

TONG WANG

STAGE 3

MSC MASTER PROJECT



How to improve the train experience  
for the foreign disabled?



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# **1. Introduction**

# Introduction



(Disabled activists launch Rail campaign today with support from Paralympian Anne Wafula Strike – Enable Magazine, 2021)

Every epoch has faced the issue of how best to include and support people with disabilities (World report on disability, 2011). For example, environmental and interactive barriers limit the activity choices of tourists with disabilities (Ralph, 1988). Besides, from the British Government's report, around a fifth of disabled people report having difficulties related to their impairment or disability in accessing transport (Disability facts and figures, 2021). Countries always *ignore the disabled needs of travelling abroad*; for some people with disabilities, overseas travel may present challenges because accessibility standards and facilities may be different from those in the UK. As a common means of transportation, trains are worthy of our careful study and provide convenience for a disabled person who arrive in the UK for the first time. Hence, in this project, I tried to do more research about how these people truly need on their train process and what kind of service can benefit them in the future.

The reason why I wanted to get involved in disabled service is that one of my friends is a Deaf-Blind person, and he complained to me that using transportation to go out is hard. Therefore, I started with the theme of how to improve the transport experience for people with disabilities. With the breadth and depth of the research, I found that disabled tourists who arrive in the UK for the first time often need to rely on the train to travel, and they always do not clearly know the train-taking process. Apart from that, I also found that many volunteers hope to give a hand to the disabled, but they do not find an efficient platform and have professional training. At the same time, the train station cannot provide stable service for disabled people, especially in the peak time.

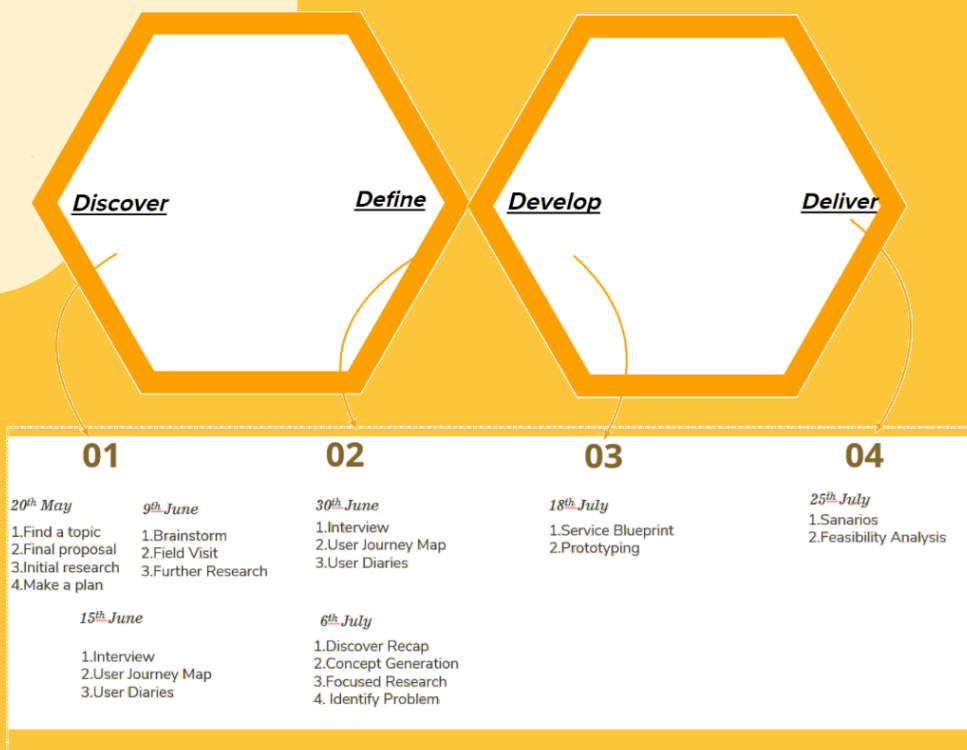


## **2.Primary research**

# Research

The preliminary research methods of this project include field visit, interview, desk research, etc. In addition, I used the double diamond model and pest analysis methods through the whole research process.

## Double-Diamond



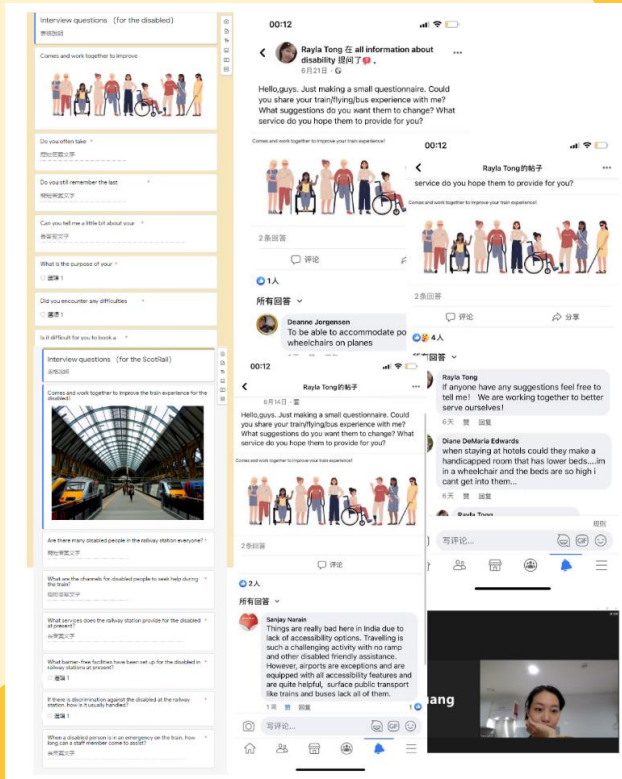
At the beginning of my desk research, I paid more attention to general data and content of the disabled people. For these groups, I learned more about the way they choose to travel and the reasons why they choose to take the train. I have learned that there are 14.1 million disabled people in the UK. Besides, from the British Government's Report, around a fifth of disabled people report having difficulties related to their impairment or disability in accessing transport. They were reliant on public transport like taking train for making journeys. Key difficulties experienced by people in this group in relation to travel were confidence issues and affordability.

