Engage customer-facing employees by real-time customer status

A solution to optimize supportive resources for enabling customer-facing employees and improving customer satisfaction

Master Graduation Thesis

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November 2019

TU Delft

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Master thesis
Delft, November 21, 2019

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Preface

This master thesis is the final deliverable of the Strategic Product Design Master graduation project at Delft University of Technology. It presents the results of a six-month research and strategic design project about using customer information to engage customer-facing employees. This project was initially proposed by the Customer Experience Department Data&Tooling team in the Dutch Aviation Company.

Six months ago, Mark Kramer, my company mentor suggested to me to explore from the direction of employee engagement and encouraged me to follow my passion of data. I really appreciate that he gave me the opportunity to coordinate projects with multiple stakeholders and for me to have access to all related data and tools. It is a great reward for me to learn from him what is the service mindset and I believe I will keep this mindset in my future career. Anne and Carlijn, my brilliant supervisor team, thank you for facilitating and navigating the project direction and giving me confidence to finish this project. Wini and Martijn, thank you for all of your efforts to attend all of those stakeholder meetings and help me to communicate with our colleagues in Dutch. And, all Data&Tooling team members, thanks for your warm welcome and all of your support.

Additionally, I would like to thank my family. It has been a tough journey to raise a baby and complete a master's program at the same time. Thanks to my husband, my parents in-law and my mother for giving me the greatest support they can give. Thank my husband Cheng and my sweet kids Ricky and Anzhi, you always motivate and inspire me to face and overcome the challenges.

Lastly, I would like to thank all of my friends who have listened, cooperated, and participated in this project. Without your cooperation, it would have been impossible to arrive at the destination of this journey.

Contents

Executive summary

This graduation project aims to create a solution, which will enable customer-facing employees to increase employee engagement and customer satisfaction. It does so by optimizing digital supportive resources.

The solution tries to resolve the gaps between current supportive resources and ideal supportive data & tools. By bridging the gaps, the solution also could affect information overload and the limitation from the data privacy. Ideally, we should have a workable aligned customer information structure across supportive data & tools and real-time, optimized customer status with the corresponding working procedures. These will engage customer-facing employees to show their empathy for increasing customer satisfaction.

The gaps in the current stage are this dutch aviation company does not have an approach to make sure they can have an aligned, prioritized, real-time, full customer status and they do not have a summary of customer situation and mood in their supportive tools.
To find these gaps, this project establishes one assumption based on the literature of the relationship between information, employees and customer satisfaction. The assumption is the real-time, optimized customer information enables empathy from customer-facing employees in their working context, via which the level of customer satisfaction will be increased.

Meanwhile, there are challenges faced by customer-facing employees, which have been identified through customer research and employee research for their pain points and needs. Challenges are customer's empathetic expectations, dynamic status and lacking real-time, aligned and prioritized customer status.

Obviously, this dutch aviation company has gaps between ideal supportive resources with the real situation. Thus,the ambition of this project is defined as to find solutions to define and deliver the real-time and optimized customer information in employees' working environment, in this project, it is known as "customer status".

The method to conduct this project is X-Way, it is one working process in this company. The core value of X-Way is that always research and test in the real working context with the real users, which matches the ambition of this project.

Finally, a solution includes a principle and a set of tools are presented. That includes the "JET principle" to align the information structure of customer status across supportive tools. A set of tools "JET banner" "Live JET" and "Empowered JET" indicate real-time customer status in supportive tools, and suggest improvements in service procedures. Through those solutions, the customer-facing employees will have access to the real-time optimized customer status. That could enable and engage those customer-facing employees to offer more empathy in their working context, which will, in turn, improve customer satisfaction.

How to read this report?

In this report, the highlighted quotes and important insights will be shown like this:

This is an important quote or insight

Quotes from customers and customer-facing employees will be shown like this:

"This is customer words"

The definition and explanation of some company terminologies and aviation proper nouns will be shown like this:

X-Way is a sprint way that this aviation company are using inside. X-Way means rapid testing of new ideas with real passengers in real time.

