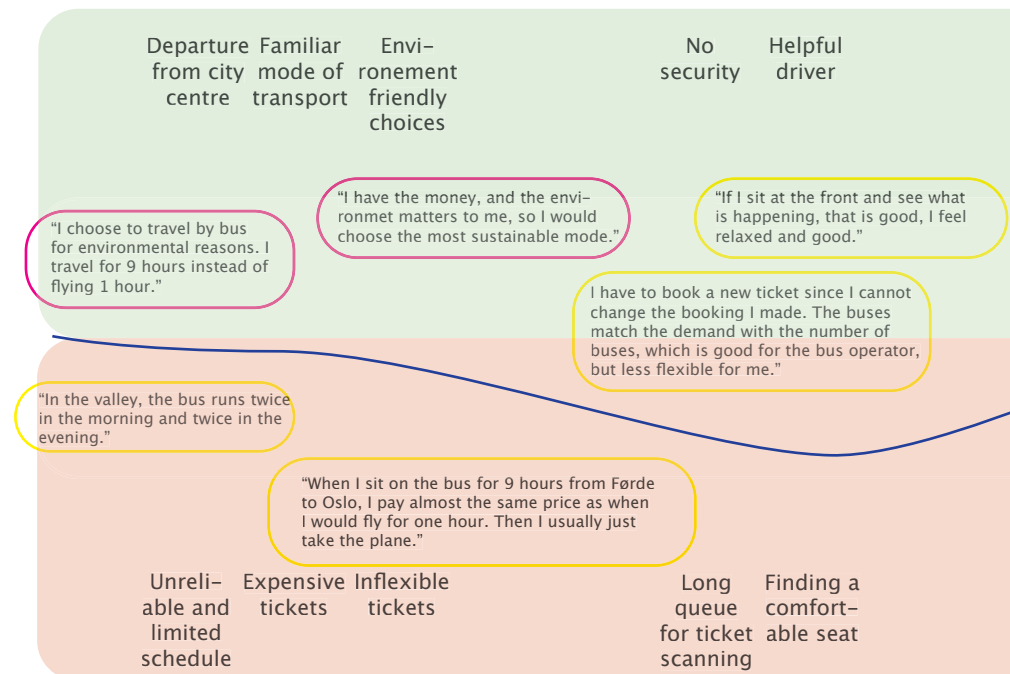
Bus station

- Arrive at bus station in city centre
- Wait for the bus to arrive
- Looking at arrival schedule

Boarding

- Give luggage to driver to store in the bus
- Scan bus ticket
- Look for a seat to sit down and store personal bags

Responsibility Control Reliability cost conscious Efficiency Safety Simplicity Structure



On bus

Ferry

On bus

Arrival

Last-mile

- Bus ride

- Having a break moment
- Going to the toilet, buying a coffee, walking around
- Being transported while doing something else

- Bus ride

- Announcement next stop
- Packing personal belongings
- Debarking the bus

- Leaving bus station
- Walking or transporting to final destination

Safety

Under-
standing

Journey

Serenity

Relaxation

Freedom

Safety

Under-
standing

Journey

Serenity

Engage-
ment

Reliability

Simplicity Time effi-
ciency

Productive Trust in Tracking Relaxing,
driver travel since not
progress having to
drive

Natural Bus
break transport
prioritized

Produc- Relaxing,
tive since not
having to
drive

An- Helpful Arrive
nounce- driver in city
ment bus to get centre
driver luggage

Walking
to desti-
nation

"The benefit of the bus is that you can work, send some emails, relax, and sleep."

"It is quite secure. The bus drivers here in Norway are good. The accident rate is very low."

"The bus is on a schedule so it is prioritized to enter the ferry on time."

"After the ferry, it was quite unclear how late I would arrive. I had to look it up on google maps to have an idea"

"It is difficult for me to take the bus since there is always an unreliability factor in there. How late do we arrive?"

"Luckily, we only had to walk for a bit to our destination, but there was not any bus going on the Sunday in town"

"The bus stops at different places. The bus takes time to travel, so when you have the time, it is nice, but it takes time and can be boring."

Slow Boring Less Narrow
mode due many space to road with
stops stops move many
curves

Tired Unclear
arrival
time

Unreliable Unclear how trans-
arrival port easy it is to
transfer to other
modes before arrival

In rural area
no available
public trans-
port

Passenger boat passenger journey

This paragraph shows the travel experiences when traveling by passenger boat on the Forde-Bergen route. The route between Floro and Bergen is taken as an example, since this is one of the transport options between Forde-Bergen.

Step up point

Boarding

- Arrive at pick up point in city centre
- Look at arrival schedule
- Wait in waiting lounge
- Use toilet if needed

- Waiting in line to enter the boat
- Walking into the passenger boat

Responsibility Reliability Control Cost-conscious

Structure Safety Simplicity

Not expensive No congestions More departures during rush hour No security Easy ticket scanning Enough seats

"Quite cheap to travel by passenger boat."

"I use the passenger boat, since I could not park at my destination."

"No traffic jam on the waters."

"The passenger boat is a very energy-inefficient mode of transport. They are the most polluting, but it does not influence my choice to travel with this mode or not."

"I live on an island near Bergen, so for me this is faster then taking the bus."

"I always have a seat on the boat, even during rush our to my work."

"If I need to do something while I am traveling, I like to choose for example the passenger boat, since it is comfortable to travel with. I can work and do something."

"The boat has more departures during rush hours. So than it is like every 30 minutes I could take one to my home."

"The passenger boat is a good mode of transport, but there is a bit of stress for me to make it on time. Some routes they only go 2x per day."

Only available option in the area Limited departure schedules

Stress to board on time

On boat

Before arrival

Debarking

Last-mile

- Looking for a seat
- Storing baggage
- Grabbing a coffee, walking around, talking to people
- Being productive

- Announcement of next stop
- Packing belongings
- Waiting in line to debark

- Arriving at city centre

- Going to final destination

Stability Time efficiency Comfort Productivity or enjoyment Engagement Support Structure Determined Safety Control Freedom Reliability Journey Time efficiency

Wifi to work Enjoying the view Catering Walking around Relief Arrival announced Quickly grabbing luggage City centre arrival Arrival in city centre Walking distances for last mile

"After work, I like to grab a beer and wind off the day."

"During summer it is a beautiful view with the fjords."

"Arrival point is a relief to me. I can get seasick, so I like to get off the boat as soon as possible."

"Happy to arrive after quite a long journey on the boat. Like to arrive near my house."

"When I am bored I can walk around a bit and move my legs."

"I get easily seasick; I want to get off as soon as possible".

"Arrival came quite abrupt. Having to pack my stuff in quite a stress. Afraid that I would forget something. Debarking was quite fast so had to hurry."

"Short debarking time."

"Boat moves a lot when debarking in rainy weather gives an uncomfortable feeling."

"I arrive on 5 minute walking distance to my work, no other transport can beat that."

"This is the perfect way to start my work day, I like it every day".

Seasickness Tiring Slow Frequent stops Stressful to pack stuff in a hurry Did not see arrival coming Short debarking time increases stress Boat moves a lot when debarking

8.7. Domestic flying experiences in Norway

This section explores how passengers experience domestic flying in Norway and under what conditions they might shift from conventional fossil-fuel aviation to electric 9-seater services. Two customer journeys are mapped: one from a hub airport to a rural airport and one in the opposite direction.

