Appendix
Enhancing Mobility around Schiphol Airport for International Passengers
Mingyu Liu
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Appendix A Research questions & Approaches

Research questions

1 Understand the existing ecosystem and scope;
- What is the current transport system set-up in the Netherlands?
- What are the all possibilities for passengers transport from/to Schiphol?
- What are the all possibilities for passengers getting information, finding ways, making decisions on transport and purchasing tickets? What the reason behind their choice?

2 Have an overview of current passenger experience
- Who are the user?
- What are the different passengers' journey: (a series of) decisions and behaviours; need, goal and motivation behind their decisions and
- How do they interact with current service?
- What are the all touch points (tangible or intangible) from the stage of pre-service, actual service to post-service
- When/where are these touch points existing?
- How do those touch points support the passengers?
- How do passengers interact with those touch points?
- Where are the problems lied on: why there's a problem for them; how they solve the problem themselves;

3 Understand the needs of both customers and stakeholders
- For the stakeholders: What effort did they put in the system (how do they currently communicate the information or service to passengers)?
- For the customers: the same with 2
- What kinds of information are crucial for passengers?
- What types of products do the partners want to connect to the future service system?

4 Define the opportunities for next stage
- What are the possible solutions for found problems?
- What are the possible forms of design could be used to create the future experience?
- What are the guidelines on design based on the context, users and stakeholders?

Approach

Multiple research or analysis approaches are used to answer the Research Questions. In Figure A-1, the table shows what type of research approaches are used to get the answer for which Research Questions (1, 2, 3). The analysis approach 'Analysis on the wall' is used for answer Research Question (4).
<table>
<thead>
<tr>
<th>(1) Understand the existing ecosystem and scope;</th>
<th>Desk Research</th>
<th>Service Safari (self-experience)</th>
<th>Interviews</th>
<th>Observations</th>
</tr>
</thead>
<tbody>
<tr>
<td>What is the current transport system set-up in the Netherlands?</td>
<td>●</td>
<td>●</td>
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<tr>
<td>What are the all possibilities for passengers transport from/to Schiphol?</td>
<td>●</td>
<td>●</td>
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<td>●</td>
</tr>
<tr>
<td>What are the all possibilities for passengers getting information, finding ways, making decisions on transport and purchasing tickets?</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>What is the reason behind their choice?</td>
<td>●</td>
<td></td>
<td></td>
<td>●</td>
</tr>
<tr>
<td>What is the vision, goal and interest to earn for the stakeholders?</td>
<td>●</td>
<td></td>
<td></td>
<td>●</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>(2) Have an overview of current passenger experience</th>
<th>Desk Research</th>
<th>Service Safari (self-experience)</th>
<th>Interviews</th>
<th>Observations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Who are the target user?</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>What are the different passengers’ journey?</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>How do they interact with current service?</td>
<td>●</td>
<td></td>
<td></td>
<td>●</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>(3) Understand the needs of both customers and stakeholders</th>
<th>Desk Research</th>
<th>Service Safari (self-experience)</th>
<th>Interviews</th>
<th>Observations</th>
</tr>
</thead>
<tbody>
<tr>
<td>For the stakeholders: What effort did they put in the system? What trouble are they encountering on supporting passengers?</td>
<td>●</td>
<td></td>
<td></td>
<td>●</td>
</tr>
<tr>
<td>What kinds of information are crucial for passengers?</td>
<td>●</td>
<td></td>
<td></td>
<td>●</td>
</tr>
<tr>
<td>What types of products do the partners want to connect to the future service system?</td>
<td>●</td>
<td></td>
<td></td>
<td>●</td>
</tr>
</tbody>
</table>

*Figure A-1. Approached used in the Research&Analysis phase to answer the research questions*
Appendix B Transport from Schiphol

Transport modalities

Train
The train station in Schiphol is located directly below the plaza. Passenger could take the train operated by NS to anywhere across the country. It's also possible to take a train abroad operated by Thalys, ICE International, CityNightLine and Eurostar.

To take a NS train, single ticket (paper or digital), OV-chipkaart (Public transport chip card), tourist ticket like Amsterdam Travel Ticket could be used. To take a train abroad, tickets purchased in the NS service desk or official websites could be used.

Bus
The Schiphol bus stops are located right outside the plaza. There are buses to Amsterdam, other cities in the Netherlands and other countries.

The Amsterdam Airport Express (bus 397) operated by Connexxion is a fast and direct way to Amsterdam, which is a good choice for first-time passenger. Other city or regional bus lines operated by GVB, Connexxion, Arriva could take passenger to a number of destinations across the country. Foreign transport operators like FlixBus, Omio provide routes to other countries in Europe.

It’s possible to take a shuttle bus directly to the hotel. There are also special shuttle buses of some hotels providing transport service to their guests. Besides, the Schiphol Hotel Shuttle operated by Connexxion can drop the passenger at almost every hotel in Amsterdam.

Passenger could take the city or regional bus with an OV-chipkaart or some kinds of tourists ticket. Besides, single ticket could be purchased at the driver or in the Public Transport Service & Ticket car.

Taxi
Schiphol’s official taxi stand is outside the Schiphol Plaza. Passenger could take a standard taxi there. With reservation in advance, the larger taxis Schiphol Travel Taxis are also available for small group passengers.

For a luxury travel, passenger could travel in a Schiphol Business Taxi, reservation needed.

Those standard taxis are operated by local taxi company. The Schiphol Travel Taxi and Schiphol Business Taxi are operated by Connexxion.

Rental car
There are multiple rental car companies providing care rental services in Schiphol. Passenger could book the vehicle online or at one of the car rental desks.

Shared car
There are also shared electric cars named car2go could be collected from Schiphol Airport. They are small white and blue cars for two person and some luggage. Passenger could use the car2go App to find a car in Schiphol.
The passenger could also request a UBER trip at Schiphol. With the App, passenger could easily request a ride, follow the direction to meet the drive and pay with Credit card.

**Private cars**
For passengers who have a native friend drive a car and will pick them up, they just need to meet their friends at Arrival gates or Meeting points, or go to the parking areas upstairs.

**Tram&Metro (not started from Schiphol)**
Tram and Metro are not available in Schiphol Airport, but they are possible options for later transfer to their destination after their first trip from Schiphol.
Appendix C Service Safari

Pre-service
- Book the hotel

Book a hotel, Clínica Hotel Amsterdam, via Ctrip (A travel service website in China)

- Check the transport

Check the transport info shown on this hotel page

- Connect to the WiFi

The comments from others also provide valuable information

Actual-service
- Find your friend

Situation A - Your friends pick you up

After baggage reclaiming, you step into the landside. Find your friend or go to the Meeting point.
Connect to Airport free WiFi easily

+ The WiFi page is easy to trigger and connect once the passenger arrived.
+ The WiFi for the landlord is not good. The inconsistency might cause more bother (for example, the user leaves the WiFi. It is good so they don’t prepare other solution until the connect connect to it anymore when they walked out the airport).

**Actual-service**

- Google map after arrived

**Situation B - You take the public transport**

- Check google map for directions, it shows you could either take the train or take the bus.
Situation B-1 You choose the train

After baggage claiming, I step into the landing. There are multiple signs for direction, I follow the **Trains**

**Actual-service**
- **Look at the signs**
- The sign is easy to notice
- The information is sorted in a logical way

**Actual-service**
- **Follow the signs**

**Actual-service**
- **Look at the machine**
  - The machine is easy to find
  - The way of payment is clear
  - Still, many types of credit/debit card from Europe cannot work in this machine, even though it shows it should work

**Actual-service**
- **Select the ticket and pay for it**
  - The short cut on the screen I want to go Amsterdam is useful
  - Too many options to choose before getting a ticket
  - Other products might be confusing to first-time passengers

**Actual-service**
- **Find the platform**

Check the ways of payment

Choose the tickets and finish the payment
**Actual-service**

▲ Arrive at the plaza

Arrive at the plaza, notice the Train ticket & Services center.

**Actual-service**

▲ Ready to buy the ticket

Get close to the windows, check the timetable, don't know which ticket to buy, and find another option for train tickets purchasing - the ticket machine.

**Actual-service**

▲ Find the platform

Find the platform through the screen or Apps like google maps/NS.

**Actual-service**

▲ Scan the ticket

Scan the ticket.

- The signs are consistent.
- The information shown on the screen and in the App is not completely same.
- The Dutch words is similar to English word, which might be more confusing to recognize. Which is in English, which is in Dutch while they are put together.
- People might forget to scan it there's no gate.
- The text on the screen is in Dutch.
Situation B-2 You choose the bus

---

**Actual-service**

- Stand in the line

---

**Actual-service**

- Look at the signs

---

**Actual-service**

- Follow the signs

---

After baggage reclaiming, I step into the landside. There are multiple signs for direction, I follow the **Buses**

---

**Actual-service**

- Catch the taxi

---

Go to the **Official taxi stand**, wait in the line

---

Catch the official taxi, pay with debit/credit or cash
**Actual-service**

- Find the spot

Follow the signs to the buses parking

Go to the outside and see the sign of Taxi
Situation D - You rent a car

Actual-service
- Look at the signs

After baggage reclaiming, I step into the landslide. There are multiple signs for direction. I follow the Car rental.