[illegible]

## Making Rail Accessible

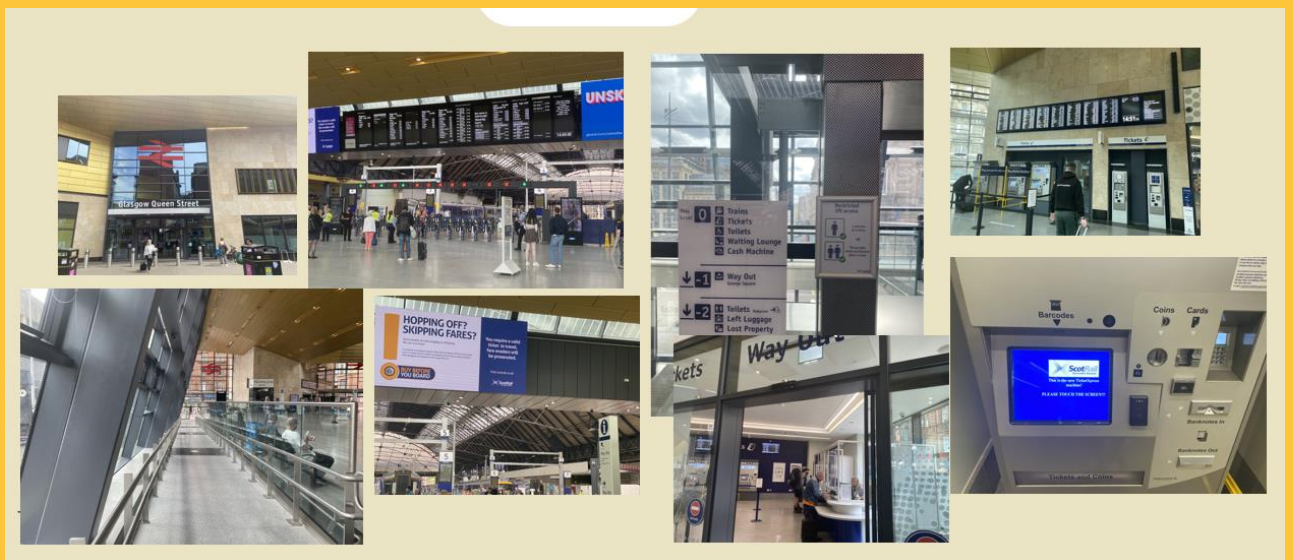
Helping Older and Disabled Passengers

January 2021



In the stage of Interview, I designed a questionnaire about disabled people traveling by car firstly. The setting of the questions included the reasons why they take the train as their transportation way, their feelings and train experience, and also their suggestions. After setting up the questionnaire, I joined some disability communities on Facebook and Insgram, and sent the questionnaire to these platforms. Then I received over 80 feedbacks. More than 15 percent participants said they take train for work while 60 percent of whom for travel and the rest for other reasons like visiting family, dating, and document checking. In addition, 90% of the participants who take train for tourism are foreign disabled people. The data collection and feedback gave me the inspiration for my design and also helped me find the space for service optimization and laid the foundation for my project theme.

Apart from that, I also did some field visits. I arranged a small journey that need to across Glasgow station, Edinburgh station and Dundee station. Then I compared the differences between these three stations in terms of disabled facilities and guidance. I found that in Edinburgh, it is a big station with many transit routes, the crowds are dense, and the staff have to deal with many things every day. Tourists shuttle through the railway station every day, so few people can pay attention to the difficulties of the disabled. At Dundee, a relatively small station with fewer passengers and fewer staff, it is less efficient to deal with emergencies.







Edinburgh station



Glasgow station



Dundee station

## Reflection

In the early research, I was eager to get information, but I used the wrong way and method of communication. At the beginning, I did not learn to think for disabled people from their point of view, so many interviewees refused my interview directly. On the advice of a professor and a friend, I joined many disabled groups and volunteer groups on Facebook and Instagram to learn about the difficulties they encountered in their lives and then gave them my opinions and suggestion. Then I would gradually put forward some questions about if there were some difficulties they encountered in taking trains. After finding out that disabled people encounter some difficulties when they first arrive in The UK to take the train, I talked with them with more details to get their views and suggestions. This process is really significant because it is really helpful for us me how to communicate with the disabled and also find out the design opportunities.