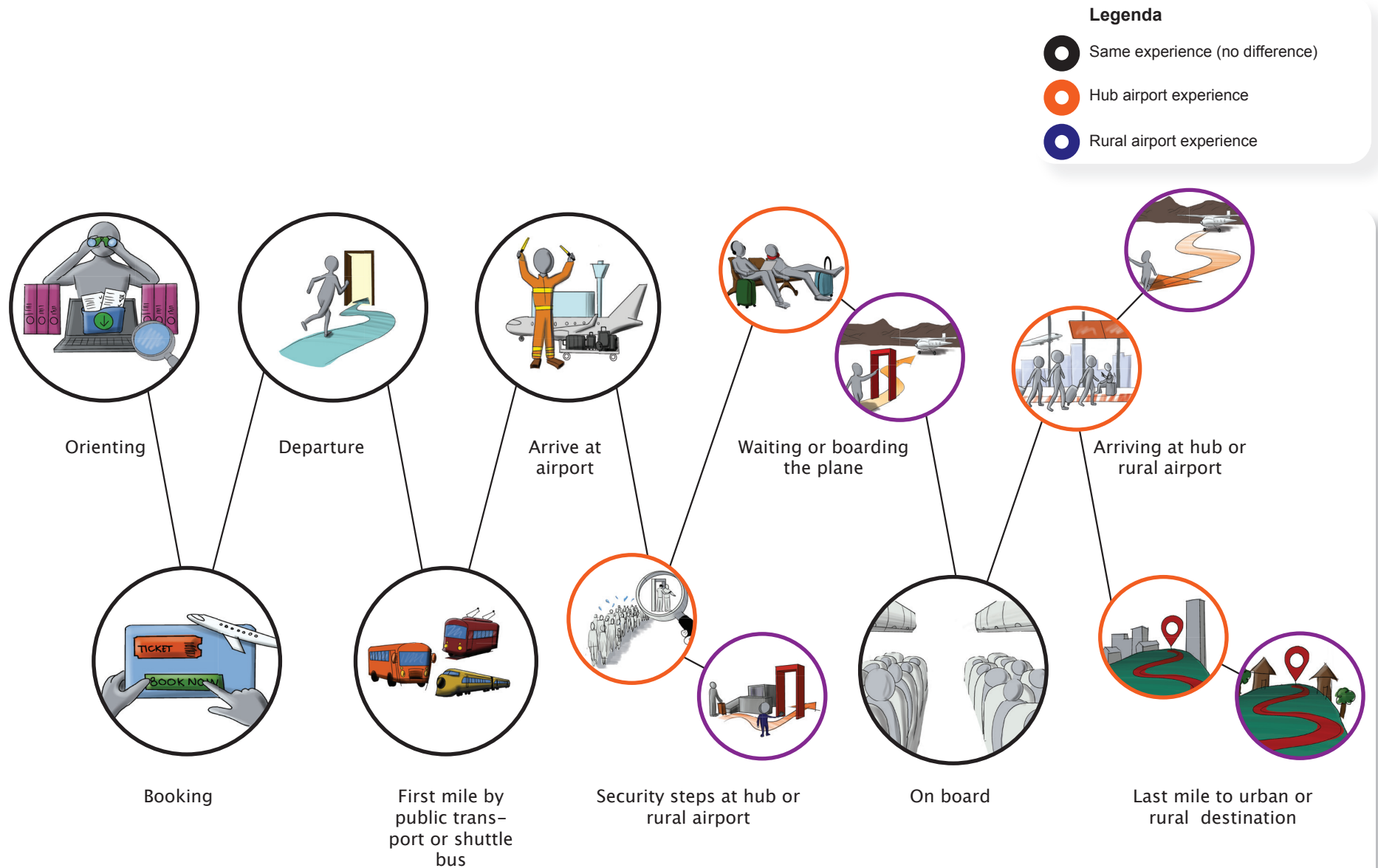
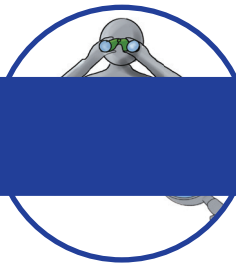


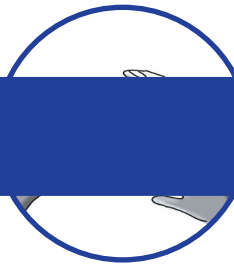
Figure 65: different steps of the domestic flight customer journey. At some phases there are two steps possible due to the difference in rural or hub (airport) experiences.

Orienting



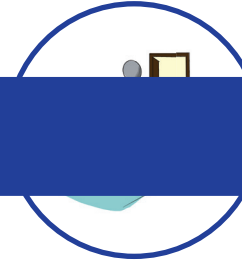
- Looking for information
- Benchmark travel options
- Considering what is most valued for the trip purpose
- Using different websites

Booking



- Search for options
- Booking the most valued option that fits the travelers schedule and goal

Departure



- Prepared luggage and personal travel documents
- Checking travel schedule
- On the way to first mode

Understanding Planning Cost-conscious Accountability Control Guidance Simplicity Reliability Time efficiency Determined Flexibility

Benchmark platforms Flight time presented Booking flexible tickets Online booking Balancing cost-time tickets Being prepared Punctual departure Switching flights to schedule

"I ask myself Is it worth it to travel with this mode?"

"Trade of between distance and the travel goal, since it is about the trade-off between time-efficiency for that goal."

"Not one booking system, so I have to look at multiple transport platforms to see my total travel time".

"I fly less, since the time schedules do not match my work schedule anymore."

"When I booked I had to use 3 platforms to calculate my door-to-door time."

"I take the most time-efficient journey."

"I do not get rewarded for making environmentally friendly choices."

"High demand routes are most of the times full and expensive."

"The company pays, so if it is within budget, I do not care about the costs."

"We are a small company with limited budget, so costs matter to us."

"Booking flexible tickets help me to reduce the stress in my travel schedule"

"Paying for a comfortable journey so I arrive not tired at my destination."

"Many platforms to book gives me an uncertain feeling".

"I feel joy I am looking forward to the travel."

"I highly value punctuality, delays disrupt my schedule."

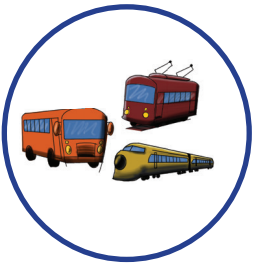
"I check if the plane departs on time. I do that before I travel. I like to decide myself what risk I take."

"When it is fully booked, I book an earlier plane and change it. It is less stressful."

"I have to check the weather if it is good or not."

Not one booking system No door-to-door travel times Expensive mode Full flights No reward environment friendly choice Limited budget Many booking platforms Uncertainty about weather Time pressure Having full flights

First mile



- Traveling with mode of transport
- Checking departure schedule flight

Reliability Time efficiency Control Simplicity

Arriving



- Arrive at airport
- Walking from transport mode to check-in or directly to security
- Checking travel schedule

Simplicity serenity

Direct public transport Airport shuttle transport Walking to airport Having control over time

Small airports have direct arrival Walking into the gate Arriving 30 minutes before Less people

"How I get to the airport could be stressful, it could also be OK. I am not hopeful, not sad, just traveling."

"For the first mile I am in the moment of joy. I like to be getting into working mode."

"I know the people who work at the airport. I could call them if needed. The short distances and very easy logistics to the airport."

"It is very easy to get an overview, there are so few people checking in, it takes no time."

"The reality with Førde airport is that it is already like a business terminal. It is a very efficient airport."

"The airport is located very far outside the city. I do not even want to be there, but it is the only option to take the plane."

"When I travel to the airport, I could be stressed, because I have to be somewhere."

"I walk in 5 minutes to the airport. Best thing to do."

"Taking the airport shuttle is very convenient, direct and stress reducing. The public transport is more stressful, since you feel more responsible to fix it by yourself how you reach the airport on time. In the shuttle bus, you are already 'at the airport' and feel more secure."

"I get stressed from big airports, since there is more noise and people."

"When I travel through big airports, there is more stress, since there are long queues."

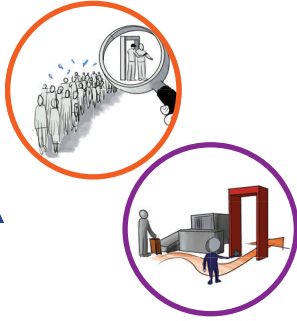
"You go by airport bus, we all arrive at the same time. It is only a queue with those people on the bus."

"I come for the fast track, no line and the lounge. I am a gold member traveler."