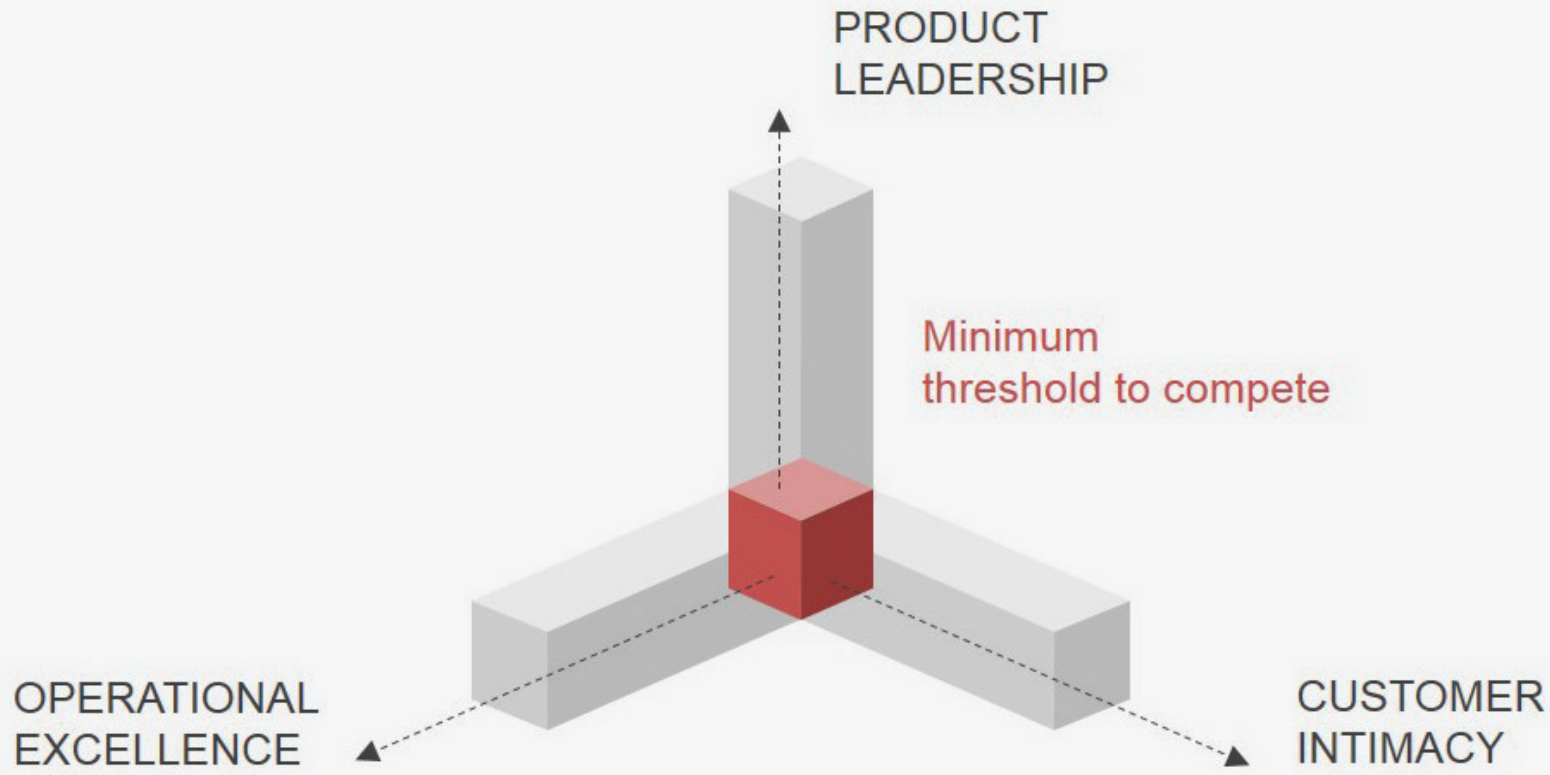


Figure 1.1 Value discipline model
Note: Tracey & Wiersema Value Discipline Model (1993). Value discipline model. Retrieved from https://slidemodel.com/templates/

Chapter 1, Introduction

1-1. About this project

This is a TU Delft Strategic product design master graduation project in cooperation with a dutch aviation company. This company wants to increase its customer satisfaction by engaging its customer-facing employees by improving their awareness of customers' needs and desires. They would like to explore the data requirements from customer-facing employees and get the design suggestions based upon the findings of this project.

1-2. Introduction of the company

This dutch aviation company is the flag carrier airline of the Netherlands. It is a service-oriented enterprise, and customer experience is the most important factor to differentiate its services. Their vision "moving your world by creating memorable experiences" is in their DNA. Delivering desired customer experience, making customers feel recognized and having the personal touch are in their strategy compass. However, customer experience needs vary

from basic requirements to those emotional requirements and it is hard for this dutch aviation company to use established solutions and methods to meet high-level requirements and achieve total customer satisfaction. Thus, as an airline with 35,000+ employees, they rely on their customer-facing employees who interact with customers directly, to deliver a human connection with customers. Ensuring employees feel empowered and enabled are crucial points in their strategy compass. So, third company aims to achieve customer satisfaction through employee-customer engagement.

1-2-1, Win strategy in value discipline model

This dutch aviation company defines its win point as customer intimacy from the Value Discipline model. So they focus much on customer intimacy and customer satisfaction measurement. Net Promoter Score (NPS) has been seen as the main key performance indicator (KPI) in every department of this company. The use their compass as a tool to explain how to achieve customer intimacy.

1-2-2, Compass of this dutch aviation company

Compass is a statement and introduction of the vision of this dutch aviation company, which is “moving your world by creating memorable experiences”

For a memorable experience in aviation service, personal touch points are so important, so they emphasize optimal staff behaviour and optimal working climate in this compass. They identified that they should deliver an empowered and enabled working climate to their employees to encourage them to take ownership of their role and go further. That supports the purpose of this project to enable customer-facing employees through supportive data & tools for employee engagement and customer satisfaction.