## **3. Insights**

# Insights

Here are some interesting points I gained from the research:

- ❑ When passengers with disabilities first arrive in the UK, they are unable to obtain timely assistance information;
- ❑ Most of the disabled toilets in railway stations are relatively small;
- ❑ Staff training is not that enough and strict, disabled passengers sometimes are not provided with uniform services;
- ❑ Not every platform have accessible facilities;
- ❑ During the peak time, not every disabled can be taken care of in time;
- ❑ Non-disabled persons have low awareness of active assistance to disabled persons;
- ❑ During the peak time, not every disabled people can be taken care of in time.

The official retailer of Railcards by National Rail

## Get 1/3 off train travel with a Disabled Persons Railcard

[Buy Online](#) [Renew my Railcard](#)

Travel with confidence, check the latest travel advice [here](#)

1/3 off rail travel for you and a friend  
Average annual savings of up to £1,132\*  
Just £20 for 1 year or £34 for 3 years  
For people with a disability that meets the eligibility criteria

### How much can I save?

People with a Disabled Persons Railcard save on [average £113.66c per year](#), and the Railcard typically pays for itself within 3 journeys. If you're travelling here's an example of some of the savings you can make

ScotRail

Buy Tickets Check Service Next Train

Search

disabled

The search found 51 results in 0.04 seconds.

Search results

[Disabled Persons Railcard](#)

[View page](#) Disabled Persons Railcard 1/3 OFF rail fares with the Disabled Persons Railcard With a Disabled Persons Railcard you can save 1/3 off rail travel for you and a friend.

[Accessible Travel Policy](#)

[View page](#) Accessible Travel Policy Our Accessible Travel Policy explains our commitment to meet the needs of people with disabilities.

[Diversity, Inclusion & Belonging](#)

[View page](#) UK Government Disability Confident Employer Scheme We are signatories to the UK Government Disability Confident Employer Scheme, encouraging employers to think differently about disability and take action to improve how we recruit, retain and develop disabled people.





## **4. Design opportunities**


# Design Opportunities

Through the interview, I made two persona. One is a female and the other one is a male. From Luna's persona, we can see that when she consider taking a train, she is care more about safety, speed and comfort. She complained that she once tried to take the train alone after booking an assistance service for the disabled, but she didn't get timely help. And she was the last passenger to get off the train, which made her feel very upset and scared. So she said she will never travel alone by train again. But there are still thing touch her, like every disabled person in the UK can have a key, which can open all the disabled toilets, which greatly facilitates their use;

And for Bobbie's persona, it can be seen that Bobbie care less about the speed of the train. He also find problems during his train experience, like once he asked some questions to the train station staff about the facilities for the disabled, but have not received any accurate response. They just suggested Bobbie to call the service team or check the website for details. In addition, as Bobble's is a France, so he said when foreign passengers with disabilities first arrive in the UK, they are unable to obtain timely assistance information.

## PERSONA

*"I will never travel alone by train again."*



**Motivations:**

Safety	1	2	3	4	5
Speed	1	2	3	4	5
Comfort	1	2	3	4	5
Convenience	1	2	3	4	5
Price	1	2	3	4	5

**About**

Age : 26  
Sex : Female  
Job : Educator

**Train experience**

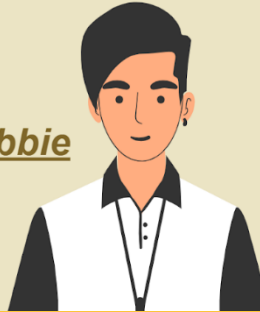
- ☐ Every disabled person in the UK can have a key, which can open all the disabled toilets, which greatly facilitates our use ;
- ☐ I once tried to take the train alone after booking a service for the disabled, but I didn't get timely help. I was the last passenger to get off the train, which made me feel very upset and scared

**Problem and suggestions**

- ☐ The accessible toilets are relatively small and my wheelchair can't move very well ;
- ☐ Not every station have accessible facilities. Especially in some small stations, there will be fewer facilities and fewer employees in the station, so it will take longer time to solve the emergency ;

## PERSONA

*"Foreign passengers with disabilities hope to gain information in time when they arrived UK in the first time."*



**Motivations:**

Safety	1	2	3	4	5
Speed	1	2	3	4	5
Comfort	1	2	3	4	5
Convenience	1	2	3	4	5
Price	1	2	3	4	5

**About**

Age : 32  
Sex : Male  
Job : Artist

**Problem and suggestions**

- ☐ Not every station has an accessible facilities. Especially in some small stations, there will be fewer facilities and fewer employees in the station, so it will take longer time to solve the emergency ;
- ☐ When foreign passengers with disabilities first arrive in the UK, they are unable to obtain timely assistance information;