Traveling to airport takes long Airport located outside the city Stress to reach airport in time

Less overview at big airports Long walking distances Time pressure to reach gate Many people

Security



- Scanning ticket
- Waiting in line of security
- Walking through scan
- Luggage being checked

Waiting



- Waiting for airplane to land
- Being productive or re-laxing
- Using airport facilities

Safety Time efficiency Guidance Support Simplicity Productivity

Resilience Productivity Time efficiency Control Structure

Helpful staff No queueus Feeling of safety Seamless process Having overview Only in line with people boarding the plane

Spending time productively Relaxing Walking directly into the plane

"Forde airport is much faster, more helpful and a lower stress experience, since the airport is so small. Bergen airport is big, you have to wait in lines, many people, so it is a different experience to get through security."

"I like security, it makes me feel safer, I am afraid of flying so I like this."

"Annoyance since people do not understand how this process works. It takes so much more time."

"After security, I do not have control over time anymore."

"I use the time to work at the airport before boarding. That makes waiting more efficient."

"I feel like now my travel has started."

"At Forde, walking straight into the plane, super easy and no waiting."

"I am mostly the last one to enter the plane. I have my seat anyway. I rather spend my time more efficiently than waiting in the plane."

"Feel bored and stressed since you have to wait in the line."

"Security gives me stress. I know it is not useless, but it does not give me a good feeling. It is the inconvenience of it all."

"There is just boredom."

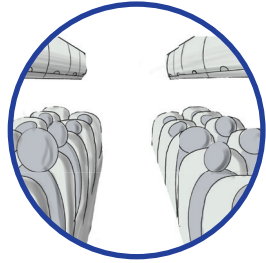
"I am checking the weather status."

"Boarding is a little boring process."

"If the plane is delayed, I start to feel stressed. There's nothing I can do, and I just have to wait."

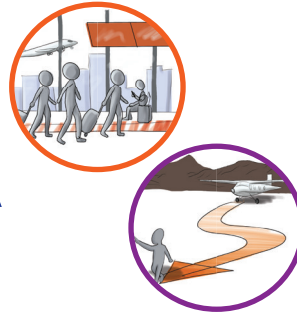
Long queues Stress from unclear process steps Unexperienced travelers slow down process Boredom Security is a burden in the travel journey Not trusting security No control over time after security Weather uncertainty Uncertain about being able to board Waiting in airplane Inefficient boarding process Unclear what happens when delays occur

Flying



- Boarding the plane
- Storing personal luggage
- Flying
- Entertaining, relaxing or working during flight

Landed



- Land at airport
- Shortly walking to the exit
- Arranging transport mode

Last mile



- Using airport shuttle bus
- Using pre-arrange transport services
- Arriving at destination

Serenity Productivity Entertainment Safety Understanding

Determined Freedom Control Reliability

Time efficiency Control Support Freedom

Short flight
Doing other things
Relaxing
Familiar flights

Relief when landed
Small crowds
Having overview
Directly have luggage
Routine to leave the plane

Direct transport from airport
Integrated transport
Focus on end goal

"I can sit down, read something, meditate and just relax."

"I like to work and prepare for the meeting. Then the trip time goes a bit faster. I like to be efficient with my time."

"I feel most happy when the plane has touched the ground."

"The better connected the public transport is with the airport, the better the experience for the last mile to reach the destination."

"The shuttle airport bus is already waiting for everybody who just landed, super easy".

"Ideal, I would like to have a car waiting for me that picks me up and brings me to my destination."

"When it is really bumpy, then I experience this in-flight moment really low."

"The airport is small, I get my luggage very quickly".

"I do not like to be waiting at the airport on a bus or another mode of transport."

"The public transport does not reach all the destinations in this rural part, so I have to rent a car."

"The planes in Norway are familiar: same flight processes."

"It is a super loud sound level. Not comfortable at all, the planes are getting older."

"When it is really bumpy, then I experience this in-flight moment really low."

"It is determination. Get my luggage and get out of here."

Turbulence impacts convenience

Noise

Less space

Passenger behavior

Uncertainty about landing plane

Not knowing where to go

Tired

No integrated public transport

Waiting for luggage

Waiting for last mode of transport

Long travel time to destination

Buying tickets

Appendix G: needs based personas

Based on the plotted journeys for car, bus, passenger boat and domestic flights, and the switching factors identified in the previous section, the clustered travel needs reveal six personas. These needs-based personas represent groups of travelers who share similar needs when traveling with a 9-seater.

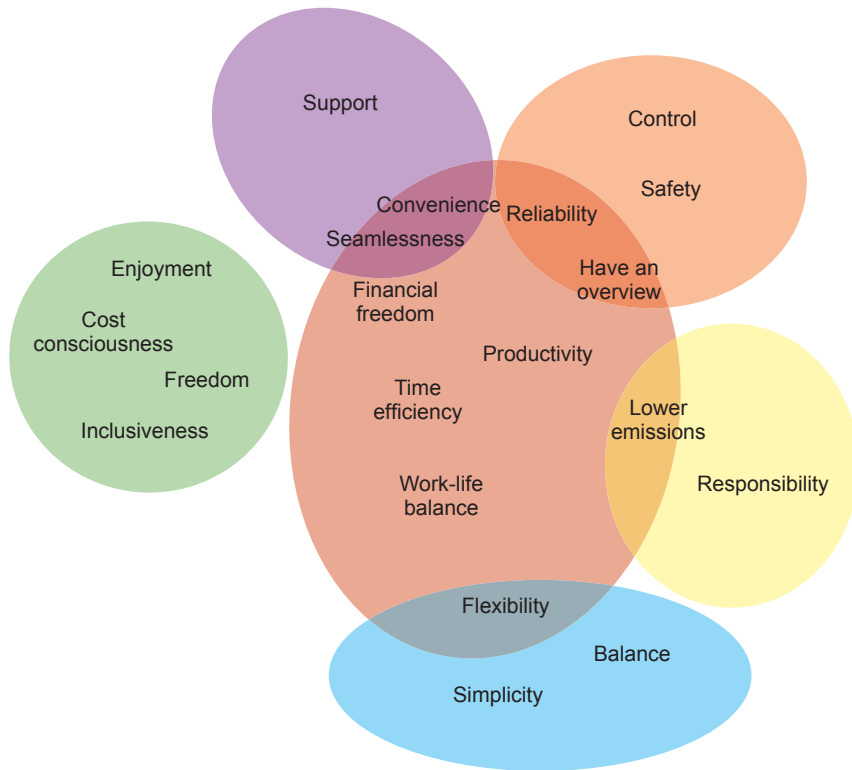


Figure 66: the clustered needs.

The clustered needs are shown in figure 66 and figure 67 presents these six personas: 'The Time Savvy The Co-Pilot, The Calm Voyager, The Taken Care Of Type, The Responsible One, and The Explorer'. In the following paragraph, each persona is explained in more depth, describing their needs and supported by a quote from the interviews that best reflects this persona.

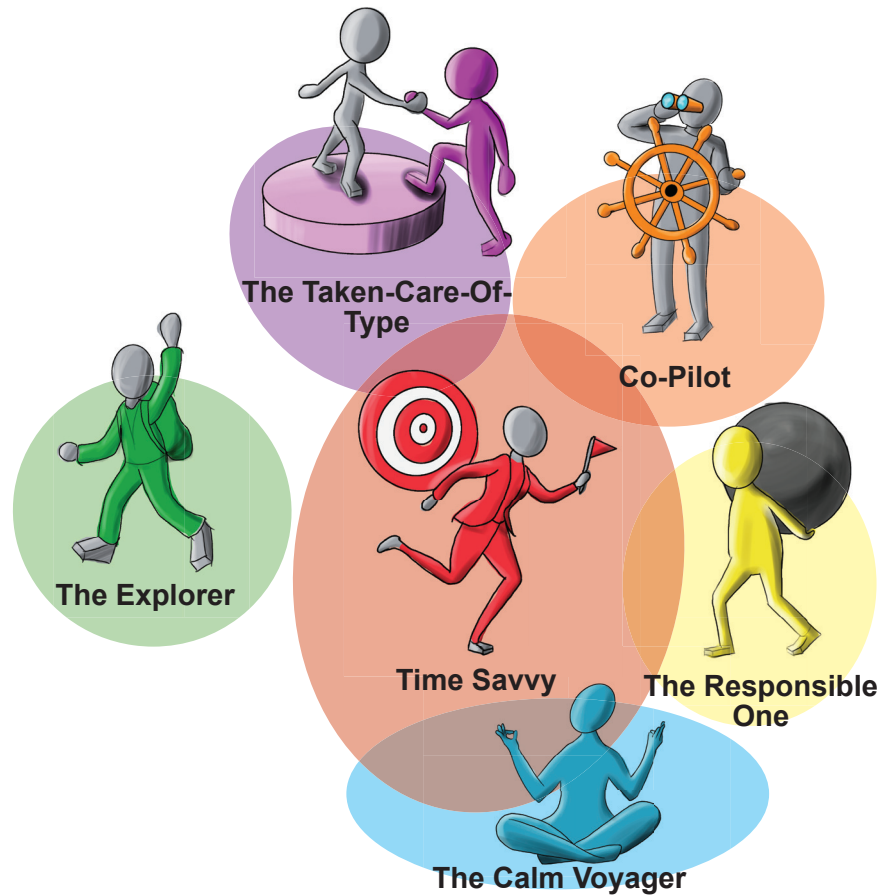


Figure 67: the needs-based personas.