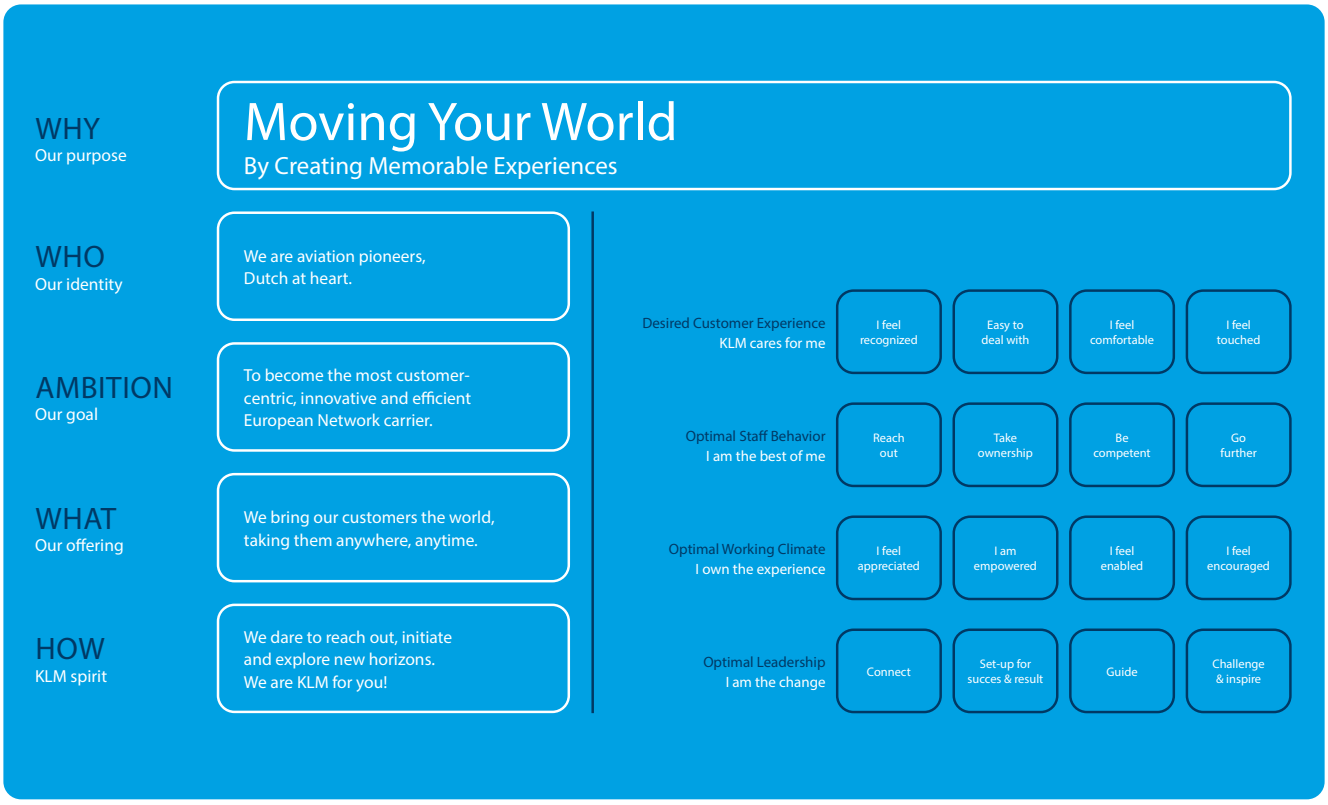


Figure 1.2 The compass of this dutch aviation company

1-2-3, Data and tools trend in this company

In this dutch aviation company, the digitalization trend is obvious. Today in the company most customer-facing employees already have applications in their IPad or computer to support them in their operations. The development of data technology makes it possible to capture, analyse and label customers in real-time. Airlines know the customer profile, customer interaction with their social media and their digital channels, customer journey and disruptions from different channels. They have the technology to capture, extract and expose this real-time customer data. At the same time, after General data protection regulation (GDPR) released, they have to evaluate the usage of customer data and solutions between personal privacy and personalized service.

To summarise, this dutch aviation company has the passion from their strategy and their compass to support its employees via data and tools. They also have created some systems, processes, and technology to support their employees and want to improve these supportive tools through better using available data in accordance with GDPR.

1-3. Project Approach

1-3-1, Method

The main structure of this project follows X-Way, X-Way(Appendix 1) is a sprint way that this dutch aviation company is using internally. X-Way means rapid testing of new ideas with real passengers in real-time. In this project, this characteristic strongly links with real-time information and the real working context of employees.

Why did I select X-way? One of the reasons is that this process emphasizes real passengers in real-time. Then that means all of the problems and concepts should be based on the true environment, based upon this we can see that the final solution will be strongly supported by feasibility. The second reason is that X-Way is a working process based on a typical design process and has the flexibility to modify the steps based on projects, which fits the requirements of this graduation project. The third reason is that X-Way is the current working process in this company, as a designer, I should present this project method and plan with a lot of stakeholders, X-Way forms the basis to build up the initial understanding of the approach of this project.

1-3-2, Scope of research

Even though the starting point of this research is that this company wants to increase customer satisfaction by engaging their customer-facing employees through improving their awareness of customers, the scope of this research is still huge and vague. In this project, the customer-facing employees mean the main employee groups who interact with customers directly via face to face or digital ways. In this Dutch aviation company, it includes cabin crew, ground agents, phone and social media agents from the common understanding. However, there are many questions which surround this central focal point: When is a good opportunity to improve the employee's awareness of customers in airlines' customer journey? What are the main touch points to meet customer's expectations? One research (Appendix 2) has been conducted on customers' behavior to support the definition of the scope of this project. The results narrow down the scope to the human interaction between main customer-facing employees and customers with perceived disruptions before they are on-board. As Figure 1.3, the orange arrows.