Actual-service
- Pick up the car

Go to the parking to pick up the car
Actual-service

- Follow the signs

Follow the signs to the Car rental

Check in at the desk

Passenger know little about car rental of different company before talking with them face to face.
Situation E - You go on a hotel shuttle

Actual-service
- Look at the signs

After baggage reclaiming, I step into the landside. There are multiple signs for direction, I follow the Hotel shuttles.

Actual-service
- Follow the signs

Look for the free shuttle from your hotel or take the Schiphol Hotel Shuttle.
Actual-service

- Follow the signs

Follow the signs to the parking

Go to outside and follow the signs
Info sources supported by Schiphol/PTO mapping
Appendix D Interview Questions

The original version is in Chinese, with some skills on asking. This translated version only shows the content and focus of each question.

- Are you here for leisure or business?
- What is your first destination?
- How do you plan to get from the Schiphol Airport to your destination? Why do you plan like that?
- Did you plan for it before leaving?
- How did you get the ticket? What kinds of ways of payment did you prepare?
- Did you do any preparation for the transportation?
- How did you get information? If possible, could you recall the process of that?
- Did you encounter any problems during this process? (For instance, too many routes or tickets?)
- Do you know any tourist tickets in the Netherlands?
- Did you download any mobile application?
- How do you think of the way-finding system in Schiphol? Did you encounter any problems and how did you solve them?
- Do you have any trouble communicating here?
- How do you like the general experience of transporting from Schiphol?
- If you could improve one aspect of Schiphol Airport, which one would you choose?
- What’s your travel frequency?
- How many times for traveling abroad within those travels?
- With who?
- When to plan a trip? Will you get the tips or travel guidance?
- If it’s okay for you, could you tell me your age and profession?
# Appendix E Data Mapping

*Information* mapped in stages and sources (based on DIKW model)

<table>
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<th>At home</th>
<th>On the flight</th>
<th>Airside</th>
<th>Landside</th>
</tr>
</thead>
<tbody>
<tr>
<td>Her daughter prepared the anonymous OV-chipkaart with a discount added for her.</td>
<td>She connect to the Airport Wi-Fi easily once she arrived before using the SIM card.</td>
<td>She met her daughter immediately as she daughter checked the number of Arrival of her parent’s flight.</td>
<td>He bought an anonymous OV-chipkaart for his 4-days journey.</td>
</tr>
<tr>
<td>She prepared cash and credit card for this trip as she did this before.</td>
<td>She and her daughter use WeChat to exchange information before taking off and after arriving.</td>
<td>He Google Map the destination and choose the train according to Google Maps.</td>
<td>He experienced the train schedule.</td>
</tr>
<tr>
<td>Her daughter bought the SIM card via Taobao beforehand.</td>
<td></td>
<td>The dad in a family (dad, mom and child) was responsible for communicating with the personnel of the service desk.</td>
<td>She couldn’t connect to the WiFi area. So she couldn’t buy tickets online.</td>
</tr>
<tr>
<td>He checked the tips for transport beforehand, so he paid attention on not forgetting to scan the OV-chipkaart.</td>
<td></td>
<td>She experience the App as convenient. However it’s confusing when the English place name in the App is not matched with them in the train or the signs. For example, the App shows ‘Platform 2’, but she couldn’t find the ‘Platform’ in the train station. Finally she found a number looks like the number of platform.</td>
<td>It’s easy for her to find her way forward.</td>
</tr>
<tr>
<td>Before leaving for the Netherlands, her friend studying in the Netherlands recommend a lot on transport. For instance, take the train to Delft, buy the ticket on Ticket Machine, download the App ‘NS’.</td>
<td></td>
<td>She bought the ticket via Ticket Machine and paid with her credit card. As the ticket showed all Dutch, she checked with her friend if the ticket was the right one.</td>
<td></td>
</tr>
<tr>
<td>She checked the direction from Schiphol to Delft on NS beforehand. She thought it’s okay to not have a native SIM card, which results in not being able to keep touch with her friends without a WiFi.</td>
<td>She experienced the way-finding system as bad because she had some trouble on finding the exit after luggage reclaiming. She had no difficulties on finding the train station.</td>
<td></td>
<td>She bought the ticket via the NS app (recommended by her friend), paid with her credit card and scanned the QR code for taking the train.</td>
</tr>
<tr>
<td>He did little preparation this time because his sister who studying in the Netherlands would guide him. Prepare cash for payment. He used to use Apple Pay in Spain (where he studied).</td>
<td></td>
<td></td>
<td>He failed to buy the ticket with the ticket machine when it was the first time. As his English is not so good and cannot find where’s the button means ‘top up’, and go to other pages for buying different types of tickets.</td>
</tr>
</tbody>
</table>
From landside to the station

He experienced the OV-chipkaart as convenient. Scanning is convenient.

After buying the ticket, the family found the platform to go immediately by checking the screen above.

They forgot to scan the ticket with the pole.

As it was her first time taking the train in the Netherlands, her friend asked her for several times not to forget to scan the ticket.

She need to 100% confirm the train is the right one to decrease the sense of uncertainty.

The user confirm the right train by checking the time and platform, but not the train number or something.

She didn’t notice there’s a reception in Schiphol.

She is willing to ask information in reception/service desk because she believe the official information better.

On the train/bus/...

The train we were going to take was cancelled, but the state shown on the App differed from that on the screen in the platform.

They had large luggage, which made some trouble when getting on the train.

In her experience, the screen on the train shows all Dutch; the broadcast says Dutch. She could just guessed which station she was in.

She was stressed when she went to Delft from Schiphol for the first time. She was afraid to get off in the wrong station.

Take the train with two luggage is not easy, especially when the train is two-floors, it’s hard to go upstairs or downstairs.

The way of taking a train in the Netherlands is completely different from that in China.

The screen on the train showed different information from that on the App, which made her feel nervous.

She asked my friend about that, the friend asked her to ask people around.

The screen showed the station nearby, which was so confusing.

She checks Google Maps where she is when she is in somewhere unfamiliar to confirm she haven’t done something wrong.

General

She think it was a fluent process from the Airport to the Train station as there were not many people at that time(8 pm)

She asked her friend for help when something confusing or went wrong.

She didn’t know the OV-chipkaart.

When she first arrived in the Netherlands, she knew little about the transport system so felt nervous. In the following days she got familiar with the system and experience it as great.

In general, the transport system is nice, very modern, clean and convenient.

She hopes to have both English/Dutch everywhere.

The App is reliable, but the screen is confusing.

She was super afraid of making mistakes as a first-time passenger.

She chose to ask friends for information because she thought they know the most about this country.

Her general impression on this experience: sense of uncertainty.

She found the Dutch people are friendly.

She doesn’t know other way of transport rather than Train.

Her general feeling: so tired and nervous.
He might use Ctrip, Qunar, Fliggy or RED for travel plan/tips.

He knew there should be some kind travel ticket, but he didn’t try to know them more.

They read the comments on booking.com and decided to take train to the hotel.

They decided to buy the single train ticket (not sure if it’s possible) as buying an OV-card needs refundable fee and they just stayed for 2-3 days. So they think OV-card is not at good value for them.

They prepared cash and credit card. They believe credit card could be used everywhere with some fees.

They used Qyer for travel plan making and ask bank about the usage of credit card overseas.

The goal for making travel plan: make the travel more convenient and time-saving.

They only download the App for travelling in Germany as they stay longer there.

Plan a trip 1-2 months in advance. Plans everything for everyday.

They thought the taxi would be expensive. They also thought about car rental, but the husband refuse to drive.

They checked the EUrail or other pass ticket for Europe.

They didn’t choose Holland Pass because they would stayed for a few days.

They knew the transport information from other’s travel experience on RED. They chose train because it was convenient.

They search the transport on Baidu.

They didn’t choose OV-chipkaart because they knew from Internet it suits people staying longer.

Her friend bought the ticket via NS app for her in advance.

For a trip, she wouldn’t plan too much before leaving. She search the keyword and scan other’s travel diary.

He asked help from a stranger and successfully topped up. Then he knew how to do that for the next time.

He tried to meet his sister in BurgerKing, but there were two BurgerKing in the plaza so they failed to meet at first.

He asked a stranger where the train station was to find the ‘BurgerKing’.

They use Google Map to confirm the direction again when they arrived.

They went to Keukenhof after they arrived at Schiphol in the morning. They checked it before at home and tried to take the bus, however they didn’t find the place for bus ticket. Then they accidentally found a desk of Keukenhof and bought the ticket with cash they exchanged beforehand and took their bus.

They got the tips of taking bus to Keukenhof online, but they don’t know how to buy ticket and if it’s possible to buy ticket on the bus.

They didn’t check the information in the plaza (map, service desk) as they had clear goal and destination.

They found the ‘Amsterdam Travel Ticket’ on the ticket machine, but they thought that was not suitable for them because they went to a few sites per day.

They were not sure if the ticket from Schiphol to Rotterdam could be used in two separate trip. They got this info from somewhere but uncertain with that.

Their Airbnb landlord recommend them the multiple travel ticket.