This section introduces the six needs-based personas that emerged from the clustered needs. Each persona represents a group of travelers with shared needs.



The Time Savvy personas focus on time efficient travel. They highly value to arrive on time. They appreciate services that are reliable, give them an overview, allow them to stay productive while traveling and give them flexibility.

"I take the most time-efficient journey to get from A to B."



Co-Pilot

This persona wants to feel in control of their travel experience. They appreciate information and easy planning tools, helping them prepare and monitor their trip. Safety is a priority, and they seek services that reduce risks and increase predictability.

"I like to follow what happens during the trip. I sit in the front, plan ahead and avoid risks to feel safe. Before I travel, I want to make sure it is safe."



The Calm Voyager

The Calm Voyager values a peaceful and stress-free journey. They prefer services that offer them flexibility to adjust their plans. Travel is part of their life balance, so they seek simplicity and reliability to avoid unnecessary tension or disruptions.

"I like to change my travel plan when I feel it better suits my schedule. Flexibility lowers my stress."



The Taken-Care-Of-Type

The Taken-Care-Of Type values convenience and support throughout the journey. They prefer services that offer guidance and minimize own decision-making. Clear information, personal assistance, and seamless connections help them feel at ease, making their journey smoother and more relaxing.

"Having extra services gives me a more comfortable journey. I like to be supported and just relax."



The Responsible One

This traveler makes mobility choices based on environmental and social responsibility. They prefer sustainable options and feel motivated when their journey contributes to a clean future. They value transparent environmental services.

"I travel for environmental reasons, I like to set an example for others. Passing the world onto others matters to me."



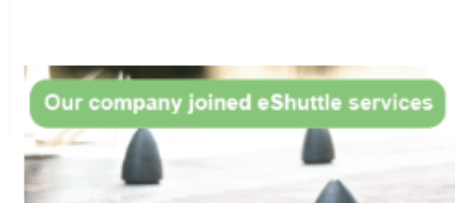
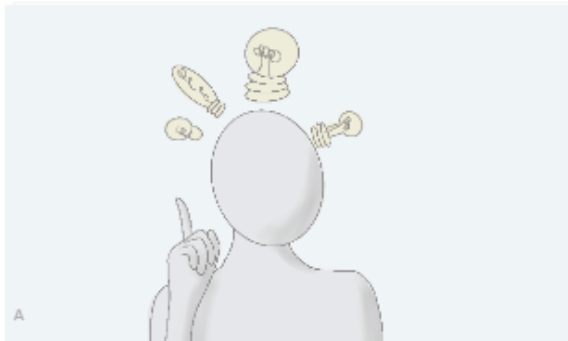
The Explorer

The Explorer enjoys the journey as much as the destination. They seek freedom and discover places along the way. While they are cost-conscious, they value experiences that allow them to enjoy the scenery and make the trip part of their adventure.

"When I travel, I like to see the area around me. The more time spent on traveling, the better."

Appendix G: 37 service touchpoints

Being informed about the eShuttle trip

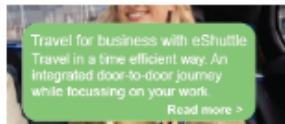


1 Being informed via work platforms about what the eShuttle services is and that the company uses this transport mode.



- Safety
- Door-to-door
- Reliable
- Work focused

Travel time efficient to save time for more important things.

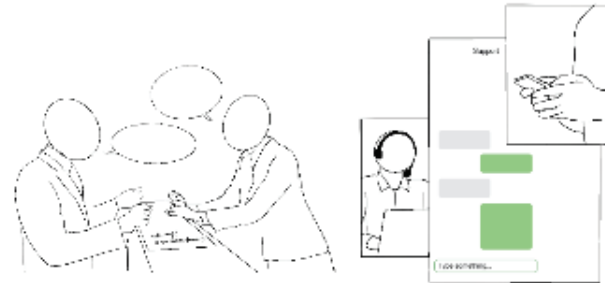


3 Online information via operator what eShuttle concept is and their USPs



2 Working group educations from eShuttle operators about what electric aircrafts are to increase safety perception

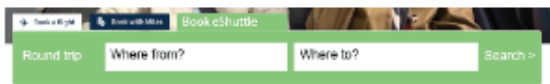
2 days before trip: orienting service options



4 Online/physical help service how to plan a door-to-door trip with the eShuttle services

Tuesday 20 May

10:00 Strategic meeting
11:00 Forde location



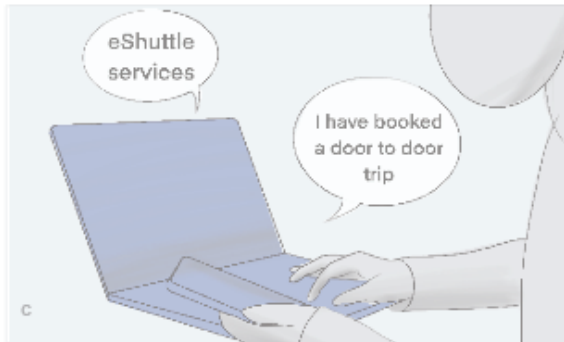
6 Being able to book online benchmarking travel options via operator



5 AI planning tool that suggests the most suitable option for you in the agenda.



2 days prior to travel: booking the trip at home



8 Receiving a personal ticket with expected delays, todos and trip information to give a reliable overview of the trip.



7 Booking door-to-door journey through operator platform with company login, because company has a subscription at the eShuttle services.



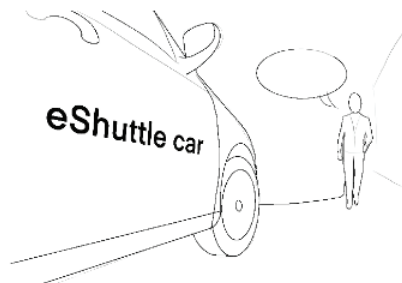
07AM: departure from home to first mode



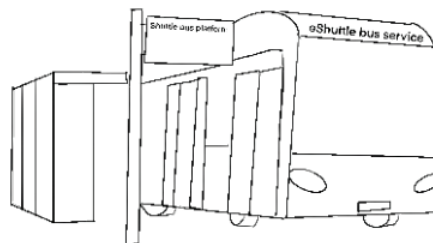
9 Online support service to offer personal support throughout the journey.



10 Integrated navigation route planning in operator app when driving with a personal car to the eShuttle terminal to offer a seamless journey.



13 eCar pick up at your current location to integrate the first mile of the journey.



12 eBus pick up at eShuttle pick up points at a fixed locations nearby passengers to integrate the first mile into the total journey.



11 Receive real time updates about ETA eCar or eBus pick up time via operator app to give overview of the trip reliability.