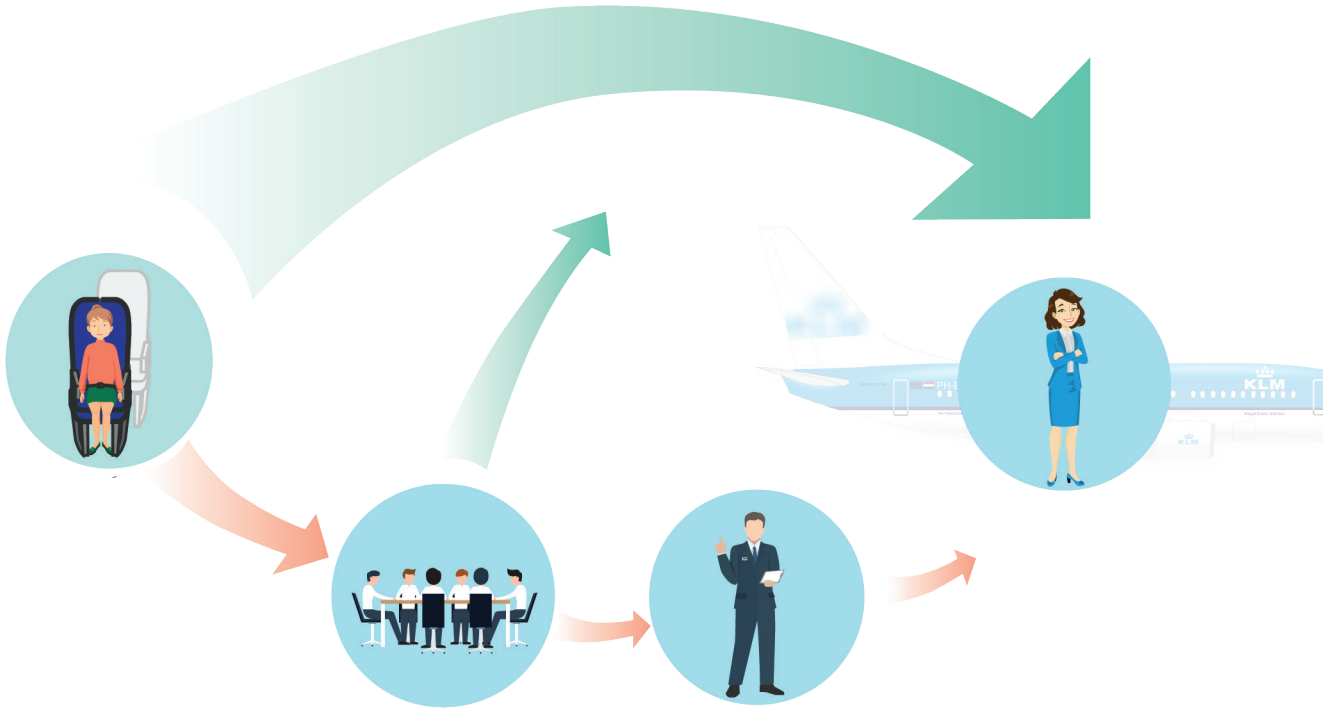


Figure 1.3 Scope of research

1-3-3, Project layout

The project layout figure 1.4 explains the whole approach of this project.

This graduation project consists of three phases, each phase has one main research question linked with X-Way.

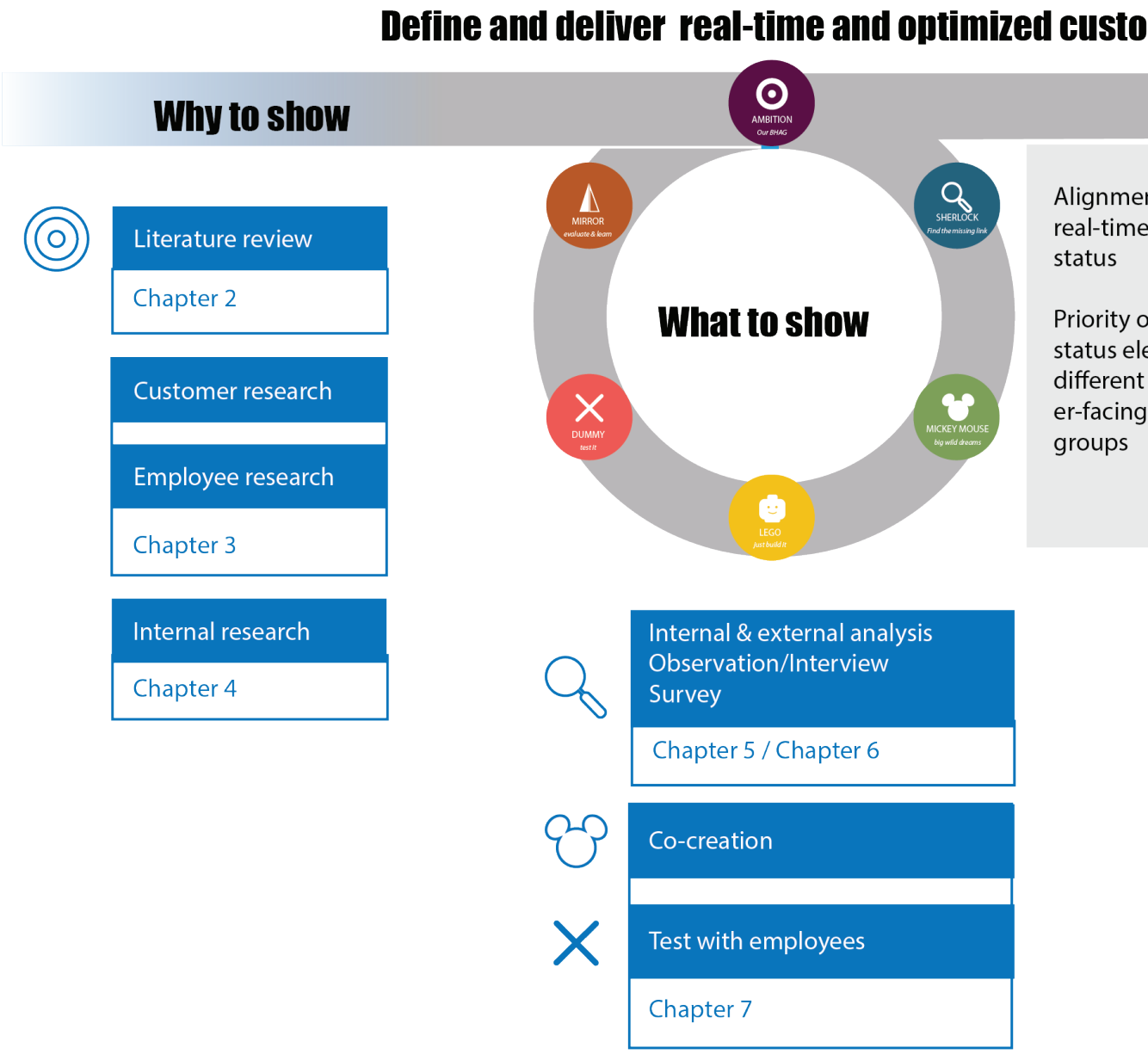
The first phase has defined the ambition of this project, meanwhile, it is the ambition of two rounds of X-Way. It explains why it is important to show real-time and optimized customer status in order to engage customer-facing employees for customer satisfaction. This phase includes a literature review, the customers' research, and the employees' research. The conclusion of the research indicates what could be the ideal combination of supportive resources. After that, there is one comparison between the ideal situation and current supportive resources, to show the missing points or gaps.

