

Appendix

Enhancing Mobility around
Schiphol Airport for
International Passengers

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Contents

Appendix A	4	Appendix I	33
Research questions & Approaches		Second-round Ideas Evaluation	
Appendix B	6	Appendix J	35
Transport from Schiphol		Screens Flowchart	
Appendix C	8	Appendix K	36
Service Safari		Wireframes	
Appendix D	21	Appendix L	40
Interview Questions		Design Inception Sheet & Mood Board	
Appendix E	22	Appendix M	41
Data Mapping		The explanation of choosing tickets	
Appendix F	28	Appendix N	42
Ways to complete tasks		From Design Goals to Research Questions	
Appendix G	30	Appendix O	43
Point of View&How Might We		Test Plan&Test Protocol	
Appendix H	32	Appendix P	51
Ideas Mapping		Project Brief	

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).

	Desk Research	Service Safari (self-experience)	Interviews	Observations
(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?			●	
- What are the vision, goal and interest to earn for the stakeholders?	●		●	
(2) Have an overview of current passenger experience	●		●	●
- Who are the target user?	●		●	●
- What are the different passengers' journey?			●	
- How do they interact with current service?			●	●
(3) Understand the needs of both customers and stakeholders	●	●	●	●
- For the stakeholders: What effort did they put in the system? What trouble are they encountering on supporting passengers?			●	
- What kinds of information are crucial for passengers?		●	●	●
- What types of products do the partners want to connect to the future service system?	●		●	

Figure A-1. Approached used in the Reserach&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 car 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

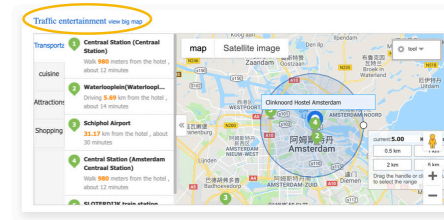
- Book the hotel



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

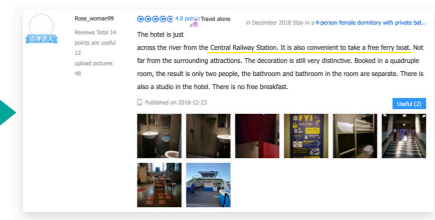
Pre-service

- Check the transport



Check the transport info shown on this hotel page

- + The comments provide a lot of very easy-to-implement advice, compared to the official information;
- The info in Chinese might be hard to transfer to Dutch in the actual situation (even when you show the Hotel to the personnel in the Schiphol)
- The info provided in the comment are vague, sometimes might be more confusing for user



The comments from others also provide valuable information

Actual-service

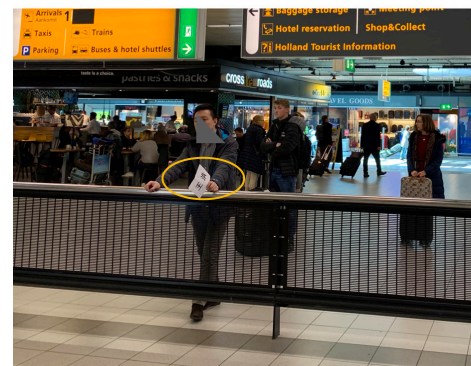
- Connect to the WIFI



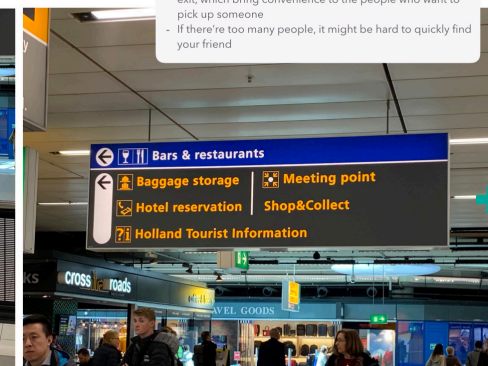
Situation A - Your friends pick you up

Actual-service

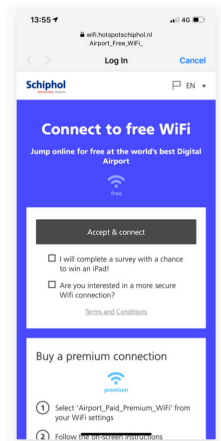
- Find your friend



After baggage reclaiming, you step into the landside. Find your *friend* or go to the *Meeting point*.



- + The screen in the exit shows which flight will leave from this exit, which bring convenience to the people who want to pick up someone
- If there're too many people, it might be hard to quickly find your friend



+ The Wi-Fi page is easy to trigger and connect once the passenger arrived;
 - The Wi-Fi in the landside is not good. The inconsistency might caused more bothers (for example, the user knew the Wi-Fi is good so they didn't prepare other solution until the cannot connect to it anymore when they walked out the airside).

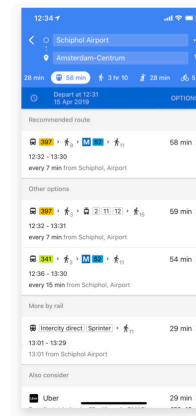
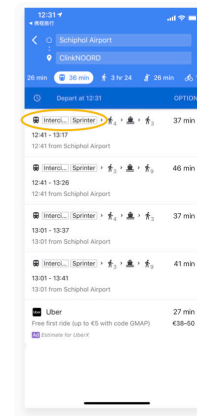
Connect to Airport free WiFi easily



Situation B - You take the public transport

Actual-service

► Google map after arrived



+ Google map shows all useful information in a clear way
 - For first-time passenger, they might not able to quickly understand the 'intercity' or 'sprinter'
 - They might also encounter problems on locate the destination in Google Map

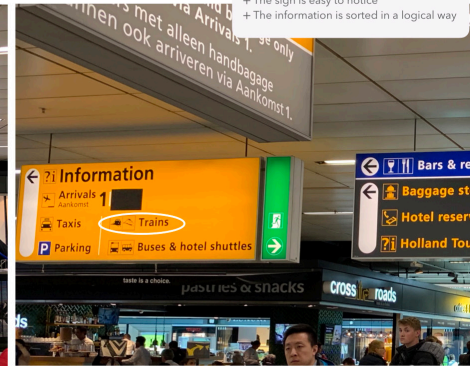
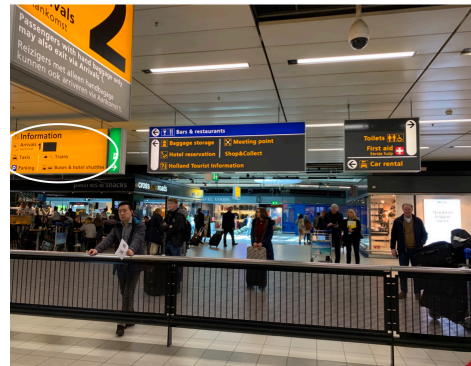
Check google map for directions, it shows you could **either take the train or take the bus**



Situation B-1 You choose the train

Actual-service

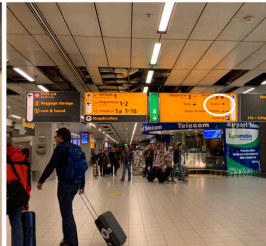
- Look at the signs



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

Actual-service

- Follow the signs



Follow the direction the sign points, pass by an I

Actual-service

- Look at the machine

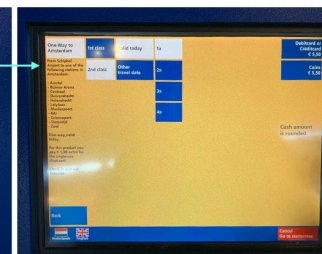
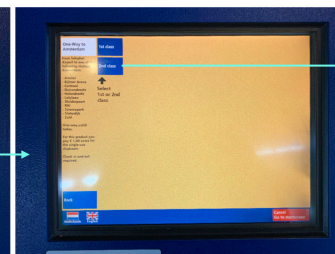
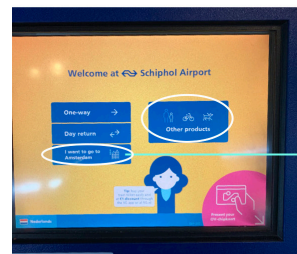