They first asked information desk about the Travel Ticket and go to the bookstore. The bookstore owner introduced different types of travel ticket and recommended them the Amsterdam & Region because they wanted to go to the Keukenhof. The bookstore owner was friendly.

She feel confused and nervous when she just arrived alone.

The luggage is so heavy.
He thinks the way-finding is not obvious enough. Both the sign itself and content on it is not clear enough.

The way-finding system is clear.

They got the train number ‘intercity 2451’ from Google Map and tried to find the train with this number.

They were not sure if they need to scan the ticket and didn’t know where to scan it. The checked time and train number on Google Map cannot make sure which train is the one they should take.

They thought it was weird that the ticket scanner was upstairs.

She had the ticket but she didn’t which platform she should go.

She arrived a bit earlier and got on a wrong train. She didn’t know the train would be more punctual and didn’t check it at real time.

She checked the NS app after she realised she took the wrong...
She uses bookings and chooses hotels in the city center, and gets the path from other's comment. Then she doesn't need to worry too much as it's always convenient from airport to the city center.

He made travel plan with Mapengao, Zhihu, Google trips, and mark all destination on Google Maps.

Public transport is his first choice, if it's not convenient, he will try to rent a car.

She got the transport guideline from Airport to her school from senior students via WeChat group. But there are too many details so she couldn't remember.

When people mention 'day ticket' for travelling in the Netherlands, there are some misunderstanding. Some people think it means the train day ticket, some people think it means the GV8 day ticket.

People ask if it's possible to buy ticket on the bus.

People ask if the visa/master published in China could be used in the Netherlands/ticket machine.

People ask if the day ticket could be used to a certain destination (de Zaanse Schans).

People ask if the ticket sold by driver could be bought with cash and change.

People ask if they just stay for 3 days, if it's necessary to buy Holland Pass.

People ask which more economic, buy single tickets or buy a OV-chipkaart.

She booked the day tour products on Ctrip and she could go on a private bus for trip.

The way-finding system didn't work anymore when you are confused and nervous. She didn't notice the way-finding at that moment.

A pair of girl friends tried to use the train ticket machine, but they had no cons. So finally one of the friends went to the service desk to buy tickets.

A pair of ladies (age 35) feel confused about the train ticket system. They first checked the timetable, and then go to the ticket machine. They spent some time on the ticket machine and leaved (to look for something) then back to another machine again, spend 6 minutes to buy two tickets, encountered with some payment issue (they tried different cards.)

When I show the hotel name (in English) from a Chinese page, the personnel cannot quickly find/recognise it.

The long, yellow banner in the taxi area is eye-catching.

On the ticket machine, the short-cut on the screen: 'I want to go Amsterdam' is useful. The sign in the plaza is consistent.

Two ladies (age 40+) first service desk, one of them tried to recall something. Then she asked the ticket machine.

Someone in the bb show questions to the personnel.
She checked the NS app after she realised she took the wrong train.

Some people look at the ticket scanning pole (only Dutch) for a while as they’re not sure if they should scan their ticket there.

One girl prefers less transfer because it avoids possible mistakes.

Few first-time Chinese passengers go out of the plaza for transport. Girl friends, or young people, group, or family are the top 3 traveller combinations. Most Chinese passengers only know 1-3 common transport. Few people know the travel service supported by Schiphol like Schiphol Hotel Shuttle and Schiphol Travel Taxi.

Most Chinese passengers only know 1-2 types of tickets. Few people know all optional transport tickets.

She was arrived in a group, following other people who made more preparation.

There’s no cues about buying a ticket before passenger get on the bus. When there’s strong sunlight, it’s hard to recognise the text on the timetable screen outdoor.

The info screen is located on the way to the bus stops, which is obvious for way-finding.

The visual image of the Schiphol Hotel Shuttle is hard to distinguish.

She always takes a taxi to the hotel as she is super tired when arrived and want to go to hotel with the least effort.

People complain there are too many types of transport ticket in the Netherlands.
## Appendix F  Ways to complete tasks