The final ambition of X-way is "Deliver the real-time and optimized customer status to engage customer-facing employees for customer satisfaction", its aim is to resolve the gaps that we have identified.

The second phase is the first round X-Way, it explains what should be shown in the customer status for different groups of customer-facing employees. This phase includes internal & external research, surveys and interviews with employees, Co-creation workshop to explore and validate the alignment concept of the customer status. The final conclusion of the first round X-way is the "JET principle", which is a principle of information structure to align customer status.

The third phase is the second round X-Way which explores solutions of how to show the customer status to customer-facing employees. This phase includes several opportunity explorations, Co-creation workshops and brainstorming to convert opportunities to design ideas. Based on these ideas, prototypes like "the JET bar" "Dedicated service experts" "Super PNR" have been created. After that, these concepts have been iterated and validated with employees. The final conclusion is a design roadmap for a set of "JET" tools.

The further step of this project has two direc-



tions, firstly based upon the empowerment to employees, for example, it could be empathetic gesture recommendations based on dynamic customer status. Secondly, looking at extending this research to self-service, for example, it could be after implementation of customer status in this dutch aviation company, which dynamic self-service can be delivered? Or when the automated system should transfer customers to customer-facing employees?

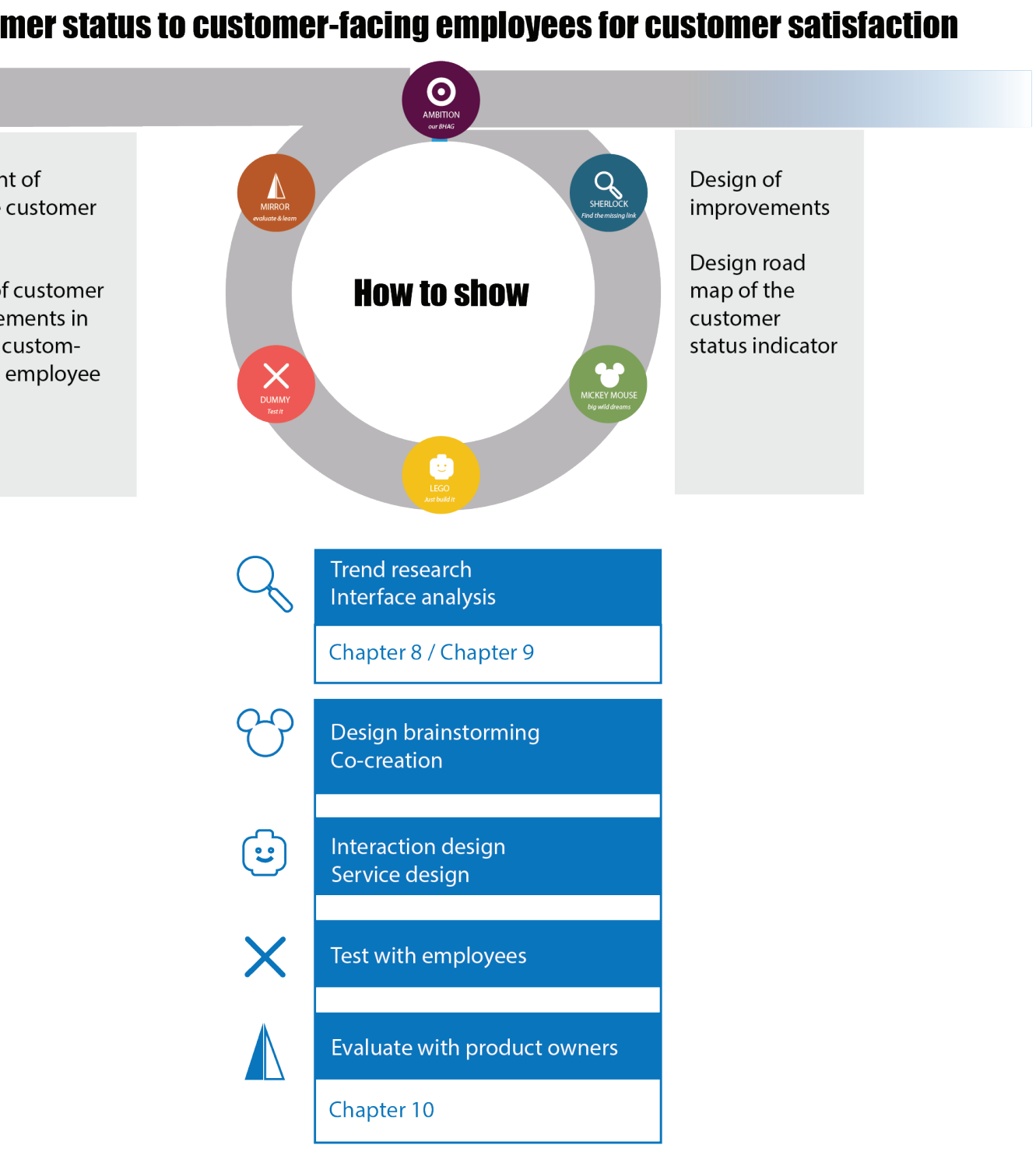


Figure 1.4 Project layout

Why to show

Define the ambition of X-Way

This part explores why it is necessary to show the customer status to customer-facing employees for employee engagement and customer satisfaction, and it also defines the ambition of X-Way. The conclusion comes from the comparison of real situation and ideal situation, which is assumed from literature review, customer research and employee research. Consequently, ambition has been defined to solve gaps from this comparison. The research questions of following X-Way are explained in more depth at the end of this part.

Literature review

Chapter 2

Customer research

Employee research

Chapter 3

Internal research

Chapter 4

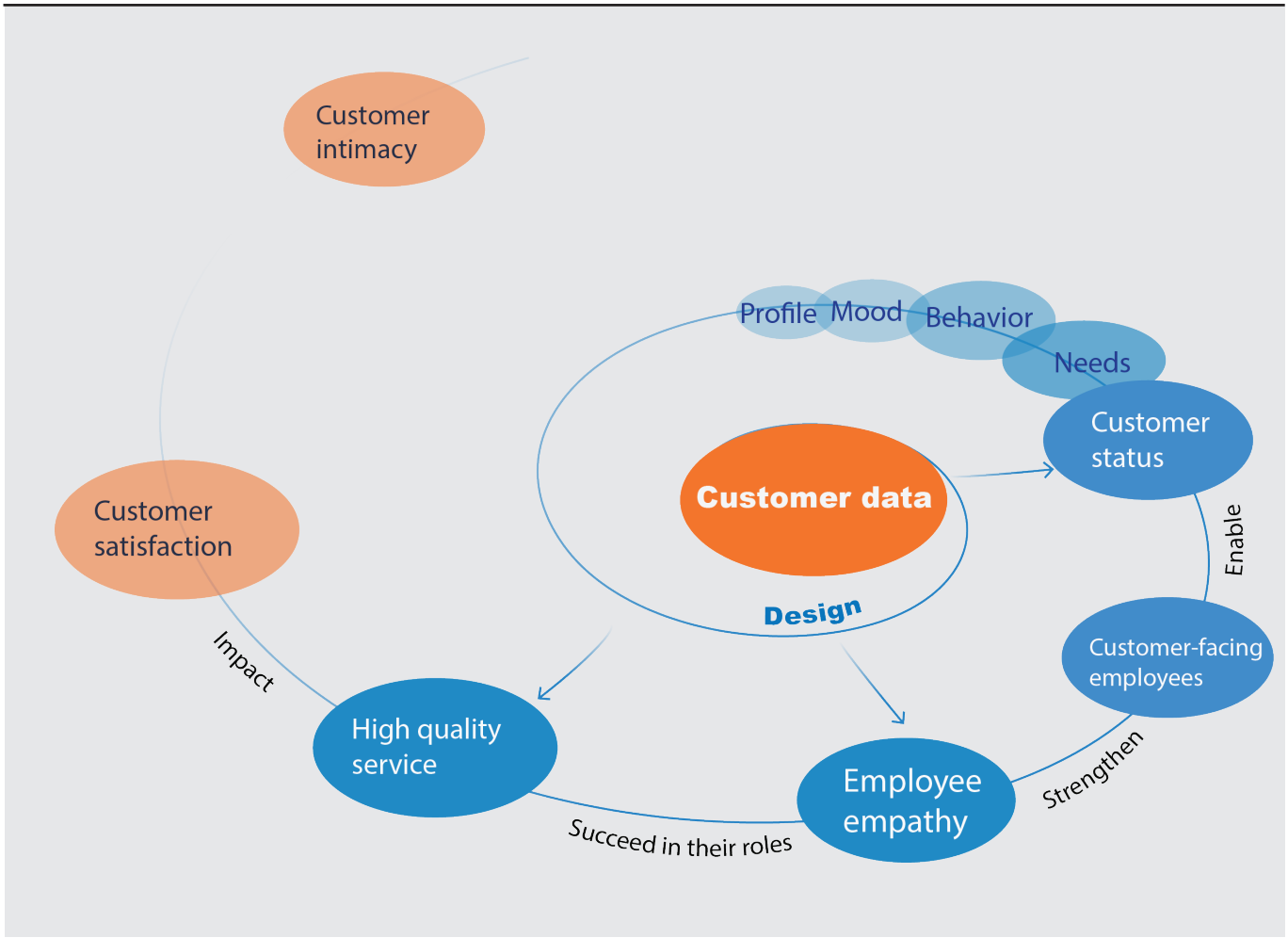


Figure 2.1 Assumption model

Chapter 2, Literature research

In order to meet the requirement of this dutch aviation company: Increasing customer satisfaction via enabling customer-facing employees through optimizing support resources in employee engagement. This section refers to a lot of related research, while many pieces of research on support resources and customer satisfaction have been conducted, few pieces have actually taken their relationship into consideration.