Check the ways of payment

- + The machine is easy to find
- + The way of payment is clear
- Still, many types of credit/debit card not from Europe cannot work in this machine, even though it shows it should work

Actual-service

- Select the ticket and pay for it



Choose the tickets and finish the payment

- + The short-cut on the screen 'I want to go Amsterdam' is useful
- Too many selection to choose before getting a ticket
- 'Other products' might be confusing to first-time passengers

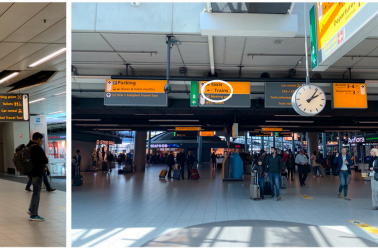
Actual-service

- Find the platform



Actual-service

► Arrive at the plaza



Information desk

+ The signs are consistent

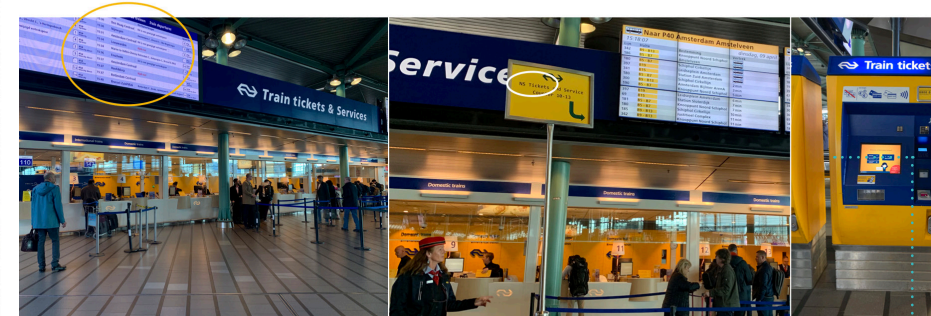


Arrive at the plaza, notice the *Train ticket & Services* center

+ The service desk is easy to find
- The visual feeling of the whole plaza is complicated and messy

Actual-service

► Ready to buy the ticket

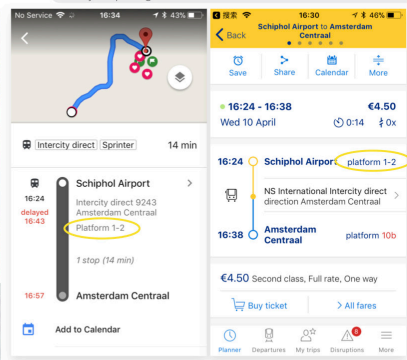
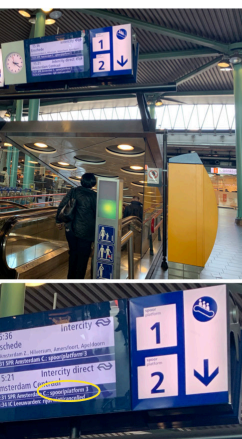


Get close to the windows, check the timetable, don't know which ticket to buy; and find another option for train tickets purchasing - the ticket machine

- The screen shows a lot of information in Dutch
- People cannot directly understand what NS means
+ Multiple choices are provided

Actual-service

Find the platform



Find the platform through the screen or Apps like google map/NS



Scan the ticket

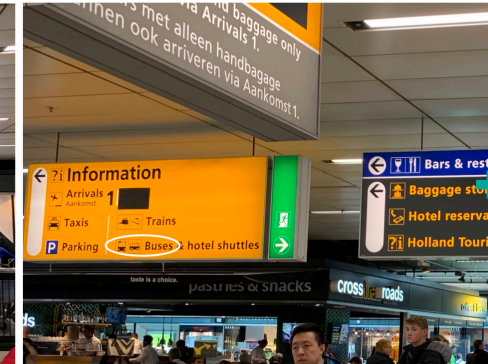
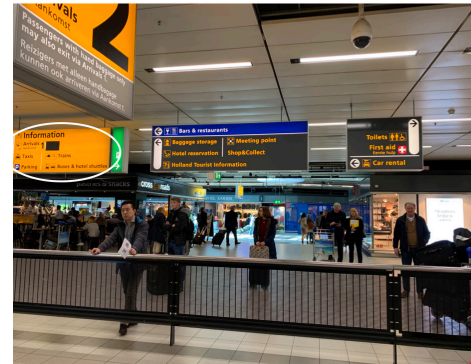
- People might forget to scan the ticket
- There's no gate
- The text on the screen is in Dutch



Situation B-2 You choose the bus

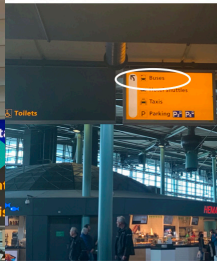
Actual-service

- 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

- Stand in the line



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

- + The waiting line is well-arranged
- + The long, yellow banner is eye-catching