7:05 First mile to the eShuttle terminal Bergen



14 Scanning ticket in eBus as check-in via ticket on phone to update the operator in order to track where the passenger is in the journey,

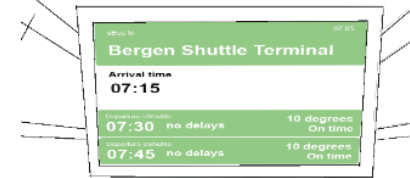
07:15

Bergen Shuttle Terminal

Arrival time
07:15

Departure eShuttle **07:30** no delays 10 degrees On time

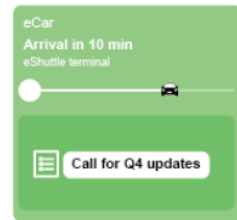
Departure eShuttle **07:45** no delays 10 degrees On time



15 Travel updates about ETA in bus, with departure times eShuttle to give a reliable, overview of the journey.

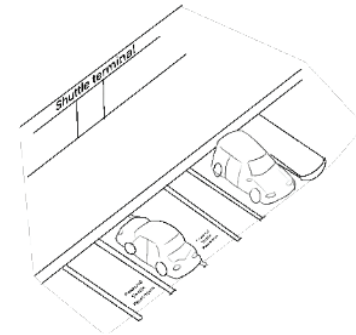
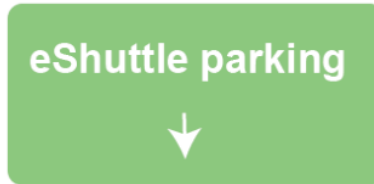


17 Integrated parking services while driving your own car, so parking is assured and covered in the journey to be time efficient.



16 Tracking journey via personal app, with integrated agenda updates for to dos during journey in order to be productive.

07:15: Arriving at eShuttle terminal Bergen



18 Assigned parking spaces in front of eShuttle terminal to have a minimal walking distance to the entrance of the terminal.

07:30 Forde	on time
07:45 Forde	on time
08:00 Forde	2 seats available on time
08:15 Forde	on time
08:30 Forde	on time
08:45 Forde	on time
09:00 Forde	1 seat available on time
09:30 Forde	on time
10:00 Forde	on time

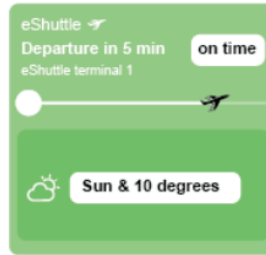
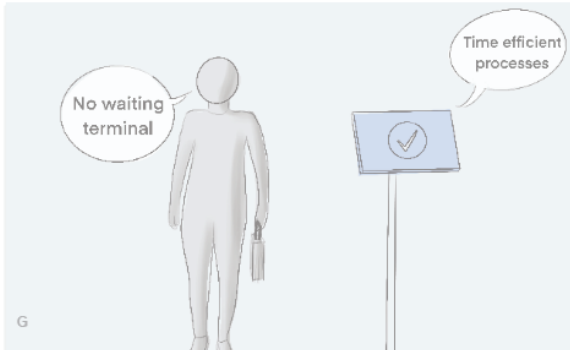


20 At terminal overview of departures with more departures during rush hour. Also available seats shown to give overview, flexible and time efficient services.



19 Update about airport processes with expected time spend in the eTerminal until departure to have an overview.

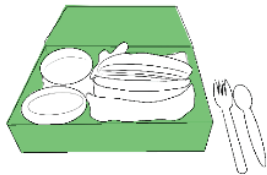
7:20 Airport processes



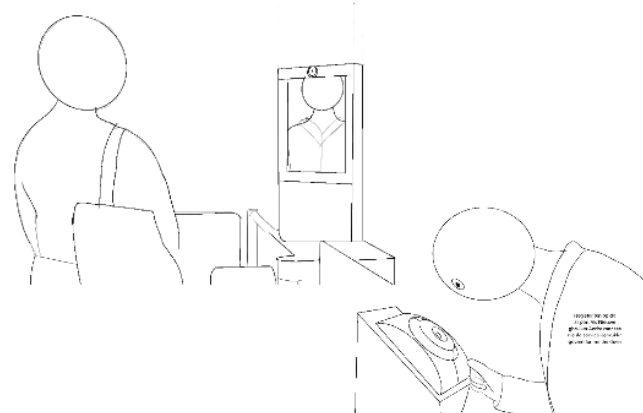
21 In airport update about departure time eShuttle, weather updates and the chance to depart to give a reliable service.



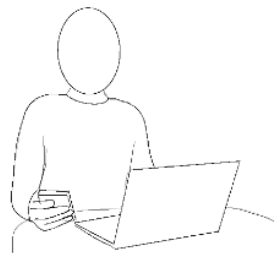
22 Helpful staff at the eTerminal to help passengers in case something happens for convenience of the journey.



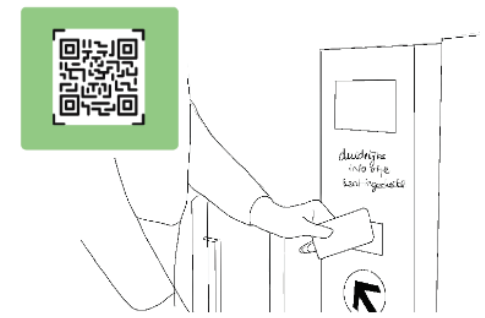
26 Pre-ordered food to pick up at the airport to be more time efficient. Instead of having breakfast at home, you have breakfast on the plane to save time.



24 Eye scanning security with personal belongings where passengers can be scanned in one go in order to be time efficient.

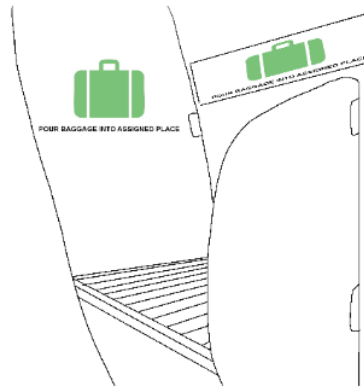
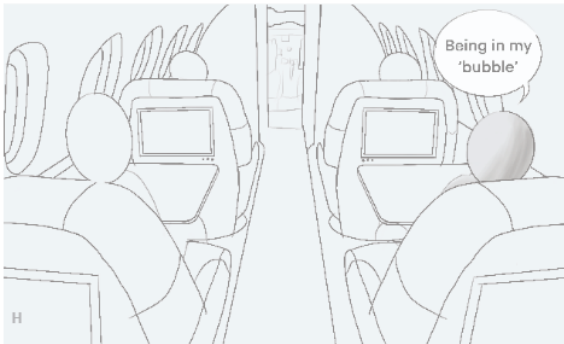


25 Having work lounges behind security in case passengers have to wait and want to work while waiting. In order to give passengers a productive feeling.



23 Scanning ticket on phone to go through check-in and enter the security without staff for time efficiency.

7:30 eShuttle flight time to Forde



27 Luggage storage places in eShuttle to give passengers an overview of their personal belongings and leave the eShuttle in a time efficient way. Avoiding baggage belts.

28 Prebooked seat assigned to your personal travel preference. Working mode with extra screen and wifi, or to relax to be convenient during trip.



Arrival time
08:00

Departure eBus
08:05 +2 min 06 degrees On time

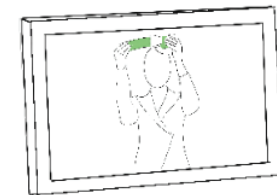
Departure eBus
08:20 no delays 06 degrees On time



31 Travel updates via screens in the eShuttle with travel updates and eBus departures for overview and time efficiency.

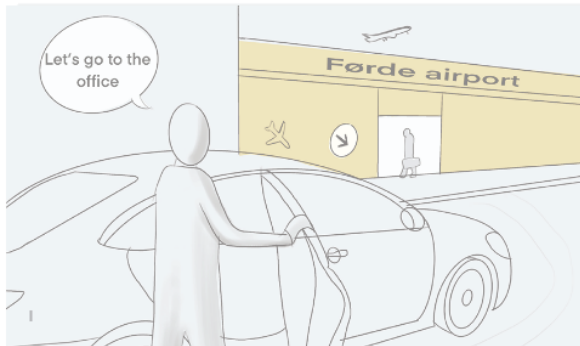


30 Real time travel updates about arrival time eShuttle, to do's during trip and expected ETA next mode for overview, productive, convenient, and time efficient journey.