The main takeaway as figure 2.1,

1, Optimized information enhances customer-facing employees' empathy for increased customer satisfaction.
2, Correctly optimized information in employees' working context can enable customer-facing employees. This information is used to understand customers and facilitate problem-solving in a more efficient way.
3, Customer status, as a summary of customer information, can be a valuable resource to engage customer-facing employees with their customers, in a professional and prompt manner.

2-1, Relationship between employees and customer satisfaction: High employee empathy = High customer satisfaction

Customer satisfaction is a measure of how products and services supplied by a company meet or surpass customer expectations(Wikipedia. n.d). Kano model(Kano, N,1984), a theory for product development and customer satisfaction, classified those expectations into three distinct categories, each of which affects customer satisfaction in a different way, that are Must-be Quality, One-dimensional Quality, and Attractive Quality. Another research (Basfirinci, C., & Mitra, A. 2015) about an investigation of airline service quality indicates empathy from airline employees belongs to attractive quality. Empathy, which is mentioned in Wieseke's study (Wieseke, J., Geigenmüller, A., & Kraus, F. 2012) plays an important role in service quality and impacts on customer satisfaction. In general, empathy is defined as "identification with and understanding of another's situation, feelings, and motives"(Daniel Kahneman,2011). Evidence exists for empathy impact the employees' behavior and attitude, and this is "one of the most significant drivers of customer satisfaction" (CultureIQ. n.d.)

For my study for customer satisfaction in the aviation area, empathy has been proved is one factor of a high-quality service via which it impacts customer satisfactions (An, M., & Noh, Y. 2009), even impact customer loyalty (Caruana, A. 2002). That is to say higher employee empathy higher customer satisfaction.

Nevertheless, how to increase empathy through supportive resources? One case research introduces enriched customer's personality profile can improve the employee's empathy and the service quality between the interactants. (Wieseke, J., Geigenmüller, A., & Kraus, F. 2012).

2-2, Enable employees by optimized support resources: Right optimized information = Enabled employees

From employee engagement research, job resources are important. A job with high demands and no resources can cause employees to burn out and fail in their roles. (Taris, T. W., Schreurs, P. J. G., 2001, Bakker, A. B., & Demerouti, E. 2007). Different works of literature have listed the different scope of job resources, to sum up, those resources should include 1) Access to the resource (Hakanen, J. J., Bakker, A. B., & Schaufeli, W. B. 2006). 2) Control of demands and time costs (Bakker, A. B., & Demerouti, E. 2007). 3) Functional job resources to achieve their working goals (Hakanen, J. J., Perhoniemi, R., & Toppinen-Tanner, S. 2008). 4) Autonomy and coaching (Bakker, A. B., & Demerouti, E.,2007).

To understand the scope specific in service area,according to the research of Wirtz (Wirtz, J., & Jerger, C. 2016),these are necessary resources: 1) to enable customer-facing employee, 2) understanding of customer needs and wants, 3)knowledge to facilitate problem-solving, and 4) the empowerment to control the service quality.

A similar point of view can also be found in CMS Wire

"Engaged organizations provide front-line workers with access to the right information in a timely manner within the context of their daily work environments."
(Lindsey Goodchild,2018)

To summarise, based upon the information about customer satisfaction and support resources in the service-based companies like airlines, correctly optimized information includes enriched customer profiles in employee's working context to allow understanding of customers and facilitate problem-solving which can enable customer-facing employees and improve their empathy, therefore leading to improved customer service and satisfaction.

2-3, Customer status: the enriched customer profile

What is an enriched customer's profile that can enable employees' empathy?

From the definition of empathy, "Empathy is the ability to understand and share the feelings of another." Psychologists Daniel Goleman and Paul Ekman divide the concept of empathy into three categories(Bariso, J. 2018). 1)Cognitive empathy is about knowing and understanding how someone else feels. 2) Emotional empathy, that is experiencing the feelings of another person. Like when we see someone's hurt, we feel pain too. 3)Compassionate empathy, involves feeling and understanding what another person is going through, and being moved to do something about the situation. In this research, because emotional empathy and cognitive empathy are more close to a physiological response, the main focus is compassionate empathy. That means

"Empathy is the identification with and understanding of another's situation, feelings, and motives" and then doing something.
(Michael Hinshaw,n.d)

So, customer situations, motives and feelings from customers should be considered in the enriched customer profile.

Another research indicates that mood impacts customer behavior and personality characteristics have a correlation with customer satisfaction. (Liljander, V., & Mattsson, J.2002). So, mood, customer behavior, customer personality should be linked with enriched customer profile as job resources too.

Herger's definition of "customer status", which is the summary of emotion, demanding, journey life, experience, profile (Jerger, C., & Wirtz, J. 2017). It is highly consistent with the content we have discussed for the enriched customer profile. Finally, we use "customer status", which is the real-time description of the passenger, it includes passenger's demands, behavior, situations, mood and profile with personality to describe all of the customer-relevant information, which enables employees' empathy in their working context for customer satisfaction.