Actual-service

- Catch the taxi



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*



Actual-service

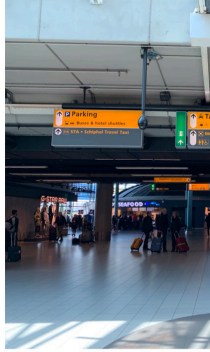
- Look at the signs



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

Actual-service

- Follow the signs



Actual-service

- Pick up the car



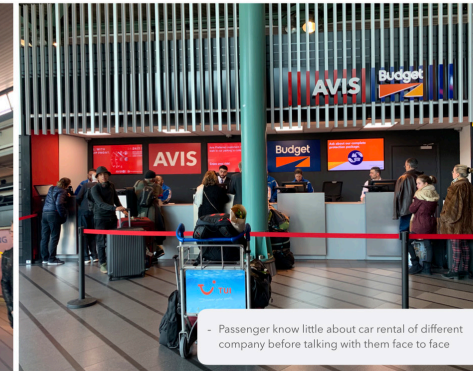
Go to the parking to pick up the car

Actual-service

- ▶ Follow the signs



Follow the signs to the Car rental



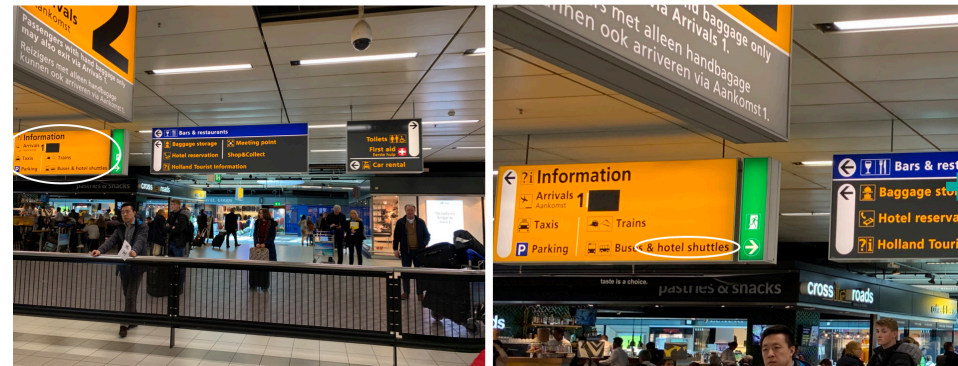
Check in at the desk



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

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

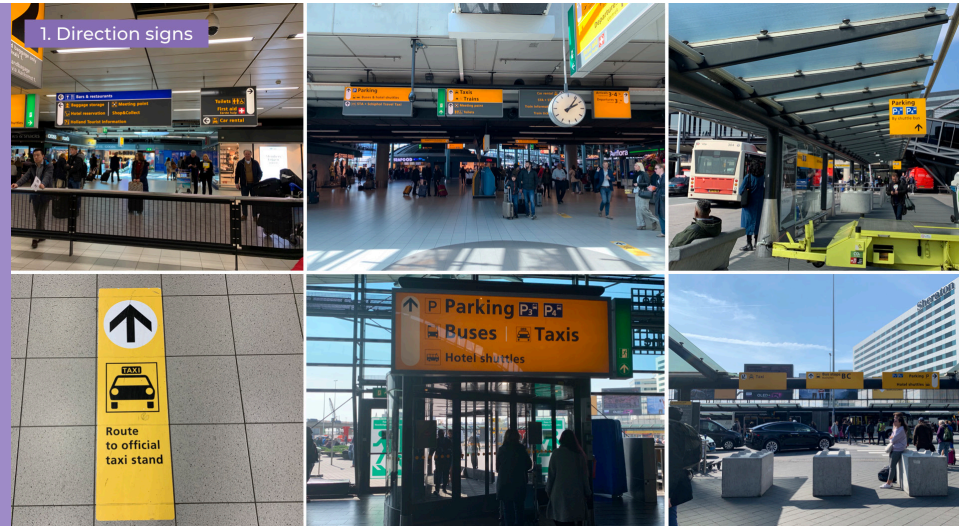


Go to outside and follow the signs



Info sources supported by
Schiphol/PTO mapping

1. Direction signs



2. Location signs



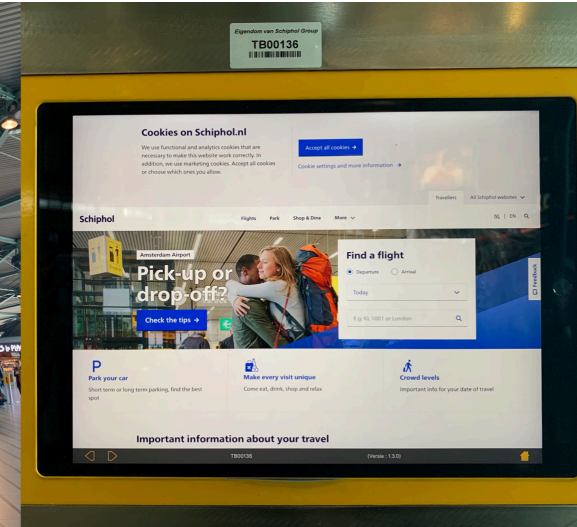
3. Info desk



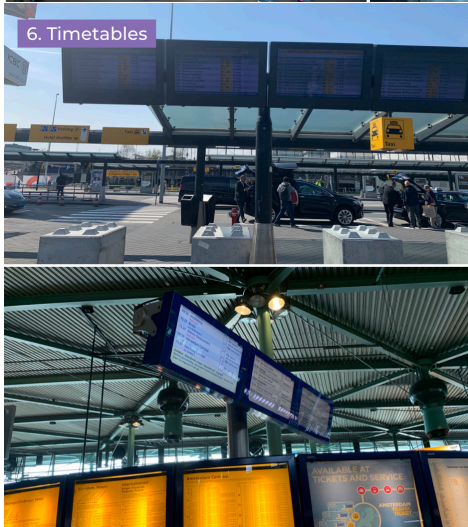
4. Info pillar with map



5. Info pillar with touch screen



6. Timetables



7. Personnel around



8. Service desk



9. Ticket bus



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 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)

At home	On the flight	Airside	Landside	
Her daughter prepared the anonymous OV-chipkaart with a discount added for her. She prepared cash and credit card for this trip as she did this before. Her daughter bought the SIM card via Taobao beforehand. He checked the tips for transport beforehand, so he paid attention on not forgetting to scan the OV-chipkaart.		She connect to the Airport Wi-Fi easily once she arrived before using the SIM card. She and her daughter use WeChat to exchange information before taking off and after arriving.	She met her daughter immediately as she daughter checked the number of Arrival of her parent's flight.	
			He bought an anonymous OV-chipkaart for his 4-days journey. He Google Map the destination and choose the train according to Google Maps. The dad in a family(dad, mom and child) was responsible for communicating with the personnel of the service desk. 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. 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. 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.	He experienced the She couldn't connect to the area. So she couldn't solve the problems. It's easy for her to find the way forward.
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' 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.		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.		
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).			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.	

Resources of data:			
Jun's Mom	Gir friends from China	Student studying in America	Girl from Shanghai
Man working in Germany	Couple from China	Student studying in the Netherlands	From observation
Student in Britain	Student in Spain	Student studying in Sweden	
Exchange student in TU Delft	From Service Safari	From online travel forum	

From landside to the station	
The way-finding system as clear. 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. She didn't find the WiFi after she leaving the baggage. She didn't ask her friend via WeChat on her phone. She didn't find the Ticket Machine, just go straight to the platform. 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/...	General
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 checkes Google Maps where she is when she is in somewhere unfamiliar to confirm she haven't done something wrong.	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.

Search the destinationn with Google or Baidu, for example 'How to get from Schipphol to Delft'. Ask friends who have been there, for example 'how did you get from Schiphol to Delft?'.
 Search the destinationn with Google or Baidu, for example 'How to get from Schipphol to Delft'. Ask friends who have been there, for example 'how did you get from Schiphol to Delft?'.

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. Plan 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 ticke 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 Schipho 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.

They were not sure if
official.

They intended to stop at the hotel, but it was possible to stop at the hotel, so they took their luggage to the hotel.

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

He have less trouble on communication in the large cities then the small cities.

It's nice to have train in the night.

The Mobike is hard to use.

f the Keukenhof bus was private or

re they luggage at Schiphol but find
re luggage in Keukenhof so they
o bus.

The way-finding system is clear.

They experience the whole experience as 'not bad'.

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 the 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.

They chose the transport mean which was convenient and economical.

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 Mafengwo, 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 GVB 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 coins. 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 went to the service desk, one of them went to the ticket machine to tried it. Then she asked the ticket machine.

Someone in the bbs say that they asked a question to the personnel.

The information on the sign is only in Chinese.

Google map shows all useful information.

The waiting-line in the taxi area is long.

Passenger know little about car rental before talking with them face to face.

She waited in the line of Train ticket
She noticed the ticket machine and went
She and her friend to leave the queue and use

As he has trouble on describing detailed
level as his English is not pretty good.

organised in a logical way.

formation in a clear way.

is well-designed.

rental of different company
face

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.

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 checked the NS app after she realised she took the wrong train.

One girl prefer less transfer because it avoids possible mistakes.

Few first-time Chinese passenger go out of the plaza for transport.

Girl friends, or young people group, or family are the top 3 traveller combination.

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.

People complain there are too many types of transport ticket in the Netherlands.

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.