29 Safety measures explained by ePilot on screen to have a time efficient, reliable departure.

08:00: Last mile to final destination



32 Scanning ticket in eBus as check-in via ticket on phone to update the operator in order to track where the passenger is in the journey,

33 Integrated parking services to stop parking in the operator app, for travel convenience, seamlessness and to be time efficient.

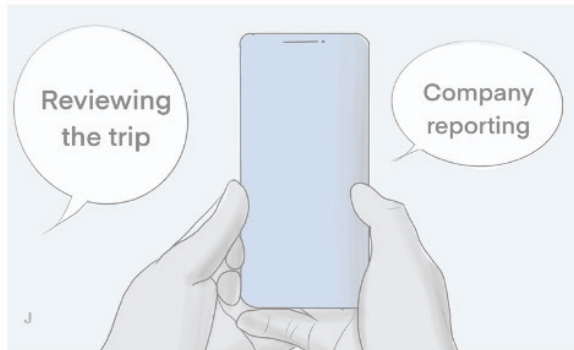
35 Tracking journey via app, with flexibility offerings in case a disruption happens for the last mile. To be time efficient, have an overview and be flexible.

dest. to 07:15
Bergen Shuttle Terminal
 Arrival time 07:15

07:30	no delays	10 degrees	On time
07:45	no delays	10 degrees	On time

34 eBus with arrival time of next stop and next stops to give an overview of the trip steps in the bus.

Reviewing the total journey



What would you like to share?

Type something...

What is your feedback about?

How would you rate your trip?

☆ ☆ ☆ ☆ ☆

37 Review the seamless experience at the end of the journey to learn from personal travel preferences.

36

Also, giving a stats overview of delays, todos and sustainability reporting for company and personal overview.

Bjorn Travel guide

eShuttle friends Trip settings

Saved trip

Added to saved routes >

2 minutes of delay

All delay stats >

2 completed to dos ✓

Go to agenda >

460 kg saved CO2

Total company emissions >

Past trips

Saved routes Scheduled routes

Appendix H: participant selection session set-up



The time savvy commuter
Innovator

"I take the most time-efficient journey to get from A to B. I highly value reliability when I travel."



Time efficiency



Productivity



Reliability



Planning



Independence



Determination



Routine



Financial freedom

Overview of storyboard with service touch points

Being informed about the eShuttle trip



2 days before trip: orienting service



2 days prior to travel: booking the trip



07AM: departure from home



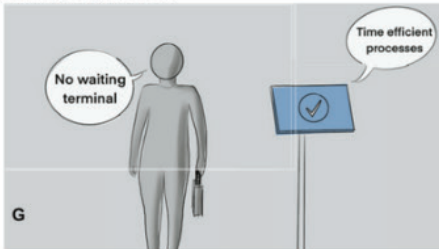
7:05 First mile to the eShuttle terminal



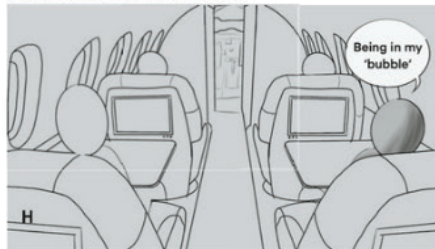
07:15: Arriving at eShuttle terminal



7:20 Airport processes



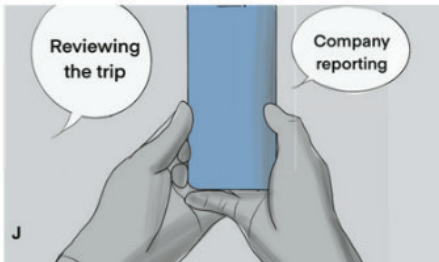
7:30 eShuttle flight time to Forde



08:00: Last mile to final destination



Reviewing the total journey



Rocking the presentation



the end

Than the 37 service touchpoints were presented as shown in Appendix G. The session ended where participants were allowed to divide stars to the most important services. Also, the design criteria were evaluated to understand what passenger needs are most important to focus on.

Divide the stars to the most important services

The image displays 37 numbered touchpoints for an eShuttle service, arranged in a grid. Each touchpoint is represented by a numbered icon or a small screenshot of a service element. The touchpoints are:

- 1: Laptop displaying a website with a notification icon.
- 2: Meeting with a screen and people.
- 3: Hand holding a smartphone showing a booking interface.
- 4: Two people talking at a desk.
- 5: "Tuesday 20 May" date card with "Strategic meeting" and "Ferde location" and an "eShuttle Booking" button.
- 6: Map showing a route.
- 7: Profile icon and "Continue login" button.
- 8: QR code and a card with "0" and "2" ratings.
- 9: Hand pointing at a screen with a "Start parking" button.
- 10: Hand using a smartphone with a map.
- 11: "eCar Pick up in 5 min" button.
- 12: Shuttle bus icon.
- 13: "eShuttle car" icon with a person.
- 14: "eShuttle car" icon with a person and a "Call for QR updates" button.
- 15: "Bergen Shuttle Terminal" arrival time "07:15" and departure times "07:30" and "07:45" with "no delays" and "10 degrees" status.
- 16: "eCar Arrived in 10 min" and "Call for QR updates" button.
- 17: "Follow eShuttle signage" and "Start parking" button.
- 18: "eShuttle parking" button.
- 19: "eShuttle Departure in 15 min eShuttle terminal 1" and "Task completed" button.
- 20: Information board icon.
- 21: "eShuttle Departure in 5 min eShuttle terminal 1" and "Sun & 10 degrees" button.
- 22: Two people talking.
- 23: Person at a terminal.
- 24: Person at a terminal.
- 25: Person at a laptop.
- 26: Food tray icon.
- 27: Shuttle bus icon.
- 28: Wheelchair and person icons.
- 29: Person at a terminal.
- 30: Hand holding a smartphone.
- 31: "Bergen Shuttle Terminal" arrival time "08:00" and departure times "08:15" and "08:30" with "no delays" and "10 degrees" status.
- 32: QR code icon.
- 33: "Follow eShuttle signage" and "Start parking" button.
- 34: "Bergen Shuttle Terminal" arrival time "07:15" button.
- 35: Map icon.
- 36: "2" rating card with "All major cities" and "460" rating card with "No. of users" and "Total company emissions".
- 37: "Review tip" form with "What do you think about...?" and "How would you rate your trip?" and a star icon.



Rate the criteria of the designed service touchpoints according to your importance