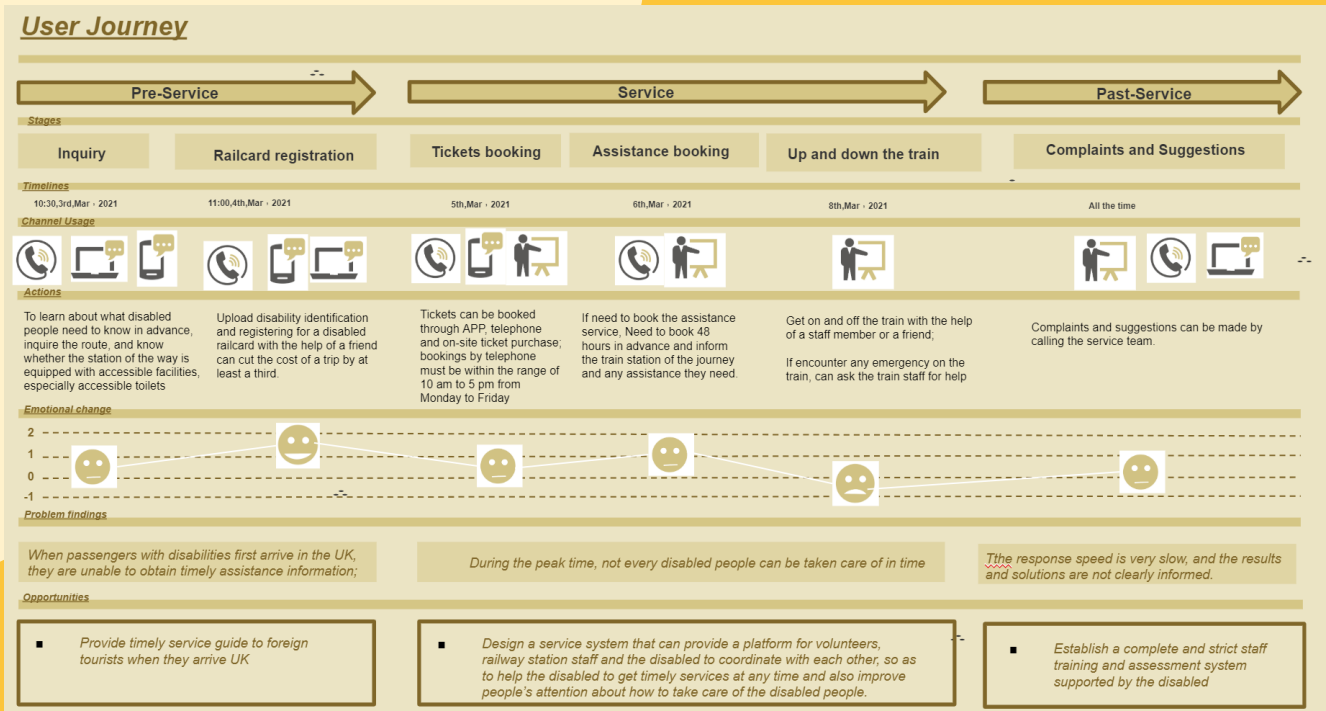
**Train experience**

- ☐ The brilliant 'toilet map' is really helpful, actually it is the marvelous National Rail Accessibility Map : <https://accessmap.nationalrail.co.uk>. Every time I take the train will check if there are accessible toilet first through this map.
- ☐ I asked some questions to the train station staff about the facilities for the disabled, but have not received any accurate response. They suggested me to call the service team or check the website for details

**Bobbie**

12

Next, I made a user journey map which include the whole train taking process of the foreign disabled people.



# Pain points finding

*The pain points I find during these research and interview are that:*

- When passengers with disabilities first arrive in the UK, they are unable to obtain timely assistance information;
- Staff training is not in place, and disabled passengers sometimes are not provided with uniform services;
- Not every platform have accessible facilities.
- During the peak time, not every disabled people can be taken care of in time

*And the method what I think maybe useful are:*

- Establish a complete and strict staff training and assessment system supported by the disabled
- Provide timely service guide to foreign tourists when they arrive UK
- Design a service system that can provide a platform for volunteers, railway station staff and the disabled to coordinate with each other, so as to help the disabled to get timely services at any time and also improve people's attention about how to take care of the disabled people.





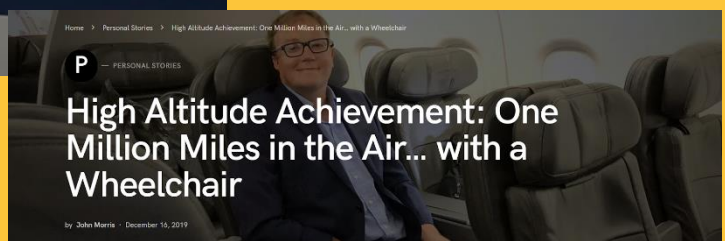
## **5. Further research**

# Further Research

After finding pain points and determining the subject, I began to conduct in-depth research on the foreign disabled people.

First, I did more research on how other countries or other transportation way to do for the disabled people, here are some interesting points I gain from the research:

- Most countries are committed to the improvement of disabled people's travel, which should be better accessible facilities as far as possible;
- Be My Eyes is a good product produced in the USA. It connects a blind person with a sighted person who then describes the images they see through the blind person's camera. I can help them to navigate everyday items and carry out tasks with ease;
- More and more countries believe that the participation of volunteers can not only help the disabled to travel, but also improve people's care for the disabled;
- Some videos on YouTube which was shared by some disabled people to talk about their train experience, one comments really interested me is that someone expressed her opinion when she saw the non-disabled people sometimes are not willing to move for the disabled in a designated wheelchair area. And she thought the disabled people should never be worried about upsetting the able bodied.