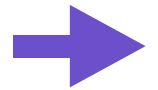
Appendix F Ways to complete tasks

Stage	Tasks	Chennels/Touchpoints	What(text in gray means no people mentions but it's a possibility)	How	Why	Possible pitfalls	Design guidelines
At Home	Getting transport ticket Information	Searching engines	Google, Baidu	"How to get from A to B" "OV card" "Holland Pass"	Get the accurate answer quickly Get an overview of the ticket quickly	- Get unofficial, even wrong or outdated info	Give people succinct and accurate info The information should be reliable and frequent-updated
		Recommendations from people you know	Chatting offline, WeChat(group)	Ask people who live/been there (friends, families, Airbnb landlord) "Which transport should I use" "Should I buy xxx ticket?"	They are reliable and it's time-saving.	- No overview of all options, different people have different needs, might leave the best choice out;	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
		Citizen Journalism on travel	Official account on Wechat about info of the Netherlands	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	Cover almost all aspects and every details of transport in the Netherlands	- The target user is people staying in the Netherlands, few short-term travellers know this channel - Too many information, people have no patience or cannot remember everything	Create similar platform for short-term travellers How to make people in need get access to those travel guides?
		Hotel booking platform	Booking	Read the comments	The real experience are more reliable. The destination are accurately same (compared to Google Maps).	- Lack in details	Give information more 'lively' or based on other's real situation Make every important details included More accurate route
		Global map App	Google Maps	Input the destination	Reliable and convenient.	- People in mainland China cannot use Google Maps	
		Domestic transport App	NS App, 9292	Input the starting place and destination	Reliable and quickly-updated	- Few foreign passengers know them before leaving; - Language barrier;	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)
		Official websites	NS, Eurail	Browse the website and check the route it provides	Reliable Complete information	- Language barrier; - High cost on understanding the website	How to make the 'official website' more user-friendly?
		Previous experience	Personal experience on travel	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.	No preparation need. Satisfy their main needs (saving money-public transport/saving time and effort-taxi)	- Might miss better choice also satisfy their needs; - Get too many information and cannot sort out them.	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
		Comprehensive social platform	Weibo, RED, Zhihu	Search the keywords, scan related post and choose	People share everything on those websites; People have their preferred social platform, searching info on those sites is there habits; Real experience is reliable.	- No overview of all options, different people have different needs, might leave the best choice out; - The information might be incomplete or outdated.	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'
		Travel platform	Mafengwo, Qyer	Search the destination, read other's travel notes (experience, tips and guidelines); In the BBS, ask people question or search keyword for information	Those guides, notes or tips covers all aspects of a travel, people could quickly have an overview of the destination. Get the accurate answer quickly	- 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. - Get too many information and cannot sort out them.	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 Avoid information overload Every tiny question should be able to be answered
		Travel planning tools	Google Trips, Qyer travel Assistant	Add the sites you plan to go, then get the recommended routes	Time-saving; No need to search information and make choice;	- Not flexible; - Need to learn how to use the tool	Give enough freedom or flexibility to users How to make the user of the product 'designed for a fool' not think themselves as fool
	Buying/booking products	Comprehensive online shopping website	Taobao	Search the keywords and read the product intro page	People get accustomed to buy everything on Taobao; People believe there is a complete range of products on Taobao; Payment is easy(Alipay).	- Information asymmetry; - Unofficial channel might causes mistakes;	Make use of user's previous pattern of getting info/buying things online
		Travel platform selling travel products	Mafengwo, Qyer, Ctrip	Search the keyword; Or get recommendations on certain pages.	People trust those platform as professional travel platform; Payment is easy(Alipay).	- Some platforms are immature on E-commerce; - Information asymmetry;	Build the image of professional Relate the products/info in a logic way and give recommendations in the right time
		Help from people you know	Ask friend to help to buy tickets online	Provide the info of his/her travel and friends would buy the ticket(online) and send the ticket to him/her	Compared to first-time passenger, friends there are more familiar with the transport system; More effort-saving, no need to understand every step;	- 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)	How to create the feeling there's a super reliable person do everything for you

Buying/book ing products	Help from people you know	<i>Ask friend to help to buy tickets online</i>	Provide the info of his/her travel and friends would buy the ticket(online) and send the ticket to him/her	Compared to first-time passenger, friends there are more familiar with the transport system; More effort-saving, no need to understand every step;	- 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)	How to create the feeling there's a super reliable person do everything for you
	Official website	<i>NS, Eurail, discover holland, I Amsterdam</i>	First know there's a official website, and learn how to use the website, then buy the ticket they need	People trust official website most	- Language barrier; - To official; - Hard to get access (lots of people tend to book products through the third party); - Payment problems.	Provide the information in the 'user language'
Choose and prepare the way of payment	Options mentioned above in At Home-Transport/ticket information: Searching Engines Recommendations from people you know Travel platform Comprehensive social platform					
	Previous experience	<i>Personal experience on payment abroad</i>	People prepare credit cards and cash as they did before	People know credit card and cash are frequently used payment means when travelling abroad	- People don't know which denominations is most useful	
	Banks	<i>Bank of the cards</i>	Check with the bank if this card could be used in the Netherlands	Reliable	- Effort consuming	How to lower down the cost of getting reliable information?
Transport/ticket information	Options mentioned above in At Home-Transport/ticket information: Searching Engines Map Apps Domestic transport App Other means also work after arrival but no participants mentioned					
	Companies service desk	<i>Keukenhof park desk, Car rental companies desks</i>	Ask the employees there, get the introduction and make decision	Convenient, efficient communication	- 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	Make the desk looks more official and reliable Present some information before talking
	Information desk	<i>Information point, Information desk</i>	(Wait for a while and) ask personnel questions and get the answer and other recommendations	Getting the information they want quickly	- Some people do not like to talk with strangers (especially in foreign language); - The waiting line might be long - People might have problems to ask detailed question or describe complicated situation	How to make the communication even more efficient? Develop an AI employee Provide supportive Q&A part
	Information pole	<i>Touchscreen showing the Schiphol website</i>	Browse the website and find the useful information	Reliable	- The useful information are not obvious (hide deeply); - People don't know what that for	The information should be obvious, accurate and show at the right place, right moment The tool/product should explain itself
	Walking employees	<i>Security, other employees in uniforms</i>	Ask them questions	Getting the information they want quickly	- Employees who are not working as information provider might not all details of transport - Might disturb their normal work	The support should be easy to get access to Create the 'grab and go on' information(<i>grab and fly</i> store when departure)
	Strangers around	<i>People also buying the tickets</i>	Ask them about the problems encountered	Efficient way to solve problems; Native people are more familiar with the system.	- Might get inaccurate answers; - Some people do not like to talk with strangers (especially in foreign language);	How to make use of the knowledge of community?
	Options mentioned above in At Home - Buying/booking products					
After arrival Buying ticket	Domestic transport App	<i>NS App</i>	Input the start point and destination, pay with your credit card	E-ticket is cheaper than the chipkaart; Easy payment; Fluent process.	- Few international passengers know it's a cheaper option;	
	Ticket machine	<i>NS train ticket machine; Public transport tickets machine</i>	Interact with the machine, follow the step it indicates, pay with coins or cards	Convenient and time-saving; The sense of control.	- No enough explanation on all products/options; - Limited means of payment	Create the sense of control Make every step/term understandable When people need explanation, it's there
	Service desk	<i>NS service desk, Public transport Service&Tickets bus</i>	(Wait for a while and) talk with employees, choose and pay for the tickets with cash or cards	Safe way(99% successful way) of buying tickets (proactive interaction, all possible payment means); Getting recommendations before buying a ticket.	- Some people do not like to talk with strangers (especially in foreign language); - The waiting line might be long	How to help people understand English more easily? How to create a 100% successful ticket purchasing process?
	Travel Ticket service desk	<i>Ako bookstore(XX Travel Ticket); I Amsterdam City card service desk; Holland Pass pick up spot,</i>	(Wait for a while and) Ask the employees there, get the introduction and buy the ticket; or show the booking info, pick the ticket up, pay with cash or cards	Almost the only way to get those tickets at Schiphol	- No overview of all tickets; - Impulsively buying	"Information democracy"