Time efficient



Productivity while traveling



Reliable door-to-door trip



Enables flexibility



Convenient journey



Keeping overview during the trip



Seamless integrated modes



Company subscription



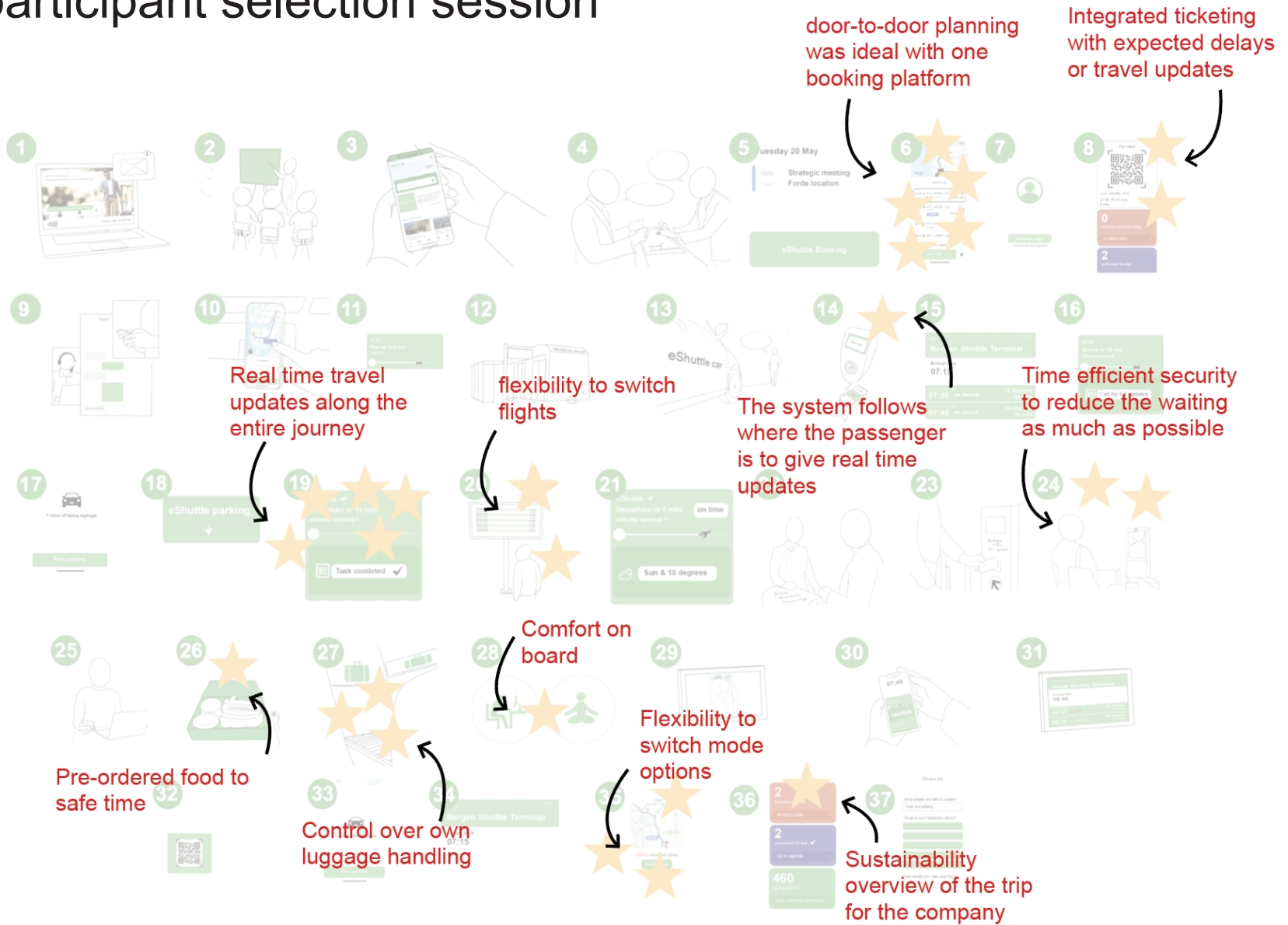
Sustainability reporting



Work-life balance



Appendix I: results participant selection session



Prioritization of services to implement

Results

The most valued services are those that reduce uncertainty, offer control, and streamline the travel experience. A recurring topic was real-time flight tracking, considered a novel feature on domestic Norwegian routes. Participants emphasized that being able to track their travel updates gave them peace of mind and a sense of control. Currently, the domestic air travel often lacks this transparency where the system communicates with other modes as well.

Also route flexibility was valued for the ability to switch to earlier or later flights on the day of travel. Participants described this as enabling them to “decide what they want to do,” even allowing space for small decisions like having pre-ordered food or work in the lounge and take a quieter flight later if that was available. This flexibility contributed to a sense of independence and freedom.

A third element was the door-to-door journey overview during the planning phase. Participants valued being able to benchmark travel options with the current modes and see real-time travel progress in one integrated interface. This overview helped to support decision-making for the trip.

Other mentioned features included:

- Real-time shuttle tracking to enable punctual transfers, which reduced waiting and uncertainty at transfer steps.
- Security procedures, which were seen as reducing the most stressful part of the trip.
- Carry-on luggage simplicity, with the ability to treat air travel more like a train experience, especially for 30 minute short haul flights.
- Pre-ordering meals, appreciated for ensuring time efficiency and having a more convenient journey.

Discussion

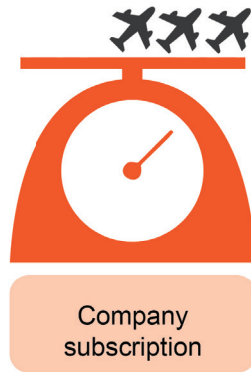
The services contribute to a seamless journey where participants liked to have a feeling of managing the whole door-to-door journey. The time savvy passengers want to have a punctuality, integrated travels, updated information, and reducing the stressful moments like security to manage the trip.

Features of travel tracking were valued for how they made travelers feel: being informed at the right times, arriving prepared, and reducing the stress experienced. The sense of being on top of the journey, from booking to landing, helped travelers to make them feel like they were able to be in control over their journey.

Flexibility played a role in managing delays and being able to have a personal travel rhythm. The ability to switch flights was linked to having freedom and being independent.

Many participants described services as an integrated system that was present to support from door-to-door. For instance, eShuttle punctuality mattered not just on its own, but because it connected with overall planning of every step in the journey and gave a peace of mind for the participants.

This suggests that time savvy personas are not only judging the quality of individual services, but these passengers value the whole door-to-door journey. The best services were those that anticipated needs across the journey, providing not just convenience, but mental readiness. In this way, it enabled one to arrive relaxed and ready to perform at the meeting.



P=1
 P=2
 P=3
 P=4
 P=5
 P=6

Rating service touchpoints in relation to design criteria

Results

In the final part of the evaluation, participants were asked to divide 27 'planes' across 10 service design criteria. The results showed that flexibility (25 planes) was the most valued aspect. It was followed by time efficiency (21 planes), productivity during travel (20), overview of the trip (20), keeping the journey seamless and connected (19), and reliable door-to-door travel (19). These criteria were often mentioned in relation to one another, where one enables the other.

Convenient journey (13 planes) was rated lower, as participants explained that comfort and convenience support the experience, but are not the main reason to choose this mode. Sustainability reporting (15 planes) was valued less than the other top criteria, though one participant gave it 10 planes due to company obligations, this skewed the result. Work-life balance (6 planes) was rated low because participants who decide to make this trip, already accepted that they are not spending this time at home. Company subscription (3 planes) received the fewest planes and was seen as something arranged at company level, not something the user feels involved in.