## Reflection

In the stage of in-depth research, I gave more attention to how other countries or other transportation ways to do for the disabled people through websites and some readings. But had no chance to directly ask foreign disabled about their views and suggestions on the provision of transportation services for the disabled in their country; This also makes it not comprehensive enough in the later service optimization. Hence, I hope that this could be consider more in future service improvement.



## **6. Idea generation**

# Design Brief

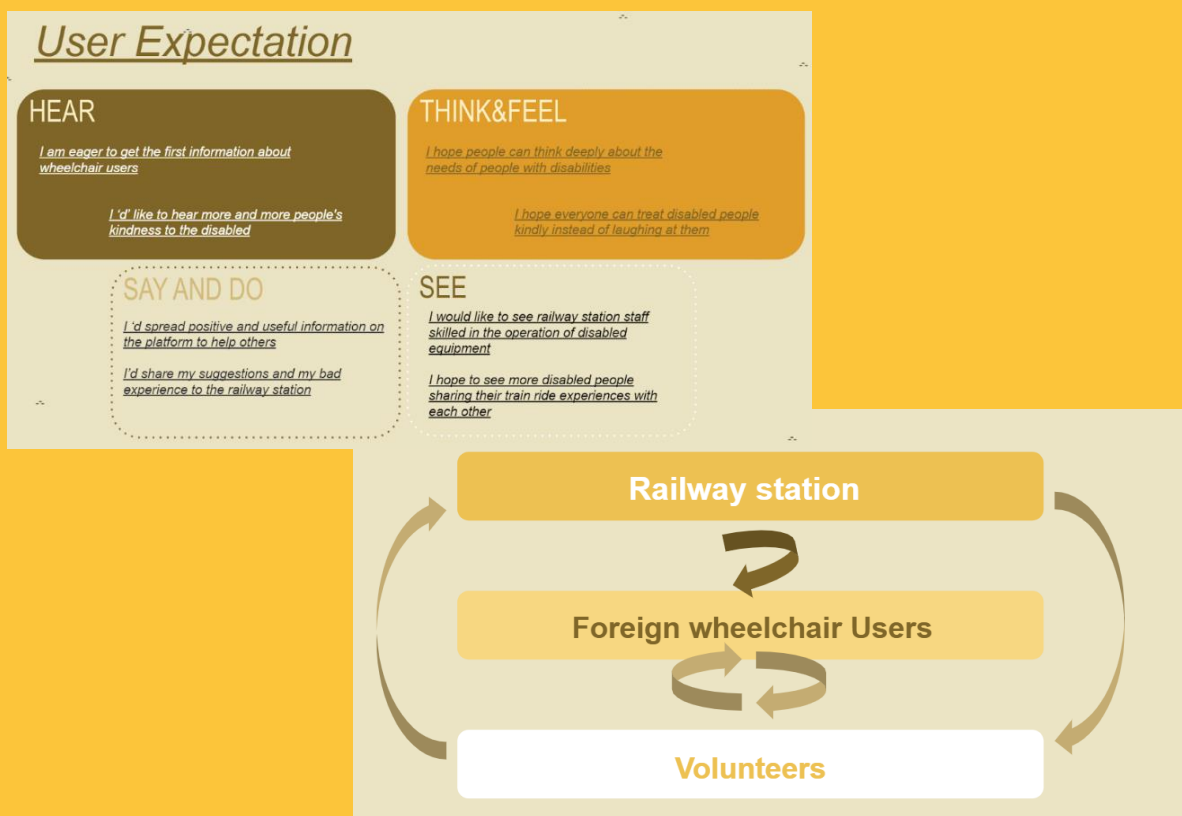
Through the double diamond model and pest analysis methods, some of the key points and main problems I found are as follows:

- Disabled foreign passengers cannot obtain assistance information in time when they first arrive in the UK;
- During peak hours, not every disabled person can be taken care of in time;
- The non-disabled don't care much about the needs of the disabled, especially on the train.

One of the possible solution to the above three problems is to provide a better communicating way, by establishing a three-party interactive platform where foreign disabled people can obtain information about the UK, such as how to book tickets and get route information, this is a place where they can ask questions and share their experiences; it can help the disabled people get the information they need after they arrive in the UK, it can also improve the response efficiency of train station staff, and enhance the public's sense of social responsibility for the disabled.

The railway station will update some of the latest information on the platform, answer users' questions and offer them help; volunteers can also help answer questions or provide on-site help. This platform can help train station and volunteers better understanding the needs of foreign disabled people. At the same time, the train station will provide training for staff and volunteers in terms of users' feedback. Finally, the closed loop of demand and supply is realized.