<table>
<thead>
<tr>
<th>Stage</th>
<th>Tasks</th>
<th>Channels/Touchnpoints</th>
<th>What (text in gray means no people mentions but it's a possibility)</th>
<th>How</th>
<th>Why</th>
<th>Possible pitfalls</th>
<th>Design guidelines</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Searching engines</strong></td>
<td>Google, Baidu</td>
<td></td>
<td>&quot;How to get from A to B&quot; &quot;CV card&quot; &quot;Holland Pass&quot;</td>
<td>Get the accurate answer quickly</td>
<td>Get an overview of the ticket quickly</td>
<td>- Get unofficial, even wrong or outdated info</td>
<td>Give people succinct and accurate info. The information should be reliable and frequent-updated</td>
</tr>
<tr>
<td><strong>Recommendations from people you know</strong></td>
<td>Chating offline, WeChat(group)</td>
<td>Ask people who live been there (friends, families, Airbnb landlord); &quot;Which transport should I use?&quot; Should I buy xxx ticket?</td>
<td>They are reliable and it's time-saving.</td>
<td>- No overview of all options, different people have different needs, might leave the best choice out;</td>
<td>- Too many information, people have no patience or cannot remember everything</td>
<td>Provide information like there's a friend of yours answering your question, patient, reliable and knowing even beyond you want. Understand the user's need/preference and recommend the best for him/her in an efficient way. But also give the user opportunities to understand the whole transport ecosystem</td>
<td></td>
</tr>
<tr>
<td><strong>Citizen Journalism on travel</strong></td>
<td>Official account on Wechat about info of the Netherlands</td>
<td>Read the travel guide from their push or other's sharing on social network; Get the information on the certain aspect: transport in the Netherlands</td>
<td>Cover almost all aspects and every detail of transport in the Netherlands</td>
<td>- The target user is people staying in the Netherlands, few short-term travellers know this channel;</td>
<td>- Too many information, people have no patience or cannot remember everything</td>
<td>Create similar platform for short-term travellers How to make people in need get access to those travel guides?</td>
<td></td>
</tr>
<tr>
<td><strong>Hotel booking platform</strong></td>
<td>Booking</td>
<td>Read the comments</td>
<td>The real experience are more reliable. The destination are accurately same (compared to Google Maps).</td>
<td>- Lack in details</td>
<td>- Lack in details</td>
<td>Give information more ‘lively’ or based on other’s real situation. Make every important details included More accurate route</td>
<td></td>
</tr>
<tr>
<td><strong>Global map App</strong></td>
<td>Google Maps</td>
<td>Input the destination</td>
<td>Reliable and convenient.</td>
<td>- People in mainland China cannot use Google Maps</td>
<td>- People in mainland China cannot use Google Maps</td>
<td>Provide the sense of security and the sense of certainty (like the information from official platform) The promotion of a great tool is also important Develop tools in user’s own language (but could match with the info in the field)</td>
<td></td>
</tr>
<tr>
<td><strong>Domestic transport App</strong></td>
<td>NS App, 9292</td>
<td>Input the starting place and destination</td>
<td>Reliable and quickly-updated</td>
<td>- Few foreign passengers know them before leaving; - Language barrier;</td>
<td>- Language barrier; - High cost on understanding the website</td>
<td>Make the ‘official website’ more user-friendly?</td>
<td></td>
</tr>
<tr>
<td><strong>Official websites</strong></td>
<td>NS, EUrail</td>
<td>Browse the website and check the route it provides</td>
<td>Reliable Complete information</td>
<td>- Language barrier; - High cost on understanding the website</td>
<td>- Language barrier; - High cost on understanding the website</td>
<td>How to make the ‘official website’ more user-friendly?</td>
<td></td>
</tr>
<tr>
<td><strong>Previous experience</strong></td>
<td>Personal experience on travel</td>
<td>People will know what types of transport there must be, and choose the one they like; People will know there are always some travel pass tickets they could choose from.</td>
<td>No preparation need. Satisfy their main needs (saving money/public transport/saving time and effort:taxi)</td>
<td>- Might miss better choice also satisfy their needs; - Get too many information and cannot sort out them.</td>
<td>- Might miss better choice also satisfy their needs; - Get too many information and cannot sort out them.</td>
<td>For some people, make the choosing process as quick as possible, make use of their previous data (preference, things matter most) Know what people care most and give recommendations</td>
<td></td>
</tr>
<tr>
<td><strong>Comprehensive social platform</strong></td>
<td>Weibo, RED, Zhihu</td>
<td>Search the keywords, scan related post and choose</td>
<td>People share everything on those websites; People have their preferred social platform, searching info on those sites is there habits; Real experience is reliable.</td>
<td>- No overview of all options, different people have different needs, might leave the best choice out; - The information might be incomplete or outdated.</td>
<td>- No overview of all options, different people have different needs, might leave the best choice out; - The information might be incomplete or outdated.</td>
<td>Help people to get accustomed to a new platform for getting information Personalised recommendations Might also give some people the sense of ‘freely swimming in the information world and find the one I need’</td>
<td></td>
</tr>
<tr>
<td><strong>Travel platform</strong></td>
<td>Mafengwo, Qyer</td>
<td>Search the destination, read other’s travel notes (experience, tips and guidelines);</td>
<td>Those guides, notes or tips covers all aspects of a travel, people could quickly have an overview of the destination.</td>
<td>- Unefficient way on searching certain information; - No overview of all options, different people have different needs, might leave the best choice out; - Other choice might not suit you best.</td>
<td>- Unefficient way on searching certain information; - No overview of all options, different people have different needs, might leave the best choice out; - Other choice might not suit you best.</td>
<td>While people want to know everything in the same time, what’s the advantage of a transport information platform? Is it necessary to provide all kinds of information? Create the feeling that they are the expert of the destination</td>
<td></td>
</tr>
<tr>
<td><strong>Travel planning tools</strong></td>
<td>Google Trips, Qyer travel Assistant</td>
<td>Add the sites you plan to go, then get the recommended routes</td>
<td>Time-saving; No need to search information and make choice;</td>
<td>- Not flexible; - Need to learn how to use the tool</td>
<td>- Not flexible; - Need to learn how to use the tool</td>
<td>Give enough freedom or flexibility to users How to make the user of the product ‘designed for a fool’ not think themselves as fool</td>
<td></td>
</tr>
<tr>
<td><strong>Comprehensive online shopping website</strong></td>
<td>Taobao</td>
<td>Search the keywords and read the product intro page</td>
<td>People get accustomed to buy everything on Taobao; People believe there is a complete range of products on Taobao; Payment is easyAlipay.</td>
<td>- Information asymmetry; - Unofficial channel might causes mistakes;</td>
<td>- Information asymmetry; - Unofficial channel might causes mistakes;</td>
<td>Make use of user’s previous pattern of getting info/buying things online</td>
<td></td>
</tr>
<tr>
<td><strong>Travel platform selling travel products</strong></td>
<td>Mafengwo, Qyer, Ctrip</td>
<td>Search the keyword; Or get recommendations on certain pages.</td>
<td>People trust those platform as professional travel platform; Payment is easyAlipay.</td>
<td>- Some platforms are immature on E-commerce; - Information asymmetry;</td>
<td>- Some platforms are immature on E-commerce; - Information asymmetry;</td>
<td>Build the image of professional Relate the products/info in a logic way and give recommendations in the right time</td>
<td></td>
</tr>
<tr>
<td><strong>Buying/book ing products</strong></td>
<td>Ask friend to help to buy tickets online</td>
<td>Provide the info of his/her travel and friends would buy the ticket(online) and send the ticket to him/her</td>
<td>Compared to first-time passenger, friends there are more familiar with the transport system; More effort-saving, no need to understand every step;</td>
<td>Might create unnecessary bothers (for example, buying a train ticket in the plaza is not hard, while ask other to buy one and send the ticket to the email in advance is time-consuming)</td>
<td>Might create unnecessary bothers (for example, buying a train ticket in the plaza is not hard, while ask other to buy one and send the ticket to the email in advance is time-consuming)</td>
<td>How to create the feeling there’s a super reliable person do everything for you</td>
<td></td>
</tr>
<tr>
<td>Buying/book ing products</td>
<td>Options mentioned above in At Home- Transport/ticket information:</td>
<td></td>
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<tr>
<td>Help from people you know</td>
<td>Official website</td>
<td>Netherlands, discover holland, I Amsterdam</td>
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<tr>
<td>Ask friend to help to buy tickets online</td>
<td>First know there's a official website, and learn how to use the website, then buy the ticket they need</td>
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<tr>
<td>Provide the info of his/her travel and friends would buy the ticket online and send the ticket to him/her</td>
<td>People trust official website most</td>
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<tr>
<td>Compared to first-time passenger, friends there are more familiar with the transport system; More effort-saving, no need to understand every step;</td>
<td>- People don't know which denominations is most useful</td>
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<tr>
<td>- Might create unnecessary bothers (for example, buying a train ticket in the plaza is not hard, while ask other to buy one and send the ticket to the email in advance is time-consuming)</td>
<td>How to create the feeling there's a super reliable person do everything for you</td>
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<tr>
<td>Official website</td>
<td>Options mentioned above in At Home- Transport/ticket information:</td>
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<td></td>
</tr>
<tr>
<td>NS, Euraill, discover holland, I Amsterdam</td>
<td>Searching Engines Recommendations from people you know</td>
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<tr>
<td>Comprehensive social platform</td>
<td>Travel platform</td>
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<tr>
<td>Previous experience</td>
<td>Personal experience on payment abroad</td>
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<tr>
<td>People prepare credit cards and cash as they did before</td>
<td>People know credit card and cash are frequently used payment means when travelling abroad</td>
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<tr>
<td>People trust official websites most</td>
<td>- People don't know which denominations is most useful</td>
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<tr>
<td>Convenience, efficient communication</td>
<td>How to make the communication even more efficient? Make the tool looks more official and reliable Present some information before talking</td>
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<tr>
<td>- People have no idea if the company is reliable; - Some people do not like to talk with strangers (especially in foreign language); - The waiting line might be long</td>
<td>Develop an AI employee Provide supportive Q&amp;A part</td>
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<tr>
<td>- People have no idea if the company is reliable; - Some people do not like to talk with strangers (especially in foreign language); - The waiting line might be long</td>
<td>- People don't know what for The information should be obvious, accurate and show at the right place, right moment The tool/product should explain itself</td>
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<tr>
<td>- Language barrier; - To official; - Hard to get access (lots of people tend to book products through the third party); - Payment problems;</td>
<td>- People don't know what for The information should be obvious, accurate and show at the right place, right moment The tool/product should explain itself</td>
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<tr>
<td>How to make the user of the product 'designed for a fool’</td>
<td>Give enough freedom or flexibility to users</td>
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<tr>
<td>- Language barrier; - Lack in details</td>
<td>How to lower down the cost of getting realiable information?</td>
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<tr>
<td>How to make the 'official website' more user-friendly?</td>
<td>- People have no idea if the company is reliable; - Some people do not like to talk with strangers (especially in foreign language); - The waiting line might be long</td>
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</tr>
</tbody>
</table>
## Appendix G: Point of View & How Might We

<table>
<thead>
<tr>
<th>Who</th>
<th>Need</th>
<th>Why</th>
</tr>
</thead>
</table>
| A couple with detailed travel plan       | Their plan could be carried out successfully and fluently | The information collected before is usually not including details (if it’s possible to buy a ticket on the bus, coins needed?)  
|                                          |                                               | There are other choices in the field which is not known by the user before hand |
| Friends travellers with no preparation   | Quickly make choice on next transport and the ticket | They are in an urgent state: are about to take next transport immediately (time limit)  
|                                          |                                               | There are too many different tickets choice with complex using rules, which make it’s hard to compare and choose  
|                                          |                                               | Even though asking people in the information desk looks like the best choice, receiving all brand new information English might be hard (not dare to communicate with no basic information) |
| Student alone with large luggage         | Get the confirmation of everything she did were right | She’s totally unfamiliar with the system;  
|                                          |                                               | She don’t want to make any mistakes, which might trigger other problems (cannot catch the next transport).  
|                                          |                                               | She think she is not able to solve any problems alone in a familiar situation.  
|                                          |                                               | She have large luggage, hope everything goes as the schedule, don’t want to pay effort to solve problems  
<p>|                                          |                                               | Feel in control of everything |</p>
<table>
<thead>
<tr>
<th>HMW questions/Personas</th>
<th>A couple with detailed travel plan</th>
<th>Student alone with large luggage</th>
<th>Friends travellers with no preparation</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Amp up the good</strong></td>
<td>How provide even better choice for them?</td>
<td>How to make her feel that: I am able to deal with everything.</td>
<td>How to make the real travel as easy as their decision making?</td>
</tr>
<tr>
<td><strong>Remove the bad</strong></td>
<td>How to make every choice the best choice?</td>
<td>How to eliminate the possibilities that there might be something wrong</td>
<td>How to make the transport system and regulations become easy to understand?</td>
</tr>
<tr>
<td><strong>Explore the opposite</strong></td>
<td>How to make the ‘preparation’ not necessary?</td>
<td>How to make ‘solving the problem’ a happy experience</td>
<td>How to make the complex ticket system become easier? How to make people dare to ask personnel?</td>
</tr>
<tr>
<td><strong>Question an assumption</strong></td>
<td>How to make the transport flexible enough?</td>
<td>How to make the luggage disappear</td>
<td>How to encourage those people make travel plan beforehand? How to make ‘make decision’ become less urgent? How to decrease too many types of ticket?</td>
</tr>
<tr>
<td><strong>Go after adjectives</strong></td>
<td>How to change ’unknown’ to ‘known’?</td>
<td>How to change ‘unfamiliar’ to ‘familiar’, ‘stressful’ to ‘ease’, ‘exhausted’ to ‘energetic’?</td>
<td>How to change ‘urgent’ to ‘calm’, ‘varied’ to ‘unified’</td>
</tr>
<tr>
<td><strong>Create an analogy from insight or context</strong></td>
<td>How to make the journey like fighting monsters game?</td>
<td>How to make the process like a SPA? How to make the airport like an amusement park or cinema?</td>
<td>How to make ticket choosing like Tinder?</td>
</tr>
<tr>
<td><strong>ID unexpected resources</strong></td>
<td>How to make use of the accident?</td>
<td>How to get help from other passengers? How to get help from local friends via the WeChat?</td>
<td>/</td>
</tr>
<tr>
<td><strong>Play POV against the challenge</strong></td>
<td>/</td>
<td>How to make ‘transporting from Schiphol’ become the best thing for people travelling alone</td>
<td>/</td>
</tr>
</tbody>
</table>
## Appendix H Ideas Mapping