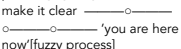
Appendix G Point of View&How Might We

Who	Need	Why
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 Feel in control of everything



HMW questions/Personas	A couple with detailed travel plan	Student alone with large luggage	Friends travellers with no preparation
Amp up the good	How provide even better choice for them?	How to make her feel that: I am able to deal with everything.	How to make the real travel as easy as their decision making?
Remove the bad	How to make every choice the best choice?	How to eliminate the possibilities that there might be something wrong	How to make the transport system and regulations become easy to understand?
Explore the opposite	How to make the 'preparation' not necessary?	How to make 'solving the problem' a happy experience	How to make the complex ticket system become easier? How to make people dare to ask personnel?
Question an assumption	How to make the transport flexible enough?	How to make the luggage disappear	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?
Go after adjectives	How to change 'unknown' to 'known'?	How to change 'unfamiliar' to 'familiar', 'stressful' to 'ease', 'exhausted' to 'energetic'?	How to change 'urgent' to 'calm', 'varied' to 'unified'
Create an analogy from insight or context	How to make the journey like fighting monsters game?	How to make the process like a SPA? How to make the airport like an amusement park or cinema?	How to make ticket choosing like Tinder?
ID unexpected resources	How to make use of the accident?	How to get help from other passengers? How to get help from local friends via the WeChat?	/
Play POV against the challenge	/	How to make 'transporting from Schihpol' become the best thing for people travelling alone	/

Appendix H Ideas Mapping

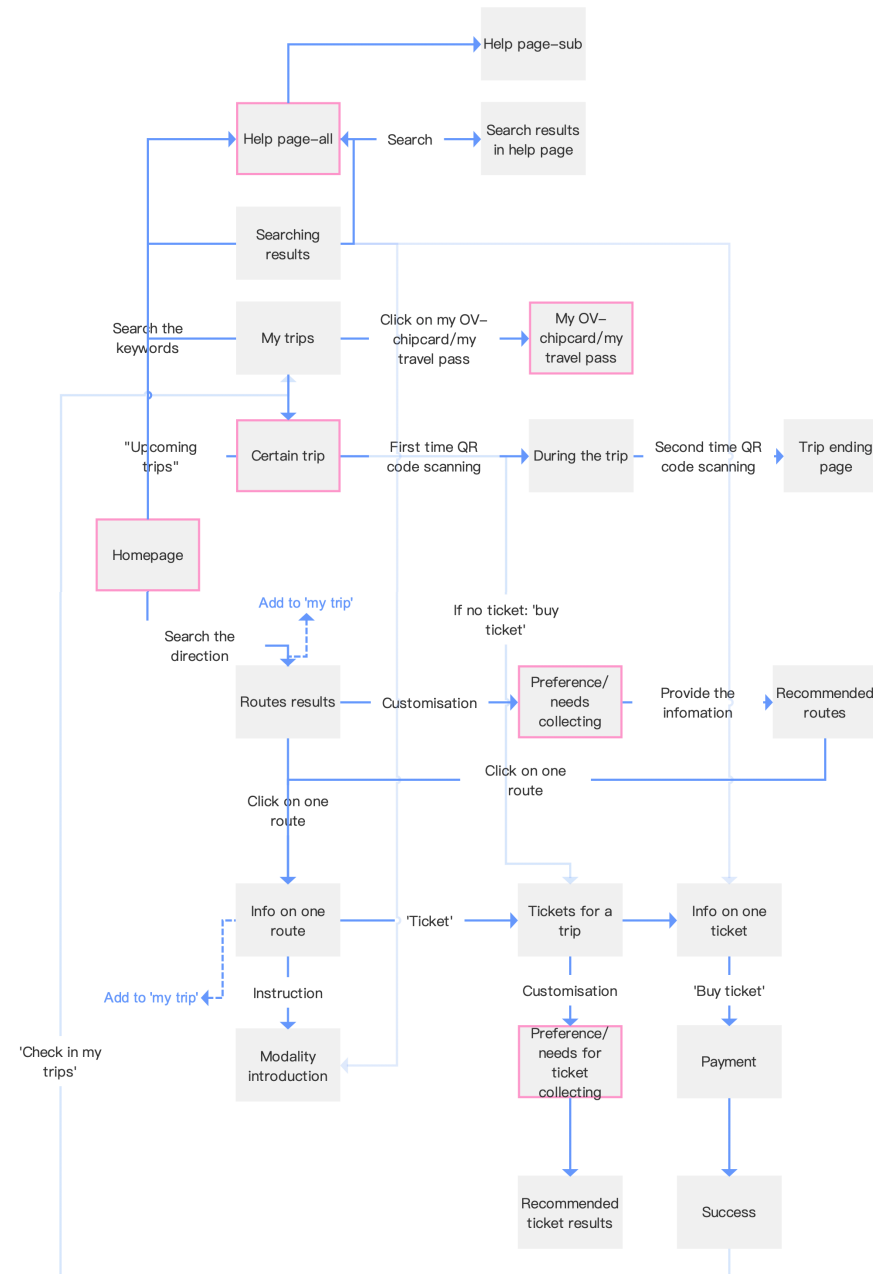
	Gamination	Plan before leaving	Plan at Schiphol	Quick review	Make decision	Information in the field	Get confirmation	All-included	New tourist ticket	Support/when troubles	Decrease the burden	Change your mind
In three months		Help people to divide the planning, give goal to each and make it clear  [fuzzy process]			Ticket comparison like Apple.com	Make the name of destination not misleading	Make information confirmation ten minutes before each step	Google map for Schiphol, more detailed and with price, tickets and so on	Simplify the tickets	Provide alternative solutions all the time	Make the elevator mor obvious	Invite people to take a break in the quiet carriage
		Different colour for different mode			Make the ticket explain themselves by their look	Signage everywhere			Visualise the tickets	Make the information desk more notable		The hotel know my location all the time and prepare for it
		the information must be in Chinese				the information screen are consistant				Tell passengers when any trouble happens: we will 100% solve it for you!		Give the passengers chocolate as gift when they arrive
		Information in parellel should be transferred to same layout				a huge screen in the Airport				Have a number on the machine to make people feel assured		Tell passenger: it okay for you to take some time to plan
		App to help cooperation between friends or couple								Explain the possible accident pretty well		how to be more easy: I know how much time I need to get there; I know where I am; everything is under my control
										Get discount when problem happens		Invite people to shopping first
										keyword for inquiring in the glass		
In three years	A game for buiding the railway system in the Netherlands	Design a story, show the key points of the country and enable passenger click the screen for planning	Plan yourself, and provide those information to others who also need in real-time, get the sense of achievement	Use VR at home, on the flight or when waiting for the luggage to virtualise the future situation after Arrival	Based on Google Maps, every step 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 cooeprate	Voice guidance			Flight and gift package of transport; choos what you want in your hotel	Chatting of different situations (ticket machine, taxi stand)	Luggage ticket	Engourage people to have a break, to get some good foods
	Gamination: 'right of the exit, about 100 meters, there's an elevator, use it!'	When reading other's travel story or guidelines, select the content you think important and sweep to the right. Then just continue to read. The system would recognise and tag the content(attractions, transport tips, etc.), and then automatically organise a travel guide for you.	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
					Tinder-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 decition by shake dice				Template for asking personnel	Remote controled by others		Advice people have a video-call with families first to release some anxiety
										Encourage passer-by to help people in need		Way-finding in Chinese
										Make the embarrassing humorous		
										Rearrange the tickets machine		
										Asking receipt to make sure the answer is communicated		
Weird ideas								Invite people who are good at planning to travel		Put a machine(or a page in an App) for complaints. Make the process like "haha, I find your drawbacks again!"		
										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 train 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		