## Customer expectation & Stakeholder Map



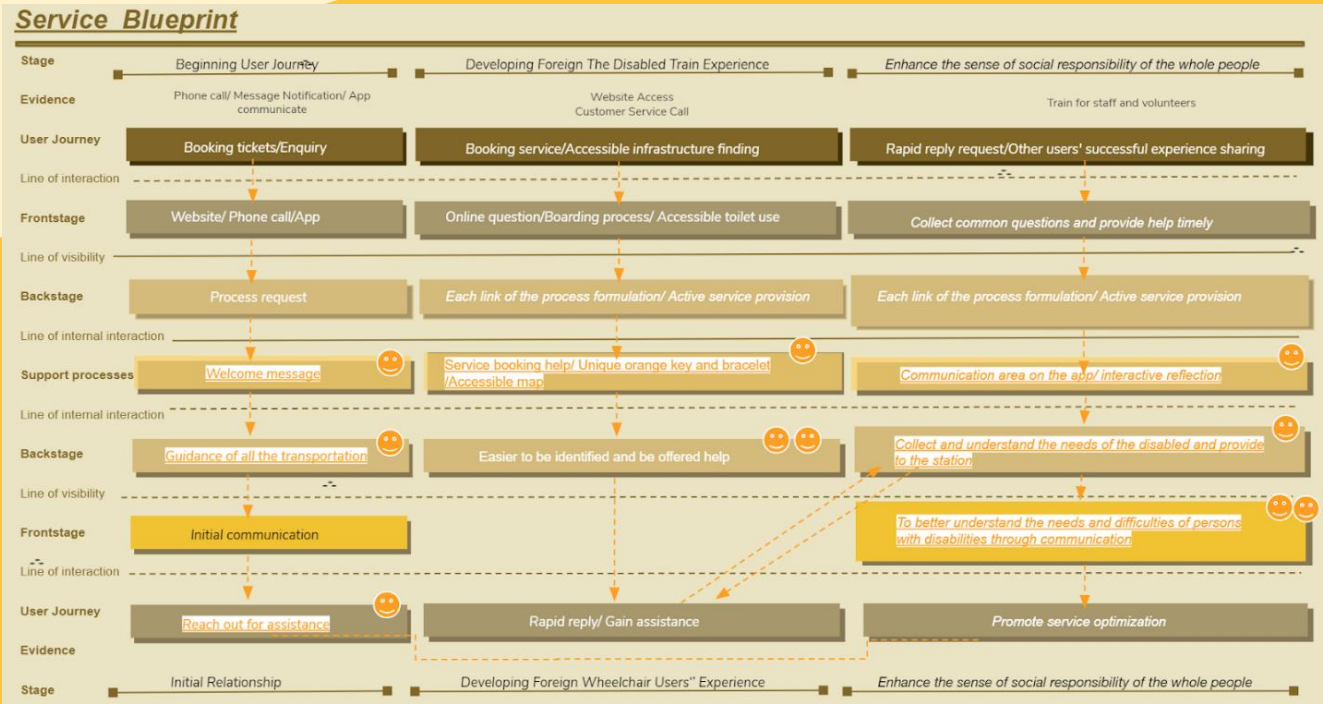


# **7. Final outcome**



# Service blueprint

In my service blueprint, I optimized the service in three stages: beginning user journey, developing foreign disabled train experience and enhancing the sense of social responsibility of the whole people. In the first stage, the first touch point is that the user will receive a welcome message when he first arrives in the UK. In the welcome message, the user can learn about all the transportation modes in the UK and obtain guidance to reduce the anxiety caused by the feeling of unfamiliarity with the environment. In the second stage, users can solve problems in time through the online platform, especially when the railway station is in peak time. In addition, users can also obtain active help by booking services and receiving disabled keys and bracelets with exceptional marks. In the third stage, users can also obtain active help by booking services and receiving disabled keys and bracelets with exceptional marks.



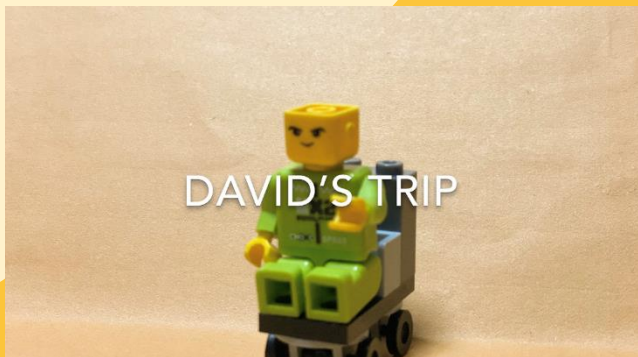
The third stage aims to improve people's attention to the disabled and understand their needs while optimizing the service for the foreign disabled. The railway station will provide service training for employees and volunteers. In their spare time, volunteers will reply to users' questions on the platform, and understand the real needs of the disabled through the process of question feedback and collection. Volunteers will regularly transfer the statistical problems to the railway station, and then the railway station will further improve the service according to the demand.



# Outcome prototype

I used David's story to illustrate how this type of communication can help these people. This story is about David's journey.

There are ten touch points that appear in David's journey, including arriving at railway station, buying tickets, appointing services, waiting, going to toilet, boarding the train, asking for help, sharing experience with others, going off the train and giving feedback and finally finishing the journey. The most important point that throughout the whole journey is communicating.