Discussion

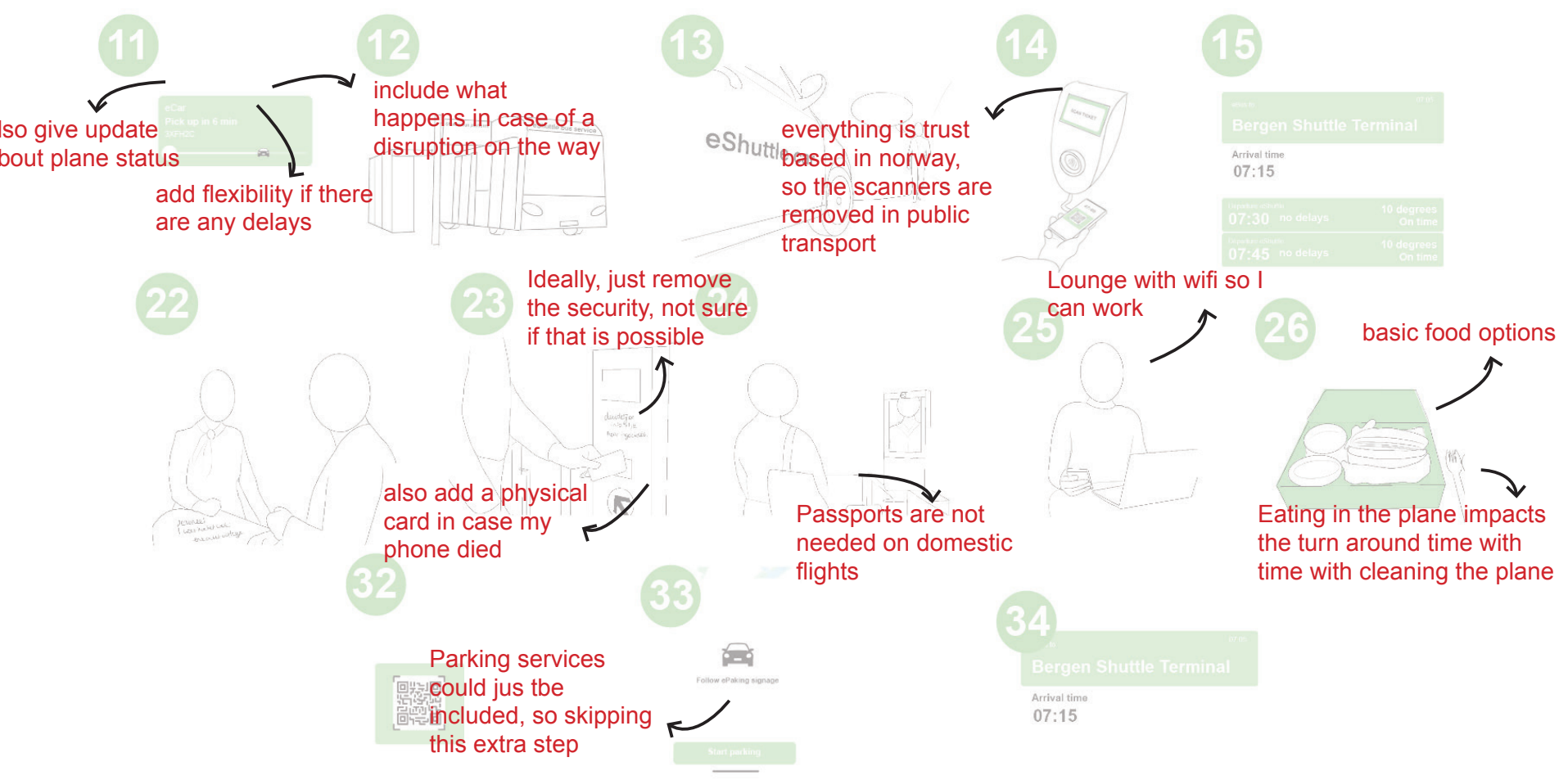
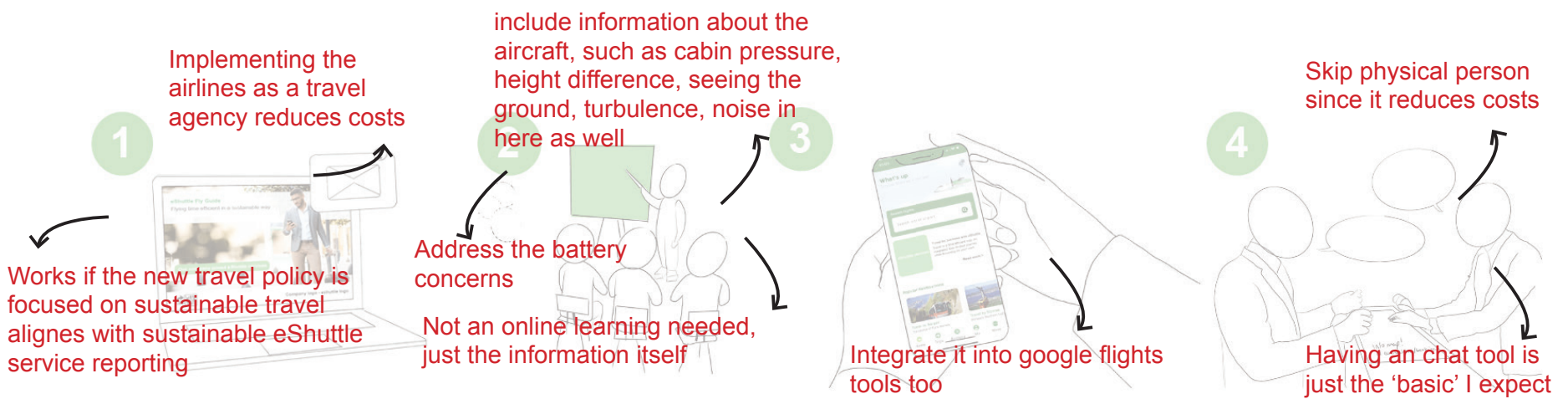
The distribution of criteria gave insight into what participants value when traveling for business. The most notable outcome was that flexibility scored higher than time efficiency, which was unexpected. Participants explained that if the service is highly flexible, allowing them to switch flights, change departure times, or adapt their journey, then time efficiency becomes less important. One participant mentioned,

"If I can shift my trip and still be productive, I care less about saving 15 minutes."

Overview of the trip, seamless integration, and reliable door-to-door travel were also rated high and were often seen as connected. These elements together gave passengers the feeling of being in control. Real-time updates across different modes reduced uncertainty and allowed them to manage their journey.

Productivity was about the freedom to decide how to use time at each stage of the journey. Participants preferred to decide for themselves whether they would work, relax, or prepare for a meeting. Being productive was also linked to time efficiency, traveling faster or spending less time in transit meant having more time for work or personal use later in the day.

Lower scoring criteria like work-life balance and company subscription were seen as external factors. Work-life balance is already experienced as sufficient in Norway. Also, company subscriptions were seen as something for the employer to arrange. Sustainability reporting was relevant for some, but mostly when the company required it, otherwise, it was not a personal priority to travel for.



People fear AI tools integrated in their agenda. Want to have own control over it.

Benchmark it with other types of travel too, such as cars

Include alternatives in case something happens for flexibility

I like to use my own tool for route planning



Safety concerns with integration into agenda

Include return trips

include CO2 emissions per journey for comparison

Luggage bookings pre-order services

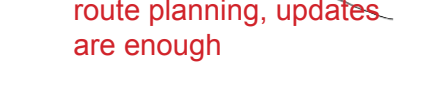
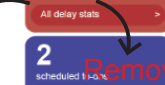
include overview of flexible transfer times

Booked carry on or ordered luggage service

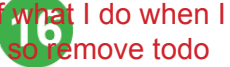
Remove agenda

very expensive to integrate route planning, updates are enough

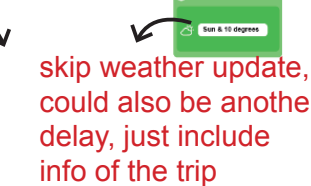
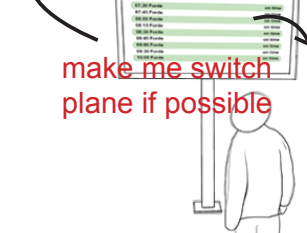
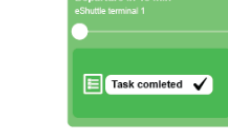
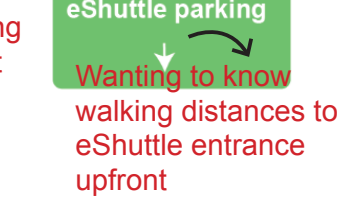
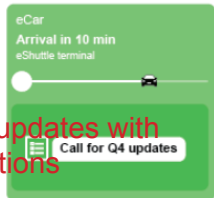
very expensive to integrate route planning, updates are enough



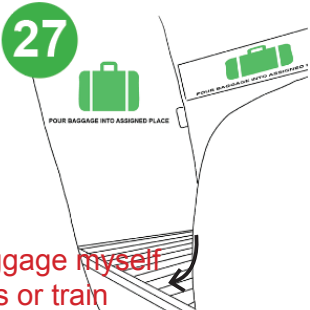
Want to decide for myself what I do when I travel, so remove todo



Give plane updates with flexibility options



more luggage myself like a bus or train



no need for pre-ordered seats, just comfort to be in bubble



Video is preferred, I never look at the steward for safety



Same updates in eShuttle as first of last mile: delays, ETA, next modes



more luggage myself like a bus or train

services like wifi, charging at my seat



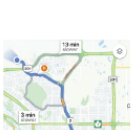
Video is preferred, I never look at the steward for safety



I only review when I have to complain, so make it not mandatory

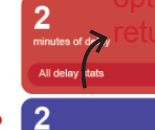


Include flexibility option for last mile in first mile too

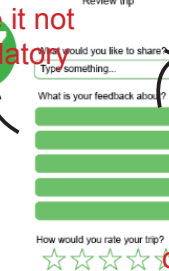


update about return journey if it is a day trip

what is in it for me? make me feel like a good person



CO2 is important for company



make review interactive like a conversation

add personal incentive for behavior change

only do this at home or skip it