Appendix I Second-round Ideas Evaluation

Design directions	Problems						Total number
	Calculating problem	Hard-to-reach resources	Information lacking details	Transport culture shock	No sense of safety	Language barrier	
Multi-functional platform	√	√	√				3
Intuitive transport info collecting	√						1
Quick orientation				√	√		2
New (tourist) tickets	√		√			√	3
Q&A for specific spots/ touch-points			√		√	√	3
Involve local people			√		√		2
Change their mood			√	√	√		3
Change the meaning of 'making mistake'					√		1

Design directions	Design Goals											Total number
	Make passenger even in extreme state feel confident and supported through the whole journey						Enable passenger to plan their transport journey based on their needs easily and freely					
	Enable users to quickly adapt to a new, different transport system	Enable users to make decision in an unfamiliar field easily	Guide people to finish their tasks intuitively	Decrease the language barrier in complex situation	Make all necessary information exists and be easy to find	Decrease the cost of making mistake	Make what people care about matters	Provide reliable information in the 'user language' at the right moment, right place	Create the information democracy	Improve the accessibility of all great resources	Support passenger with the situation they also travel other European countries	
Multi-functional platform		√			√		√	√		√		5
Intuitive transport info collecting								√				1
Quick orientation	√											1
New (tourist) tickets		√			√		√	√				4
Q&A for specific spots/ touch-points			√	√	√				√			4
Involve local people		√	√									2
Change their mood	√	√	√			√						4
Change the meaning of 'making mistake'						√						1

Appendix J Screens Flowchart



Appendix K Wireframes

From

Schiphol Airport

to

Direction

My trips

Ticket Shop

Info

Me

< From Schiphol Airport to Citytaz Hotel Amsterdam		
Depart at 19:30, 30 Jun 2019		Personal filter
Foatest		
1 > Intercity > 17 > 1 € 6.5 25 min 19 : 35 from Schiphol Airport (train station) every 7 min		
Feower transfer - Most economical		
69 > 7 € 4.5 35 min 19 : 35 from Schiphol Airport (bus station) every 10 min		
Least effort - Affordable price		
Amsterdam hotel shuttle 20 min € 13.5/person Anytime you want from Schiphol Airport between 8:00-22:00		
For group		
Taxi 20 min € 22-30 Anytime you want from Schiphol Airport 24 hrs		

< From Schiphol Airport

to Cityleze Hotel Amsterdam

Depart at 19:30, 30 Jun 2019 Personal filter

Good view with kids

For you

Effort saving

	Taxi	20 min € 22-30
Anytime you want from Schiphol Airport 2.4 hrs		
	Amsterdam hotel shuttle	20 min € 13.5/adult € 6.25/child
Anytime you want from Schiphol Airport between 8:00-22:00		

Fewer transfer - Most economical

>	19 : 35 from Schiphol Airport (bus station) every 10 min	€ 4.5 35 min
---	---	-----------------

Other options

> > >	19 : 35 from Schiphol Airport (train station) every 7 min	€ 6.5 25 min
---------	--	-----------------

19:35 ○ **Schiphol Airport**
Airport plaza

19:36 ○ **Schiphol Airport**
Bus stop Platform B15

Bus 69 (29 min)
Towards Station Sloterdijk
Every 10 min
13 stops v

20:05 ○ **Amsterdam, Geer ban**
Bus stop

20:10 ● **Citeiz Hotel Amsterdam**
Hotel

19:35: Schiphol Airport (35 min)

20:10 Citeiz Hotel Amsterdam

Route **Information**

Ticket
Single trip: €4.5

Add to my trip

< 19:35 Schiphol Airport (35 min)

19:55 Citeiz Hotel Amsterdam

Ticket

Adult: €13.5

Add to my trip

Route Instruction



Would you like to book your transfer from Schiphol Airport to Amsterdam and back? The Schiphol Hotel Shuttle links the airport with almost every hotel in Amsterdam. Book your tickets online here. Schiphol Hotel Shuttle, the easiest way to get to your hotel!

- Buy the ticket online or at the spot outside the plaza in the Shuttle bus park area

- Price: Adult:13.5 / per person
Children-6.5/Per person

- The luggage is for free

- More questions? see [Schiphol Hotel Shuttle](#)

Tickets

< >

1 > Intercity > 17 > 1

**From Schiphol Airport
To Citeiz Hotel Amsterdam**

☒ The whole journey v

☒ Intercity Schiphol-Amsterdam Centraal

☒ 17 Amsterdam Centraal-Geer Ban

Single ticket

Intercity Schiphol-Amsterdam Centraal
 17 Amsterdam Centraal-Geer Ban
 Two trips operated by NS, GVB
€ 2.98
Buy

Other options

Feel tired of buying tickets everytime?

OV-chipkaart:

Public Transport Chip Card (OV-chipkaart)
 Travel with credits through out the whole country
€ 2.98 for this trip Buy
 + €7.50 for the chip card

Use the public transport frequently?

Amsterdam Travel Ticket (1-3 days)
 Unlimited travel: Amsterdam City, Amsterdam Schiphol Airport
€8.00-€36.5
Buy

Amsterdam Region Travel Ticket (1-3 days)
 Unlimited: Amsterdam City, Amsterdam Schiphol Airport, Amsterdam surroundings (like Volendam, the historic Zaanse Schans or Haarlem)
€19.5-€36.5
Buy

☰

⊙

<

Citez

Citez Hotel Amsterdam

11km

City Hotel Amsterdam

23km

< From Schiphol Airport

to Citytez Hotel Amsterdam

I prefer _____ I concern _____ **(Personal filter)**

Fast	with moving problems
Economical	with kids
Good view	large luggage
	in a group

Fewer transfer · Most economical

€4 35 min

**13 : 35 from Schiphol Airport (bus station)
every 10 min**

Least effort · Affordable price

Amsterdam hotel shuttle 20 min
€ 13.5/person

**Anytime you want from Schiphol Airport
between 8:00-22:00**

For group

Taxi 20 min
€ 22-30

**Anytime you want from Schiphol Airport
24 hrs**

Ticket store

Ticket Shop

Ticket choosing assistant
Which ticket suits your travel plan best?

Tourist Ticket Smart card Single Ticket

By popularity v Range Filter



Amsterdam day/multi-day ticket (1-7 days)
Unlimited travel: Amsterdam City
€8.00-€36.5 233 paid



Amsterdam Travel Ticket (1-3 days)
Unlimited travel: Amsterdam City, Amsterdam Schiphol Airport
€8.00-€36.5 155 paid



Amsterdam&Region Travel Ticket (1-3 days)
Unlimited: Amsterdam City, Amsterdam Schiphol Airport, Amsterdam surrounding (like Volendam, the historic Zaanse Schans or Haarlem)
€19.5-€36.5 155 paid



Holland Travel Ticket (1 day)
Unlimited travel: Holland Country
€41-€61 155 paid



Rotterdam Day Ticket
Unlimited travel: Rotterdam
€8.00 93 paid



The Hague day/multi-day ticket (1-3 days)
Unlimited travel: The Hague
€7.10-€18.00 83 paid

☐ Direction
 ☐ My trips
 ☒ Ticket Shop
 ☐ Info
 ☐ Me

Ticket Shop

Ticket choosing assistant
Which ticket suits your travel plan best?