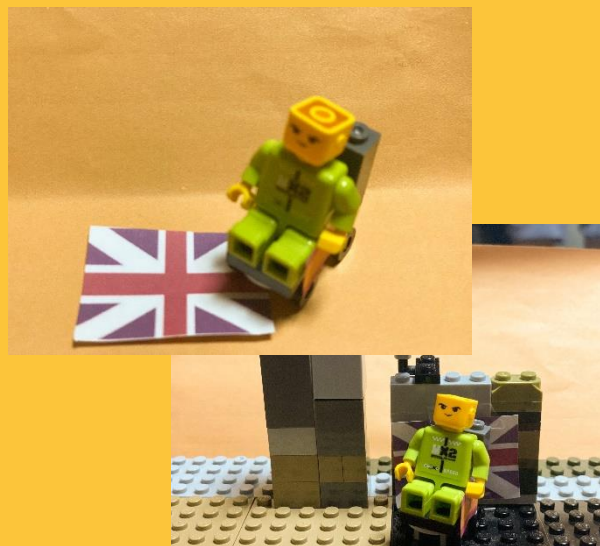


## STAGE ONE:

David is Spanish, and he planned to travel to the UK for a long time. It was the first time that David came to the UK. He was excited but also a little bit worried. As soon as David entered the UK, he received a welcome message from the UK government, which contained all the transportation options and precautions for disabled people as well as the emergencies contact numbers and daily consultation.

## STAGE TWO:

One day, David wanted to take a day trip to a nearby city. He decided to go by train. He turned on the phone and started calling the service contact. The customer service told him how to buy tickets. In addition, they also suggested that if David unable to buy tickets online, he could also choose to buy at the train station.



## STAGE THREE:

At 9:30 am on Tuesday morning, David arrived at Scotland railway station. He walked to the ticket machine and started buying the tickets. He had some doubts about how to purchase the disabled Railcard, so he opened the "Be with You" APP that he downloaded in advance and asked the online staff in the communication area. Fortunately, he quickly got a reply. After seeing David's request for help, a staff member walked to the machine to help David.



### STAGE THREE:

At 9:30 am on Tuesday morning, David arrived at Scotland railway station. He walked to the ticket machine and started buying the tickets. He had some doubts about how to purchase the disabled Railcard, so he opened the "Be with You" APP that he downloaded in advance and asked the online staff in the communication area. Fortunately, he quickly got a reply. After seeing David's request for help, a staff member walked to the machine to help David.



### STAGE FOUR:

When David was waiting for the train, he found that there were many people at the station today because now it was peak time. He was a little bit nervous. Then he opened the 'Be with You' APP and asked for help on the entire process of riding in the online communication area. Volunteers gave him some suggestions. Also, a volunteer suggesting that he could go to the information desk to get the disabled key so that he could use the accessible restroom during the whole ride. Besides, he advised him to find out about the platforms with accessible restroom and other barrier-free facilities throughout his journey, as not all the stations are covered with disabled facilities. And this information can also be accessed through the 'map' function of the app.



### STAGE FIVE:

He went to the service desk, provided the staff with his disability certification, and explained his needs. He also asked if someone could help him get on the train, because he has a wheelchair and it is not convenient to get on the train by himself.





## STAGE SIX:

The staff checked his documents, gave him a key which can open all the accessible toilets and an orange bracelet, and arranged a volunteer to help him board the train. The staff told David that if he needs service in the future, he can also make an appointment in advance through the service contact or log on to the APP to make an appointment for volunteer service. At the same time, there is emergency contact information on the back of the key, so David can contact the train station if he encounters any problems on the train. The emergency contact service works 24 hours/7 days a week, so he can feel free to call. In addition, the unique orange key bracelet enables the staff to know his foreign identity directly, and the staff will offer help on all the trips so that David does not have to worry too much and just relax and enjoys the scenery throughout the trip.



## STAGE SEVEN:

David decided to go to the accessible toilet before boarding the train. A railway staff guide him to the nearest bathroom, he successfully opened the door with the key he just received.

## STAGE EIGHT:

Finally, it was time to get on the train, David swiped his ticket to get into the station and showed the service he had just booked to the staff. The staff immediately arranged for someone to help David move his wheelchair onto the train and fixed his wheelchair. They did not leave until they saw him sit safely, and they told David that he could get help through the emergency button and emergency contact phone number if he had any problems during the journey.





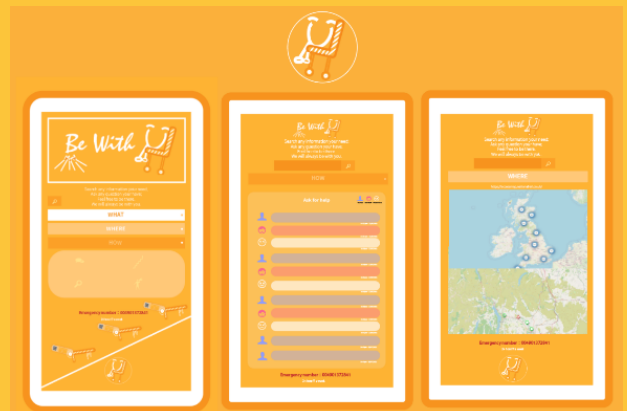
## STAGE NIGHT:

David sat on the carriage while enjoying the scenery, he shared his experience in the communication area of the APP, hoping to give some help to those in need.