<table>
<thead>
<tr>
<th>Gamification</th>
<th>Plan before leaving</th>
<th>Plan at Schiphol</th>
<th>Quick review</th>
<th>Make decision</th>
<th>Information in the field</th>
<th>Get confirmation</th>
<th>All included</th>
<th>New tourist ticket</th>
<th>Support/when troubles</th>
<th>Decrease the burden</th>
<th>Change your mind</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>In three months</strong></td>
<td>Help people to divide the planning, give goal to each and make it clear ————- (let the user know what you are going to do as soon as possible)</td>
<td>Ticket comparison like Apple.com</td>
<td>Make the name of destination not misleading</td>
<td>Make information confirmation ten minutes before each stop</td>
<td>Google map for Schiphol more detailed and with price, tickets and so on</td>
<td>Simplify the tickets</td>
<td>Provide alternative solutions all the time</td>
<td>Make the elevation more obvious</td>
<td>Invite people to take a break in the quiet carriage</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Different colour for different mood</td>
<td>Make the ticket explain themselves by their look</td>
<td>Signage everywhere</td>
<td>Visualise the tickets</td>
<td>Make the information desk more notable</td>
<td>The hotel know my location all the time and prepare for it</td>
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</tr>
<tr>
<td>the information must be in Chinese</td>
<td>the information screen are constant</td>
<td>A huge screen in the Airport</td>
<td>Tell passengers when any trouble happens: we will100% solve it for you!</td>
<td>Give the passengers chocolate as gift when they arrive</td>
<td></td>
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<tr>
<td>Information in parallel should be transferred to same layout</td>
<td>App to help cooperation between friends or couple</td>
<td>Explain the possible accident pretty well</td>
<td>Tell passengers: it okay for you to take some time to plan</td>
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</tbody>
</table>

| **In three years** | A game for building the railway system in the Netherlands | Based on Google Maps, every stop is interacting with the map; Multiple layers for showing information and interacting | Grab and get on the transport; give key information at each spot | Have the sound effect of success once you finish a task | Personalised route | The passenger pays a fixed amount of money, and always get a refund in the end. | Local people ask your question online | Luggage shuttle | Underline what your view would be in this trip, make the trip not boring, but the beginning of your adventure; or make the train artistic |
| Gold Miner Vegas, you are the first man finding the Netherlands | A template, firstly in black and white, then the user make it colourful by getting information on those aspects | Show necessary information on the boarding pass | Watch a live of the airport before arriving | Multiple screens to enable people cooperate | Voice guidance | Flight and gift package of transport; choose what you want in your hotel | Chatting of different situations ticket machine, taxi stand | Luggage ticket | Encourage people to have a break, to get some good foods |
| Gamification: right of the exit, about 100 meters; there’s an elevator, use it! | Get information along the route from your landing to custom | Make the ticket choosing like a puzzle game | “Your time of making decision defeat 88% people” | Orienteering | Customised tourist ticket based on where to go | The user could scan everything and get the translation and tips | Provide comfortable personal space when waiting |

| Ticket-like | Your ticket evolve in the process of use to the best one for you | Make people waiting in the Airport come to give a hand | I met a star in Airport then I feel relaxed |
| No hesitation route: totally believe the system, get quick recommendations, make decision by shake dice | Template for asking personnel | Remote controlled by others | Advice people have a video-call with family first to release some anxiety |
| Tired-like | No hesitation route: totally believe the system, get quick recommendations, make decision by shake dice | Template for asking personnel | Remote controlled by others | Advice people have a video-call with family first to release some anxiety |

| **Weird ideas** | Invite people who are good at planning to travel | Put a machinelle a page in an App | Make the process like “hehe, I find your drawbacks open!” | Invite people to take a break in the quiet carriage |
| Inform users possible traps at the beginning, then you defeat 80% people by making only one mistake | Every touchpoint show how many mistake it make | The team will go back when I get a wrong one | The staff have a hat of Mickey mouse and look more friendly |
| The staff need people asking questions! | The competition between staff, the winner is the one who answer most questions, so the passenger help the staff to win by asking questions |

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**Note:**
- **Appendix H** refers to the ideas mapping for improving the travel experience, focusing on various aspects such as planning, ticketing, information delivery, and user engagement. The ideas are categorized based on the timescale (in three months and in three years) and include gamification techniques to make the travel experience more engaging and personalized. Each idea is accompanied by a description of how it would be implemented and any potential benefits or changes it would bring to the travel experience.
## Appendix I Second-round Ideas Evaluation

<table>
<thead>
<tr>
<th>Design directions</th>
<th>Problems</th>
<th>Total number</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Calculating problem</td>
<td></td>
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<tr>
<td></td>
<td>Hard-to-reach resources</td>
<td></td>
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<tr>
<td></td>
<td>Information lacking details</td>
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<td></td>
<td>Transport culture shock</td>
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<tr>
<td></td>
<td>No sense of safety</td>
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<tr>
<td></td>
<td>Language barrier</td>
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<tr>
<td>Multi-functional platform</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Intuitive transport info collecting</td>
<td>✓</td>
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<tr>
<td>Quick orientation</td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>New (tourist) tickets</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Q&amp;A for specific spots/touch-points</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Involve local people</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Change their mood</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Change the meaning of 'making mistake'</td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>Design directions</td>
<td>Design Goals</td>
<td>Total number</td>
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<tr>
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<tr>
<td>Make passenger even in extreme state feel confident and supported through the whole journey</td>
<td>Enable passenger to plan their transport journey based on their needs easily and freely</td>
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<tr>
<td>Enable users to quickly adapt to a new, different transport system</td>
<td>Enable users to make decision in an unfamiliar field easily</td>
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<tr>
<td>Guide people to finish their tasks intuitively</td>
<td>Decrease the language barrier in complex situation</td>
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<tr>
<td>Make all necessary information exists and be easy to find</td>
<td>Decrease the cost of making mistake</td>
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<tr>
<td>Make what people care about matters</td>
<td>Provide reliable information in the ‘user language’ at the right moment, right place</td>
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<tr>
<td>Create the information democracy</td>
<td>Improve the accessibility of all great resources</td>
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<tr>
<td>Support passenger with the situation they also travel other European countries</td>
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<tr>
<td>Multi-functional platform</td>
<td></td>
<td>5</td>
</tr>
<tr>
<td>Intuitive transport info collecting</td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>Quick orientation</td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>New (tourist) tickets</td>
<td></td>
<td>4</td>
</tr>
<tr>
<td>Q&amp;A for specific spots/ touchpoints</td>
<td></td>
<td>4</td>
</tr>
<tr>
<td>Involve local people</td>
<td></td>
<td>2</td>
</tr>
<tr>
<td>Change their mood</td>
<td></td>
<td>4</td>
</tr>
<tr>
<td>Change the meaning of ‘making mistake’</td>
<td></td>
<td>1</td>
</tr>
</tbody>
</table>
Ticket assistant

Do you feel comfortable on it? Do you have a 1-day, 2-day or 3-day ticket? If you have any questions, it is best to ask the manager for advice.

Days in the Netherlands

- 3

Continuous days in Amsterdam city area

- 2

Public transport using frequency calculator

Region (within Amsterdam city)

Average number:

- 0-2 times in one day
- 3 or more times in one day

Amsterdam transport frequency calculator

How many attractions do you think you might visit per day?

- 1-2
- 3-4
- 5 or more

How much do you enjoy exploring the city on foot?

- Very much
- Average
- Not much

Transport between attractions

- Others

You will also visit:

- Amsterdam city
- Amsterdam & Region Travel Ticket

Recommendation for your 5-day trip in Amsterdam City

- All hours 3 days

€ 13.5

According to your itinerary, you would travel to at least 6 places. A 2-day ticket costs €13.50. With this ticket, you could save at least €4.50 during your trip and save a lot of time on buying ticket every time.

Recommendation for your trip in Amsterdam city

- All hours 3 days

€ 19.5

According to your itinerary, you would travel to at least 12 places. A 5-day ticket costs €19.50. With this ticket, you would have a comfortable journey in Amsterdam City. Surroundings and save at least 3 euros.

Get your advice

Continue(1)

Continue(2)

Total number of public transport for one day

0

Total number of public transport for one day

2

Total number of public transport for one day

4

Get advice

See details

See details
My trips

Upcoming trips

- Schiphol Airport — City Hotel Amsterdam
  - Departure: 12:00
  - 2 Adult tickets

Information

- Quick overview about Dutch transport system
- Public transport in Holland
- Maps
- Trams
- Trains
- Trains
- Trains
- Public transport ticket
  - Public transport tickets
  - OV-chipcards
- Public transport planning
  - Transponder travel

More questions?
уйууююу
уйууююу
уйууююуу
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уйууююуу
Appendix L Design Inception Sheet & Mood Board

Design Inception Sheet
To ensure the value of the concept could be delivered by visually, a Design Inception Sheet is developed to define the visual language of the final concept. (See Figure L-1).