Tourist Ticket Chip card Single Ticket

By popularity v Range Filter



Public Transport Chip Card (OV-chipkaart)
Travel with credits through out the whole country
€7.50 (card fee) 233 paid

☐ Direction
 ☐ My trips
 ☒ Ticket Shop
 ☐ Info
 ☐ Me

Ticket Shop

Ticket choosing assistant
Which ticket suits your travel plan best?

Tourist Ticket Smart card Single Ticket

By popularity v Range Filter



Amsterdam day/multi-day ticket (1-7 days)
Unlimited travel: Amsterdam City
€8.00-€36.5 233 paid



Amsterdam Travel Ticket (1-3 days)
Unlimited travel: Amsterdam City, Amsterdam Schiphol Airport
€8.00-€36.5 155 paid

Choose the area range of the tickets you want



Amsterdam Travel Ticket (1-3 days)
(GVB阿姆斯特丹市内通票-48小时)
Unlimited travel: Amsterdam City, Amsterdam Schiphol Airport
€ 13.5
2 days Adult Buy

Where can you travel
With all GVB trams, (night) buses and metros in Amsterdam, Diemen, Duivendrecht, Amstelveen, Schiphol and Weesp.
[Check the route or places](#)

When can you travel
All day and all night. For example, if you opt for a 2-day ticket, you can travel 48 hours from the first check-in.

Transport company
GVB

Specifics

- A child day ticket variant is also available for children aged 4 through 11 years.
- The day ticket can be purchased as a travel product on an OV-chipkaart (plastic card) in our webshop.
- Below you purchase the multi-day ticket online via www.public-transport-holland.com as a paper chip card. This ticket is send by mail.
- The day and multi-day ticket is also available at various hotels, camp sites, Tours & Tickets and AKO bookstores in Amsterdam. Check al sales points here.

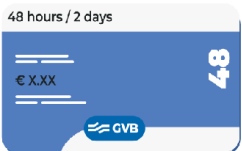
[All multiple-use tickets >](#)



Amsterdam&Region Travel Ticket (1-3 days)
Also visit Amsterdam surroundings like Volendam, the Zaanse Schans or [More info](#)



Public Transport Chip Card (OV-chipkaart)
Stay more than 4 days in the Netherlands? Have a look at the easy-to-use chip card



GVB 2-day Ticket
(GVB阿姆斯特丹市内通票-48小时)
unlimited public transport within Amsterdam
€ 13.5
2 days Adult Buy

Where can you travel
With all GVB trams, (night) buses and metros in Amsterdam, Diemen, Duivendrecht, Amstelveen, Schiphol and Weesp.
[Check the route or places](#)

When can you travel
All day and all night. For example, if you opt for a 2-day ticket, you can travel 48 hours from the first check-in.

Transport company
GVB

Specifics

- A child day ticket variant is also available for children aged 4 through 11 years.
- The day ticket can be purchased as a travel product on an OV-chipkaart (plastic card) in our webshop.
- Below you purchase the multi-day ticket online via www.public-transport-holland.com as a paper chip card. This ticket is send by mail.
- The day and multi-day ticket is also available at various hotels, camp sites, Tours & Tickets and AKO bookstores in Amsterdam. Check al sales points here.

Also visit Amsterdam surroundings like Volendam, the Zaanse Schans or Haarlem? See [Amsterdam&Region Travel ticket](#)

Ticket assistant

Ticket assistant	Ticket assistant	Ticket assistant	Public transport using frequency Calculator	Public transport using frequency Calculator	Public transport using frequency Calculator	Ticket assistant	Ticket assistant
x Ticket assistant Do you confused on if it's necessary to buy a OV-chip card or tourist tickets? If you already have a travel plan, let us know it and give advice on the best ticket for you :) Get your advice	< Ticket assistant Days in the Netherlands - 3 + Continuous days in Amsterdam city area - 2 + Continue(2)	< Ticket assistant Regional(within Amsterdam city) public transport using frequency Average number: 0-2 times in one day ≥ 3 times in one day Amsterdam transport frequency calculator Continue(1)	x Public transport using frequency Calculator Where do you live? Find in Map In city center Not in city center Next(1) Total number of public transport for one day 0	< Public transport using frequency Calculator How many attractions you might visit per day? 1-2 3-4 ≥5 How much you enjoy exploring the city on foot? Very much Average Not much Last Done You can change the number according to your personal situation Transport from/to your accommodation - 2 + Total number of public transport for one day 2	< Public transport using frequency Calculator Your travel itinerary in the city area are normally 1-2 3-4 ≥5 How much you enjoy exploring the city on foot? Very much Average Not much Most of attractions in Amsterdam city are within walking distance from each other OK Transport between attractions ? - 2 + + Others Total number of public transport for one day 4	< Ticket assistant You will also visit Amsterdam surroundings like Volendam, the historic Zaanse Schans or Haarlem. Other cities in the Netherlands Get advices	x Ticket assistant Recommendation for your 2-days trip in Amsterdam City GVB 2-day ticket € 13.5 According to your itinerary, you would travel at least 6 times(about 2.9 euros per ride) in Amsterdam city. With this ticket you could save at least 4.5 euros during your trip, and save a lot effort on buying ticket every time. See details Recommendation for your trip in Amsterdam surroundings Amsterdam & Region Travel Ticket (1 day) € 19.5 According to your itinerary, you would travel to Amsterdam surroundings like Volendam, the historic Zaanse Schans or Haarlem. If you plan to visit two or more places in one day, the Amsterdam & Region Travel Ticket will suit you. With this ticket, you would have a care-free journey in Amsterdam Surroundings and save at least 3 euros. See details

My trips

My trips *** ⓘ

Upcoming trips

1 > Intercity > 17 > 2 Today

Schiphol Airport → Citeiz Hotel Amsterdam
Every 7 mins(5:00-24:00), 30 mins(0:00-5:00)

Walk to Platform 5,6 of the train station below the plaza >>

In one week

1 > 69 > 17 > 2 Jun 25

Park Hotel Den Haag → Schiphol Airport
First bus trip: any trip between 8:00 - 22:00, every 20 min

Walk to bus stop Den Haag, Kneuterdijk >>

Direction My trips Ticket Shop Info Me

From Schiphol Airport

to

Upcoming trips

1 > Intercity > 17 > 2 Today

Schiphol Airport → Citeiz Hotel Amsterdam
Every 7 mins(5:00-24:00), 30 mins(0:00-5:00)

Walk to Platform 5,6 of the train station below the plaza >>

Direction My trips Ticket Shop Info Me

From Schiphol Airport

To Citeiz Hotel Amsterdam

Depart at 13:06 v 2 Adults Today

1 > 69 > 17 > 1

Start from

13:06 ○ **Schiphol Airport**
Airport plaza

Walk (1 min)
Scan your ticket before go to the platform

13:07 ○ **Schiphol Airport**
Train station Platform 5,6

Waiting for

13:13 or 13:20 ○ **Intercity (29 min)**
Towards Station Amsterdam Centraal
Every 7 min

1 stop v
Take any seat in the second-class carriage

13:42 ○ **Amsterdam Centraal**
Train station

Walk (1 min)

13:52 ○ **Amsterdam Centraal**
Bus station

Waiting for

13:52 ○ **Bus 69 (29 min)**
Towards Station Sloterdijk
Every 10 min

13 stops v
Press the stop button before arriving at your stop

13:21 ○ **Amsterdam, Geer ban**
Bus stop

Walk (8 min)