## STAGE TEN:

David got off the train and arrived at his destination. He found that some railway station staff were training with volunteers. He went forward to thank them and offered his suggestions, hoping to help them improve the whole service training in the future.





I made a platform called “be with you”

It is a platform to help **foreign disabled, railway stations and social volunteers** communicate with each other. Foreign disabled can ask questions on the platform at any time in case help is not available during the peak time; Railway station staff can publish relevant latest information on the platform for sharing; Social volunteers can see the needs of users on the platform and give them the help they need.

Users can learn about how British disabled people buy tickets and what help they can provide on the platform; Users can ask questions at any time on the platform, which will be answered online by railway station staff and volunteers; Users can access the latest information about users on the platform, such as inquiring about disabled equipment at their local train station; Users can share their experiences on the platform, realizing a full closed loop social.

Here also has a small but quite interesting design for the foreign disabled. From my previous research, I learnt that all the disabled people has a key open the accessible toilet in the railway station. So I design a new key that can have a little bit difference from the normal one. All foreign disabled can collect a disabled toilet key at any platform according to their national certification or valid certification issued by the hospital;

And the key has a QR code for downloading the APP. Users can scan the QR code to download the "Be with You" APP. The key is also marked with the emergency contact number of the train station customer service and the contact information of the volunteer association for help. And this special key can let all the railway station staff know the wheelchair users are the foreigners and give more attention to.

## Test

After finishing the prototype, I also did some test between my interviewees and also put this service introduction to test on the Facebook then received more than 20 feedbacks. Most of them are hold positive attitude, here are some of the feedbacks from the interviewees:

*“It's important to have active support, because sometimes it's hard for me to ask for help, especially in an unfamiliar environment”*

-  
*“Sharing is a powerful, and having a community to share successful experience with other is a huge benefit both”*

-  
*“As a volunteer, if I can get support from the railway station and cooperate with it, then I can better understand the needs of the disabled and make my contribution for them”*

Besides, I also got a feedback from a train station staff, I showed my scenario video to him and he was really happy to have a platform to communicate with the disabled to know their needs, this feedback is also an affirmation for me.



# **8.Final thoughts**

# Technology and change

Learning to leverage technology for better outcome and efficiency is critical in the overall design of services. Before building the "Be With You" platform, I did some in-depth research to learn about the technology that some other countries use for disability support products. Through comparison, I realized that the combination of VR technology and platform could help some disabled users more effectively and efficiently and relieve the work pressure of railway stations during peak hours significantly.

## Inclusivity and Culture

Continuous communication is essential to the formation of a project. In the early days of the project, I often got lost in not knowing how to communicate with my target audience or finding my target audience. Fortunately, I got a lot of good advice during several peer reviews with professors and team members. For me, as a non-native speaker of English, some words and questions need careful consideration. The professor and team members suggested that I first understand their difficulties in life and transportation from the perspective of a friend and helped me modify some wording. In the process of designing the questionnaire and communicating with the members, I also have a better understanding of the difficulties of the disabled and their needs.

## Final Reflection

Here are four points that I need to improve in the future.

Firstly, I did not make a good scope for my initial research. At the beginning, I chose the flight experience optimization of the deafblind people as the research goal. However, when I did some actual research, I found it is difficult to find such people and conduct interviews and data collection. This is because the deafblind people group is relatively small, so it is difficult to find the target people to research. In addition, under the current covid-19 environment, it is not that convenient to conduct field research and process exploration at the airport with many limitations. Therefore, under my professor's suggestion, I enlarged the target group to all the disabled and changed the mode of transportation from plane to train. Through gradual and in-depth research, I found that it was difficult for foreign disabled people to use the train as a means of transportation when they first arrived in the UK, thus finding design opportunities. In fact, by optimizing the service experience of foreign disabled people taking trains, some feasible solutions can also help solve the problems of such people taking buses, taxis, subways, planes and other means of transportation. From this process, I learned how to extend and think from large-scale to small-scale research, which is also helpful for me in service design.

Secondly, promoting more people to participate in the service for the disabled actively is still a problem worthy of study. The service prototype I designed is to provide better service for foreign disabled people and hopes that more and more volunteers can participate in the support team for the disabled to make more people pay attention to the needs of the disabled. At present, the communication platform I have established can attract volunteers to join, and the train station can also provide timely training. But how to improve social attention is still worth studying and thinking about.

Thirdly, I also need to think about what kind of technology and information collection methods can better improve the efficiency of information sharing between volunteers and railway stations. To enable users, railway stations and volunteers to communicate better, I designed a service platform in the prototype, which is an ideal platform. In the test of the service prototype, the feedback of some volunteers reminded me that the regular operation of the platform needs technical support. More specifically, I need to think about what methods can be used to carry out user data statistics better and then to improve the working efficiency for volunteers and railway stations when they deal with user problems.

Finally, in the process of making the service prototype, I ignored the impact of language barriers on foreign disabled people. The language barrier is one of the factors causing anxiety after some foreign disabled people first arrived in Britain. In the process of service optimization, I ignored the optimization of this element. It is also worth thinking and optimizing how to enrich the language diversity of volunteers and better provide services for foreign disabled people in the future.



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