Mood board
Based on the Design Inception Sheet, a mood board is made to create the colour palette of the final concept.
Appendix M The explanation of choosing tickets

The calculating is based on the price and assumptions below:

- **GVB 1-hour ticket**: €3.20; Assuming for tourist, who need to take some time to visit each attraction, the time between each trip will be more than 1 hour. Therefore, for tourist in most cases, one tour in Amsterdam costs €3.20;

- **GVB day ticket**: €7.50; When a tourist take three trips or more in one day, he/she should choose the day ticket;

- **Amsterdam Travel Ticket**: €17.00; If a tourist has a return trip from Amsterdam to Schiphol Airport within the travel duration, he/she should choose the Amsterdam Travel Ticket than instead of GVB day ticket;

- **OV chip-card**: Card fee: €7.50; Assuming the average price per trip is €2.00 (not accurate). Therefore, when the tourist take eight trips in total, he/she wouldn’t pay more with the OV-chipcard than the single-use ticket; However, for a travel in Amsterdam within three days, the GVB day ticket is more suitable; When a tourist travel for more than seven days, the OV chip-card should be chosen, as the GVB day ticket only have 1-7 days.

- When the tourist does not stay for Amsterdam for consecutive days, for a few uses: 1-2 times per day, he/she could choose to buy a single-use ticket; for frequent use: 3 or more, he/she could use the day ticket in a certain city or buy an OV-chipcard.
## Appendix N From Design Goals to Research Questions

<table>
<thead>
<tr>
<th>Design Goals</th>
<th>Concerns</th>
</tr>
</thead>
</table>
| **1. Make passenger even in extreme state feel confident (they are doing right) and supported (even though they are doing wrong, it’s still fine) through the whole journey** | - Can users with booked trip fluently find their way and fluently get on the vehicles?  
- Can users easily find all important information(in the screen or in the physical world) immediately even in a hurry?  
- What the mood of users when they finish tasks in Schiphol?  
- How people feel when they meet a trouble, and can the product support people when problem happens?                                                                                                                                                                                                                      |
| Enable users to quickly get adjusted to a new, different transport system    | - Can user quickly know how the transport system operate?(especially the difference from their own country’s)  
- Can the design decrease the ‘confusion’ of first-time passenger?                                                                                                           |
| Enable users to make decision in an unfamiliar field easily                 | - Can user choose the route and (tourist)ticket confidently?                                                                                                                                                                                                                                                                         |
| Guide people to finish their tasks intuitively                              | - What the feeling of users to complete the whole process from plan to get on the vehicles                                                                                                                                                                                                                                |
| Decrease the language barrier in complex situation                          | - Can users match the English in the field with the Chinese info in the App?  
- Can users find the English information with the help from the App?                                                                                                                                                                                                                                                   |
| Make all necessary information exists and be easy to find                   | - Can user find all information they need in all touchpoints easily?  
- Is the information understandable and useful?                                                                                                                                                                                                                                                                          |
| Decrease the cost of making mistake                                         | - Can user find the solution when they meet some problems?  
- Can user get comforted by the product when something unrespected happens                                                                                                                                                                                                                                               |
| **2. Enable passenger to plan their transport journey based on their needs easily and freely** | - Can user express their needs in the design?  
- Can user easily find the solution which match their needs?                                                                                                                                                                                                                                                                   |
| Make what people care about matters                                         | - Can the design covered/collect all needs people might concern                                                                                                                                                                                                                                                                     |
| Provide reliable information in the ‘user language’ at the right moment, right place | - Can user find all information they need in all touchpoints easily?  
- Is the information understandable and useful?                                                                                                                                                                                                                                                                           |
| Create the information democracy: people could know everything if they want, and they know they could | - Can people find all information they want in the design?  
- Can people feel the system is reliable?                                                                                                                                                                                                                                                                                  |
| Improve the accessibility of all great resources                            | - Will people take other transport possibilities provided for schiphol airport into consideration with the design?                                                                                                                                                                                                                  |
| Support passenger with the situation the Netherlands is one destination of their travel in Europe | - Will the user who travels multiple countries use this tool?  
- Is the design compatible with these schedule?                                                                                                                                                                                                                                                                          |
Appendix O Test Plan & Test Protocol

Participants
The participants would be people from China with no experience on taking Dutch transport and who are unfamiliar with the location arrangement of Schiphol Airport. They all have experience on independent tour. For Test A, participants are people who are in China; For Test B and Test C, the participant will be Chinese people who just arrives at Schiphol Airport.

The table below shows the participants characteristics and desired number for each group. The characteristic are defined from the user research results. The participant would be recruited before the test.

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Desired number of participants</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total number of participants</td>
<td>6</td>
</tr>
<tr>
<td>For Test A</td>
<td>2</td>
</tr>
<tr>
<td>For Test B</td>
<td>2</td>
</tr>
<tr>
<td>For Test C</td>
<td>2</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Desired number of participants</th>
</tr>
</thead>
<tbody>
<tr>
<td>Travel frequency</td>
<td></td>
</tr>
<tr>
<td>1-2 trips per year</td>
<td>2.4</td>
</tr>
<tr>
<td>3-5 trips per year</td>
<td>2.4</td>
</tr>
<tr>
<td>Travel planning behaviour</td>
<td></td>
</tr>
<tr>
<td>Detail planning</td>
<td>1.3</td>
</tr>
<tr>
<td>Moderately detail planning</td>
<td>1.3</td>
</tr>
<tr>
<td>Almost-none planning</td>
<td>1.3</td>
</tr>
<tr>
<td>Age</td>
<td></td>
</tr>
<tr>
<td>18-30</td>
<td>1.2</td>
</tr>
<tr>
<td>30-40</td>
<td>2.3</td>
</tr>
<tr>
<td>40-50</td>
<td>1.2</td>
</tr>
<tr>
<td>50-60</td>
<td>1.2</td>
</tr>
<tr>
<td>Gender</td>
<td></td>
</tr>
<tr>
<td>female</td>
<td>3.4</td>
</tr>
<tr>
<td>male</td>
<td>2.3</td>
</tr>
</tbody>
</table>

Schedule
The tests will be done between 20 Jul to 10 Aug. For participants for Test A, I will contact people in China and make an appointment for the remote test. For participant for Test B and Test C, the test would be conducted on the day they fly to the Netherlands.
Test A
The Test A sessions will be 55 minutes long. I will use 10 minutes for pre-test arrangements, 15 minutes for pre-test introductions/interviews, 10 minutes for post-test interviews, and left 20 minutes for tasks completing.

<table>
<thead>
<tr>
<th>Parts</th>
<th>Duration (minutes)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre-test arrangements</td>
<td>10</td>
</tr>
<tr>
<td>Pre-test introductions/interviews</td>
<td>15</td>
</tr>
<tr>
<td>Tasks</td>
<td>20</td>
</tr>
<tr>
<td>Post-test interviews</td>
<td>10</td>
</tr>
</tbody>
</table>

Pre-test arrangements (10 min)

**Device adjustment**
- Test the webcam and microphone
- Set the camera to the right position, ensuring the whole interaction with the phone could be recorded

**Have the participant**
- Review and sign nondisclosures and recording permissions
- Fill out the background questionnaire

Pre-test introductions (15 min)

**Introduction on the test (5 min):**
- Brief of the project
- Form of this test
- Recording systems
- Thinking aloud

Background interview (5 min):
- Travel experience
- Personal preference on travel plan making and reason behind it
- How much travel information do they get

Scenario giving (5 min):
The travel scenario will be given to the participant:
- The time of their trip to the Netherlands
- The role and group he/she is in
- Itinerary of each day
- Destination after arrival
- Goal for the transport plan: save money on the transport/take care of the baby/have cozy trips

Tasks (20 min)
Participants will use the product to: plan their first trip after arrival at Schiphol; choose the ticket for this trip; check if there is a tourist ticket suit them.

Post-test interviews (10 min)
- A sheet of screen overview will be shown to the participants
- Ask questions about their errors, success or impressive behaviours
- Ask broad questions about their general comments on the product
- Fill out a likert scale form on aspired qualities of the product
1. Before the test Background questionnaire

<table>
<thead>
<tr>
<th>Basic information</th>
<th>Gender</th>
<th>Female</th>
<th>Male</th>
</tr>
</thead>
<tbody>
<tr>
<td>Family name</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Age</td>
<td>18-29</td>
<td>30-39</td>
<td>40-49</td>
</tr>
<tr>
<td>Profession</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Using phone</th>
<th>Strongly disagree</th>
<th>Strongly agree</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1 2 3 4 5</td>
<td></td>
</tr>
<tr>
<td>I use WeChat frequently</td>
<td></td>
<td></td>
</tr>
<tr>
<td>I use WeChat Mini Program frequently</td>
<td></td>
<td></td>
</tr>
<tr>
<td>I use Map App frequently</td>
<td></td>
<td></td>
</tr>
<tr>
<td>I use travel App frequently</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Other questions
- What’s your travel frequency?
- Travel with a group or independent travel?
- Will you make a plan for travel? How do you do that?
- How do you find the way after arrival?