13:29 ● **Citeiz Hotel Amsterdam**
Hotel

From Schiphol Airport

To Citeiz Hotel Amsterdam

Bus 69
Amsterdam Centraal - Geer Ban

Show the ticket to the driver

Every 7 min
1 stop v
Take any seat in the second-class carriage

13:42 ○ **Amsterdam Centraal**
Train station

From Schiphol Airport

To Citeiz Hotel Amsterdam

Depart at 13:06 v 2 Adults Today

Route Ticket

13:06 ○ **Schiphol Airport**
Airport plaza

Walk (1 min)
Scan your ticket before go to the platform

13:13 or 13:20 ○ **Schiphol Airport**
Train station Platform 5,6

Intercity (29 min)
Towards Station Amsterdam Centraal
Every 7 min

1 stop v
Take any seat in the second-class carriage

13:42 ○ **Amsterdam Centraal**
Train station

Walk (1 min)

13:52 ○ **Amsterdam Centraal**
Bus station

Bus 17 (29 min)
Towards Station Sloterdijk
Every 10 min

13 stops v
Press the stop button before arriving at your stop

13:21 ○ **Amsterdam, Geer ban**
Bus stop

Walk (8 min)

13:29 ● **Citeiz Hotel Amsterdam**
Hotel

From Schiphol Airport

To Citeiz Hotel Amsterdam

Depart at 13:06 v 2 Adults Today

Route Ticket

Bus 69
Amsterdam Centraal - Geer Ban

Show the ticket to the driver

Information

Follow the sinage

Scan the ticket

Find the platform

Check the Train

Information

Quick overview about Dutch Transport System

Public Transport in Holland

Train
Bus
Tram
Metro
Ferry

Other choices for transport

Biking
Taxi
Rental Car

Public Transport Ticket

Public transport chip card(OV chipcard)
Tourist Tickets
Single use tickets

Schiphol Airport

Transport planning spots
Transport from Schiphol

More questions?

Info from <https://www.holland.com/global/tourism/plan-your-holiday/getting-around-in-holland/public-transport.htm>

Direction My trips Ticket Shop Info Me

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).

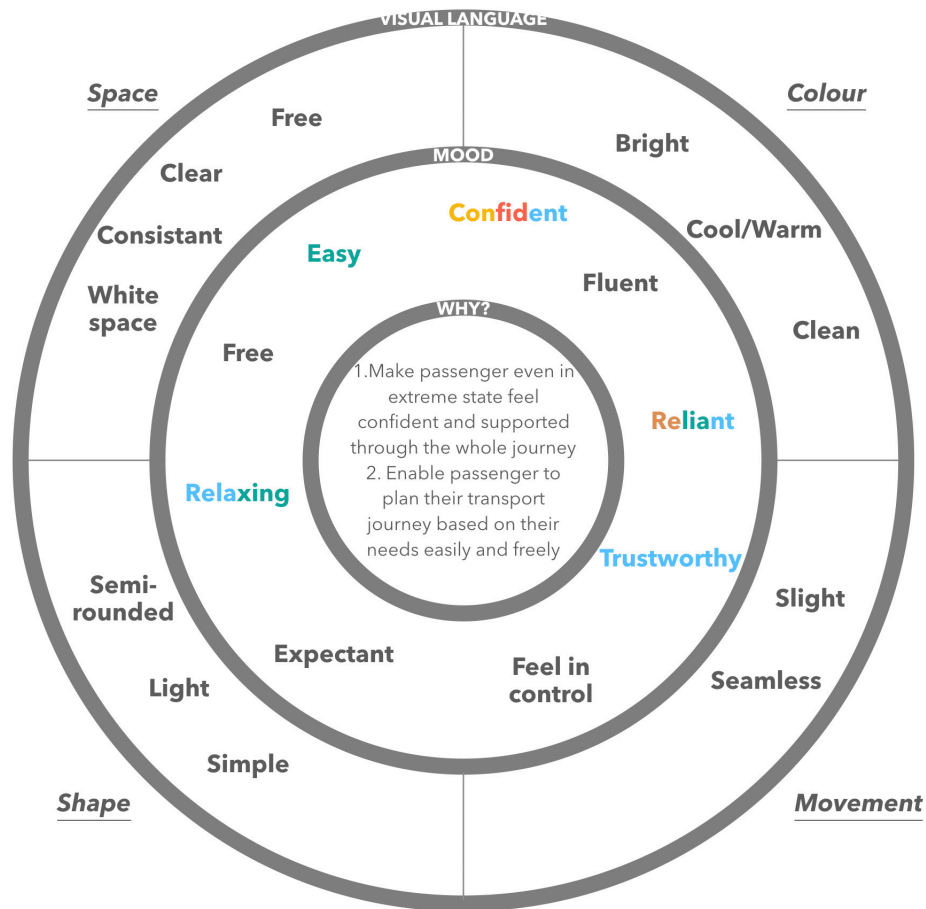


Figure L-1. Design Inception Sheet

Mood board

Based on the Design Inception Sheet, a mood board is made to create the colour palette of the final concept.



Figure L-2. Mood Board

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

Design Goals	Concerns
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.

Total number of participants	6
For Test A	2
For Test B	2
For Test C	2
Chracteristic	Desired number of participants
Travel frequency	
1-2 trips per year	2-4
3-5 trips per year	2-4
Travel planning behaviour	
Detail planning	1-3
Moderately detail planning	1-3
Almost-none planning	1-3
Age	
18-30	1-2
30-40	2-3
40-50	1-2
50-60	1-2
Gender	
female	3-4
male	2-3

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.

Parts	Duration (minutes)
Pre-test arrangements	10
Pre-test introductions/interviews	15
Tasks	20
Post-test interviews	10

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

Materials prepared for Test A

1. Before the test Background questionnaire

Basic information					
Family name			Gender	☐ Female	☐ Male
Age	☐ 18-29	☐ 30-39	☐ 40-49	☐ 50-59	Profession
Using phone					
	Strongly disagree				Strongly agree
	1	2	3	4	5
I use WeChat frequently					
I use WeChat Mini Program frequently					
I use Map App frequently					
I use travel App frequently					

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 child and two friends is going to visit the Netherlands.

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:

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

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

		Strongly disagree		Strongly agree				
	Question	1	2	3	4	5	6	7
1	I could find the information I need in the Mini Program easily							
2	The Mini Program help me to choose the route more easily							
3	The Mini Program help me to choose the ticket more easily							
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							

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.

Parts	Duration (minutes)
Pre-test arrangements	5
Pre-test introductions/interviews	15
Tasks	15
Post-test interviews	10

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

Background interview (5 min):

- Travel experience

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

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

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

		Strongly disagree				Strongly agree		
	Question	1	2	3	4	5	6	7
1	I could find the information I need in the Mini Program easily							
2	The Mini Program help me to choose the route more easily							
3	The Mini Program help me to choose the ticket more easily							
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							

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.

Parts	Duration (minutes)
Pre-test arrangements	5
Pre-test introductions/interviews	15
Tasks	30
Post-test interviews	10

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

Background interview (5 min):

- Travel experience

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

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

Materials prepared for Test C

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

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:

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

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

		Strongly disagree				Strongly agree		
	Question	1	2	3	4	5	6	7
1	I could find the information I need in the Mini Program easily							
2	The Mini Program help me to choose the route more easily							
3	The Mini Program help me to choose the ticket more easily							
4	The Mini Program helps me to get on the vehicle fluently							
5	The Mini Program make me feel at ease in a new environment							
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							