2. During the test

Scenario
Mrs. Wang and her four-year-old child and two friends are going to visit the Netherlands.

Dates: Aug 12 - Aug 16

People: 3 adults, 1 child (four years old)

Hotel: Citiz Hotel Amsterdam (not in the city centre)

Needs: Take care of her children

Consuming level: Medium

Itinerary:

<table>
<thead>
<tr>
<th>Time</th>
<th>Aug 12</th>
<th>Aug 13</th>
<th>Aug 14</th>
<th>Aug 15</th>
<th>Aug 16</th>
</tr>
</thead>
<tbody>
<tr>
<td>Morning</td>
<td>Arriving, go to the hotel</td>
<td>In Amsterdam Anne Frank House</td>
<td>(Amsterdam region) Volendam</td>
<td>(The west of Holland) Gaerthoorn</td>
<td>Leaving</td>
</tr>
<tr>
<td>Afternoon</td>
<td>In Amsterdam Van Gogh Museum, Dam Square</td>
<td>In Amsterdam National Museum</td>
<td>(Amsterdam region) Zaanen Schans</td>
<td>(The west of Holland) Gaerthoorn</td>
<td></td>
</tr>
<tr>
<td>Evening</td>
<td>In Amsterdam Red light street</td>
<td>In Amsterdam Royal Palace Amsterdam</td>
<td>Back to the hotel in Amsterdam</td>
<td>Back to the hotel in Amsterdam</td>
<td></td>
</tr>
</tbody>
</table>

Task

Now you are planning the transport at home:
1. Plan the route from Schiphol to the hotel
2. Choose a suitable tourist tickets for your tour
3. After test

<table>
<thead>
<tr>
<th>Question</th>
<th>Strongly disagree</th>
<th>Strongly agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1  I could find the information I need in the Mini Program easily</td>
<td>1  2  3  4  5  6  7</td>
<td></td>
</tr>
<tr>
<td>2  The Mini Program help me to choose the route more easily</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3  The Mini Program help me to choose the ticket more easily</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The System Usability Scale

<table>
<thead>
<tr>
<th>Question</th>
<th>Strongly disagree</th>
<th>Strongly agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1  I think that I would like to use this Mini Program frequently</td>
<td>1  2  3  4  5  6  7</td>
<td></td>
</tr>
<tr>
<td>2  I found the Mini Program unnecessarily complex</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3  I thought the Mini Program was easy to use</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4  I think that I would need the support of a technical person to be able to use this Mini Program</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5  I found the various functions in this Mini Program were well integrated</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6  I thought there was too much inconsistency in this Mini Program</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7  I would imagine that most people would learn to use this Mini Program very quickly</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8  I found the Mini Program very cumbersome to use</td>
<td></td>
<td></td>
</tr>
<tr>
<td>9  I felt very confident using the Mini Program</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10 I needed to learn a lot of things before I could get going with this Mini Program</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Questions

- What's the most problem you just encounter?
- Any thing you satisfied with?
- What's your general felling of using this Mini Program?
Test B

The Test B sessions will be 45 minutes long. I will use 5 minutes for pre-test arrangements, 15 minutes for pre-test introductions/interviews, 10 minutes for post-test interviews, and left 15 minutes for tasks completing.

<table>
<thead>
<tr>
<th>Parts</th>
<th>Duration (minutes)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre-test arrangements</td>
<td>5</td>
</tr>
<tr>
<td>Pre-test introductions/interviews</td>
<td>15</td>
</tr>
<tr>
<td>Tasks</td>
<td>15</td>
</tr>
<tr>
<td>Post-test interviews</td>
<td>10</td>
</tr>
</tbody>
</table>

Pre-test arrangements (5 min)

Device adjustment
- Adjust the camera

Have the participant
- Review and sign nondisclosures and recording permissions
- Fill out the background questionnaire

Pre-test introductions (15 min)

Introduction on the test (5 min):
- Brief of the project
- Form of this test
- Recording systems
- Thinking aloud

Scenario giving (5 min):
The travel scenario will be given to the participant:
- The role and group he/she is in
- Destination after arrival
- The route they planned before
- Time limitation: urgent or not

Tasks
Participant go to the vehicle they plan to take.

Post-test interviews
- A sheet of screen overview will be shown to the participants
- Ask questions about their errors, success or impressive behaviours
- Ask broad questions about their general comments on the product
- Fill out a likert scale form on aspired qualities of the product

- Personal preference on travel plan making and reason behind it
- Personal preference on direction & way-finding, and reason behind it

Background interview (5 min):
- Travel experience
Materials prepared for Test B

The background questionnaire and the post-test interviews is the same with Test A.

2. During test

[Scenario]

To look after daughter studying in TU Delft.

First destination: TU Delft

You have planned your way to there before leaving: Take a train to Delft, and take a bus to the university.

[Task]

Find the planned trip in the Mini Program, and follow it to take on the train.

3. After test

<table>
<thead>
<tr>
<th>Question</th>
<th>Strongly disagree</th>
<th>Strongly agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 I could find the information I need in the Mini Program easily</td>
<td>1</td>
<td>2 3 4 5 6 7</td>
</tr>
<tr>
<td>2 The Mini Program help me to choose the route more easily</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3 The Mini Program help me to choose the ticket more easily</td>
<td></td>
<td></td>
</tr>
<tr>
<td>The System Usability Scale</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 I think that I would like to use this Mini Program frequently</td>
<td>1</td>
<td>2 3 4 5 6 7</td>
</tr>
<tr>
<td>2 I found the Mini Program unnecessarily complex</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3 I thought the Mini Program was easy to use</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4 I think that I would need the support of a technical person to be able to use this Mini Program</td>
<td>1</td>
<td>2 3 4 5 6 7</td>
</tr>
<tr>
<td>5 I found the various functions in this Mini Program were well integrated</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6 I thought there was too much inconsistency in this Mini Program</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7 I would imagine that most people would learn to use this Mini Program very quickly</td>
<td>1</td>
<td>2 3 4 5 6 7</td>
</tr>
<tr>
<td>8 I found the Mini Program very cumbersome to use</td>
<td></td>
<td></td>
</tr>
<tr>
<td>9 I felt very confident using the Mini Program</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10 I needed to learn a lot of things before I could get going with this Mini Program</td>
<td>1</td>
<td>2 3 4 5 6 7</td>
</tr>
</tbody>
</table>
Test C

The Test C sessions will be 60 minutes long. I will use 5 minutes for pre-test arrangements, 15 minutes for pre-test introductions/interviews, 10 minutes for post-test interviews, and left 30 minutes for tasks completing.

<table>
<thead>
<tr>
<th>Parts</th>
<th>Duration (minutes)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre-test arrangements</td>
<td>5</td>
</tr>
<tr>
<td>Pre-test introductions/interviews</td>
<td>15</td>
</tr>
<tr>
<td>Tasks</td>
<td>30</td>
</tr>
<tr>
<td>Post-test interviews</td>
<td>10</td>
</tr>
</tbody>
</table>

re-test arrangements (5 min)

Device adjustment
- Adjust the camera

Have the participant
- Review and sign nondisclosures and recording permissions
- Fill out the background questionnaire

Pre-test introductions (15 min)

Introduction on the test (5 min):
- Brief of the project
- Form of this test
- Recording systems
- Thinking aloud

Scenario giving (5 min):
The travel scenario will be given to the participant:
- The travel scenario will be given to the participant:
  - The time of their trip to the Netherlands
  - The role and group he/she is in
  - Itinerary of each day
  - Destination after arrival
  - Goal for the transport plan: save money on the transport/take care of the baby/have cozy trips

Tasks
Firstly, participants will use the product to: plan their next trip; choose the ticket for this trip; check if there is a tourist ticket suit them. Next, participant go to the vehicle they plan to take.

Post-test interviews
- A sheet of screen overview will be shown to the participants
- Ask questions about their errors, success or impressive behaviours
- Ask broad questions about their general comments on the product
- Fill out a likert scale form on aspired qualities of the product

- Personal preference on travel plan making and reason behind it
- Personal preference on direction & way-finding, and reason behind it

Background interview (5 min):
- Travel experience
2. During test

**Scenario**
Mrs Wang and her four-year child and two friends now arrive at Schiphol Airport.

**Dates**: Aug 12- Aug 16

**People**: 3 adults, 1 child (four years old)

**Hotel**: Citiez Hotel Amsterdam (not in the city centre)

**Needs**: Take care of her children

**Consuming level**: Medium

**Itinerary**:

<table>
<thead>
<tr>
<th></th>
<th>Aug 12</th>
<th>Aug 13</th>
<th>Aug 14</th>
<th>Aug 15</th>
<th>Aug 16</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Morning</strong></td>
<td>Arriving, go to the hotel</td>
<td>(In Amsterdam) Anne Frank House</td>
<td>(Amsterdam region) Volendam</td>
<td>(The east of Holland) Giethoorn</td>
<td>Leaving</td>
</tr>
<tr>
<td><strong>Afternoon</strong></td>
<td>(In Amsterdam) Van Gogh Museum, Dam Square</td>
<td>(In Amsterdam) National Museum</td>
<td>(Amsterdam region) Zaanse Schans</td>
<td>(The east of Holland) Giethoorn</td>
<td></td>
</tr>
<tr>
<td><strong>Evening</strong></td>
<td>(In Amsterdam) Red light street</td>
<td>(In Amsterdam) Royal Palace Amsterdam</td>
<td>Back to the hotel in Amsterdam</td>
<td>Back to the hotel in Amsterdam</td>
<td></td>
</tr>
</tbody>
</table>

**Task**

Now you are planning the transport for later:
1. Plan the route from Schiphol to the hotel
2. Choose a suitable tourist tickets for your tour
3. Then you find the spot for getting on the planned modality

---

### 3. After test

<table>
<thead>
<tr>
<th>Question</th>
<th>Strongly disagree</th>
<th>Strongly agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. I could find the information I need in the Mini Program easily</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. The Mini Program help me to choose the route more easily</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. The Mini Program help me to choose the ticket more easily</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. The Mini Program helps me to get on the vehicle fluently</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. The Mini Program make me feel at ease in a new environment</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**The System Usability Scale**

1. I think that I would like to use this Mini Program frequently
2. I found the Mini Program unnecessarily complex
3. I thought the Mini Program was easy to use
4. I think that I would need the support of a technical person to be able to use this Mini Program
5. I found the various functions in this Mini Program were well integrated
6. I thought there was too much inconsistency in this Mini Program
7. I would imagine that most people would learn to use this Mini Program very quickly
8. I found the Mini Program very cumbersome to use
9. I felt very confident using the Mini Program
10. I needed to learn a lot of things before I could get going with this Mini Program
This document contains the agreements made between student and supervisory team about the student’s IDE Master Graduation Project. This document can also include the involvement of an external organisation, however, it does not cover any legal employment relationship that the student and the client (might) agree upon. Next to that, this document facilitates the required procedural checks. In this document:

- The student defines the team, what he/she is going to do/deliver and how that will come about.
- SSC E&SA (Shared Service Center, Education & Student Affairs) reports on the student’s registration and study progress.
- IDE’s Board of Examiners confirms if the student is allowed to start the Graduation Project.

Endorsement:
Chair: Dr. ir. Hiemstra, S. 
Date: ___________
Signature: __________________________

Formal Approval Graduation Project
To be filled in by the Board of Examiners of IDE TU Delft. Please check the supervisory team and study the parts of the brief marked **.

Next, please assess, (dis)approve and sign this Project Brief, by using the criteria below:

- Does the project fit within the (MSc)-programme of the student (taking into account, if described, the activities done next to the obligatory MSc specific courses)?
- Is the project expected to be doable within 100 working days/20 weeks?
- Does the composition of the supervisory team comply with the regulations and fit the assignment?

Comments:

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Enhancing Mobility around Schiphol Airport for International Passengers

Please state the title of your graduation project (above) and the start date and end date (below). Keep the title compact and simple. Do not use abbreviations. The remainder of this document allows you to define and clarify your graduation project.

**INTRODUCTION**

Please describe the context of your project, and address the main stakeholders (interests) within this context in a concise yet complete manner. Who are involved, what do they value and how do they currently operate within the given context? What are the main opportunities and limitations you are currently aware of (cultural- and social norms, resources (time, money,...), technology,...)?

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The number of international passengers who arrive in the Netherlands per year is continuously increasing. It is predicted that the number of incoming visitors will grow by at least 50% from 18 million in 2017 to 29 million in 2030 (NBTC, 2019). Correspondingly, the demand for services for international travellers grows strongly. One essential aspect of service for international travellers, transport, was experienced as 'non-user-friendly' by international travellers (NBTC, 2015).

In order to create a user-friendly passenger experience for international travellers, and to create a seamless connection between Schiphol and the Netherlands, the project Optimaliseren Mobiliteit rondom Schiphol (in English Optimise Mobility around Schiphol) is initiated by Schiphol Airport, public transport operator NS, GVB, Connexxion, local government authorities Gemeente Amsterdam, Vervoerregio Amsterdam, ProRail, and TU Delft.

This graduation project is part of this project Optimaliseren Mobiliteit rondom Schiphol, with the focus on the passenger experience on transporting from/to the Schiphol Airport to/from other parts of the Netherlands or Europe, from the perspective of first time Asian passengers.

For first time passengers, they are confronted with the unfamiliarity and complexity of the transport system when they arrive at Schiphol Airport. While the Dutch transport system is mature, as well as a large variety of choices of transport tools are offered, in other aspects, from information searching, way-finding, transport plan choosing to ticket purchasing, international passengers face with multiple problems (Lehr, 2016). Therefore, the opportunity of this graduation project is to create a user-friendly and care-free mobility experience with both digital and physical support for Asian passengers.

The stakeholders of project Optimaliseren Mobiliteit rondom Schiphol, public transport operator GVB (Amsterdam municipal transport), NS (the principal Dutch passenger railway operator), Connexxion (bus transport company to and from Schiphol) and local government authorities Gemeente Amsterdam (municipality of Amsterdam), Vervoerregio Amsterdam (a joint venture of municipalities on traffic and public transport), ProRail (Dutch rail network infrastructure supplier and maintainer) will also be involved in this project.

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According to the report of NBTC, many international passengers perceive the Dutch public transport system as non-user friendly (NBTC, 2015). Currently, a variety of transport means, like train, metro, tram, bus, and taxi, are connected to Schiphol. Besides, different types of ticket, like Amsterdam Travel Ticket, Holland Travel Ticket, anonymous OV-chipkaart and a single-use chip card are provided. The transport network is mature, but the services are not unified and user-friendly for international passengers.

The problem statement is: there is currently no unified and user-friendly service system to support the first time international passengers with their transport journey, which starts from and also ends at Schiphol Airport, on the aspects of information searching, way-finding, transport plan choosing and tickets purchasing.


**ASSIGNMENT**

State in 2 or 3 sentences what you are going to research, design, create and/or generate, that will solve (part of) the issue(s) pointed out in "problem definition". Then illustrate this assignment by indicating what kind of solution you expect and/or aim to deliver, for instance: a product, a product-service combination, a strategy illustrated through product or product-service combination ideas, ... In case of a Specialisation and/or Annotation, make sure the assignment reflects this.

This assignment is creating a care-free transport journey from/to Schiphol from the perspective of first time Asian passengers. I will research the current transport system as well as multiple types of passenger’s journey in various contexts, and develop design concepts for the digital platform and the physical environment.

The aimed deliverable of this assignment will be a digital platform with functions such as information provision, way-finding, travel plan choosing and tickets purchasing, for example, in the environment of WeChat (a Chinese multi-purpose messaging, social media and mobile payment app), together with the recommendations on the physical environment in Schiphol Airport as well as the whole transport network.

The issues to be addressed will include but not limited to:
- Clarifying the current transport system around Schiphol Airport
- Understanding multiple types of passenger journey of Asian passenger
- Sorting and unifying the information provided by various service provider
- Developing the online-offline system for information provision and travel products purchasing
- Creating the connection between digital and physical waypoints and services
- Ensuring the feasibility and viability of the design solutions

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In the Gantt chart, it is shown that the total amount of working days is limited to 100, a total amount of 20 weeks. The 100th day would be on August 19.

The project is divided into five main phases: Analysis, Ideation, Conceptualisation, Embodiment and Verification. Each phase will take four or five weeks with some overlapping. Meanwhile, the documentation for the report is stretched over the full project. The Showcase and Final Presentation are planned to the last three weeks of the project.

Some key points need to be explained:
- a) In the Analysis phase, the contextual research covers the research of the physical environment, the market, the stakeholders network and the cultural environment. Strategies like context mapping, stakeholder mapping, market analysis and values and practices mapping might be used in this stage.
- b) In the Ideation phase, brainstorming and co-creation(with passengers or stakeholders) would be the main approaches for ideation. Quickly prototyping, test and iteration are also necessary.
- c) In the Conceptualisation phase, the prototyping and test of the chosen concept would be conducted, which help to iterate and improve the final concept.
- d) In the Embodiment phase, the final concept would be built to a high-fidelity prototype.
- e) In the Verification phase, the final user test and stakeholder validation would be conducted, and the recommendations from user test and stakeholder validation would be executed to the final concept before the final presentation.
- f) The final showcases would be an interactive prototype and a video.
MOTIVATION AND PERSONAL AMBITIONS

There are multiple reasons why I am motivated to execute this assignment:
- Passion and interest in solving problems in public space. From my experience on courses Project Usability and user eXperience Assessment in Design and Project Exploring Interaction, I found my interest in solving the problem in complicated context, where multiple people are involved and various types of interaction are happening.
- Design with service design thinking. The elective course Service Design made me fascinated with the whole service experience design. I would like to take the responsibility to develop a complete service.
- Previous experience and future choice. I have some experience in digital product design, which is also the direction I want to pursue my future career.

Personal learning ambitions
- Developing the ability to optimise user experience in an online-offline service, which could be a pretty important aspect for future design.
- Developing the ability to handle multiple factors in a design project, like complex context, various types of users, and multiple stakeholders at the same time.
- Developing the ability to deal with practical issues.
- Getting in-depth knowledge of the public service field.
- Having a try on co-creation design method.