2-4, Support resources and customer satisfaction

Studies show that empathy is a key point to increase customer satisfaction and correctly optimized information is a necessary condition to enable customer-facing employees (Wirtz, J., & Jerger, C. 2016) as the job resources in their working context. Customer status is a key resource to enable empathy. But how to optimise the use of this supportive information, especially customer information to engage customer-facing employees for customer satisfaction, remains unclear. The same situation happens in this dutch aviation company's internal research. One internal research shows that there is a correlated relationship between employee engagement and customer intimacy. The other two research projects mention that the support tools can engage employees, but these tools focus on increasing team feeling and identification of work roles. While there is no research about solutions from customer information to foster employee engagement to achieve customer satisfaction.

So, the assumption from literature research is the real-time, optimized customer status can enable customer-facing employees' empathy in their working context, via which the customer satisfaction will be increased. Based on this assumption, this research mainly focuses to solve how to use optimized customer status, the summary of customers' demands, behavior, situations, mood, and profile with personality, to engage customer-facing employees in a timely manner within the context of their daily work environments to strengthen their empathy. As a result, customer satisfaction will be improved.

Chapter 3, Challenges of employees in their working environment

In order to understand the challenges of the customer, this chapter includes researches from the customer's side and the employee's side. In their working context, they are facing several challenges.

The main takeaway from this chapter,

1, Customer status of airlines has own characteristics, which is dynamic, personal, high expectation after self-service failed, and empathy from employees is becoming a performance attribute.
2, Employees have to understand customers in a timely manner, however they do not have real-time, optimized customer information to support their understanding, and enough action suggestions to show their concern

3-1,Understanding of customers

To understand what are the characteristics of the airline's customer status, what impact customer satisfaction in personal interactions with customer-facing employees, the two following research methods have been used:

- Customer satisfaction comments analysis for understanding deeper what customer expectations are relevant to customer satisfaction
- The customer journey for describing customer behavior, feelings, pain points and needs

3-1-1, Customer comments analysis

To understand real customers of this dutch aviation company, 2000 newest (July 2019) comments from the customer satisfaction survey are used as the research sampling, in which, 566 staff-related comments have been analysed based on the ground theory(Morse, J. M., 2016). The code list(Appendix 3) of this analysis includes the main negative experiences, positive experiences and customer improvement suggestions to different customer-facing employees.

The main findings from customer comments analysis:

1, Main needs from customers for customer-facing employees

- I want staff who are polite and professional
- I want useful and right information from staff
- I want staff to consider my loyalty in their service gestures
- I want staff to fulfil the promises from different touch points
- I want staff who are empathic and helpful, who are concerned and attend to my situation
- I want to have flexible procedures and dedicated staff to deliver enough empathy

2, The main improvement suggestions to ground agents and cabin crew are shown in Figure 3.1, which are related to considering passengers' situation and dedicated staff to deliver the human connection. This finding is similar to the finding of Basfirinci, C., and Mitra, A.'s research "Responsive ground and cabin crews in meeting customer needs and willing to help customers"(Basfirinci, C., & Mitra, A. 2015), which is an attractive quality in Kano model.

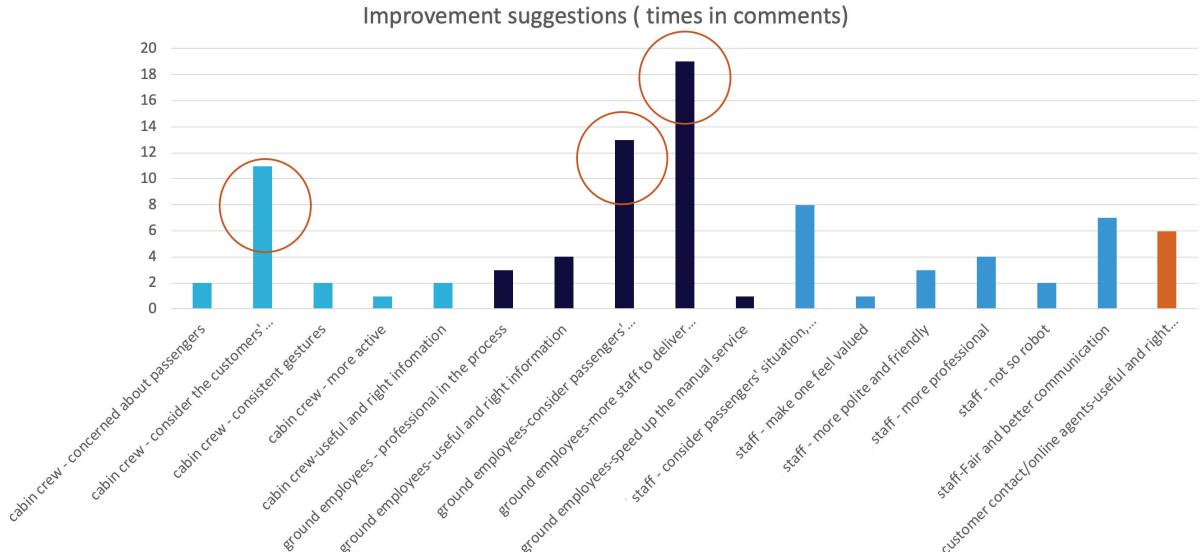


Figure 3.1 Analysis result of improvement suggestions

3, As Figure 3.2 shows, compare with cabin

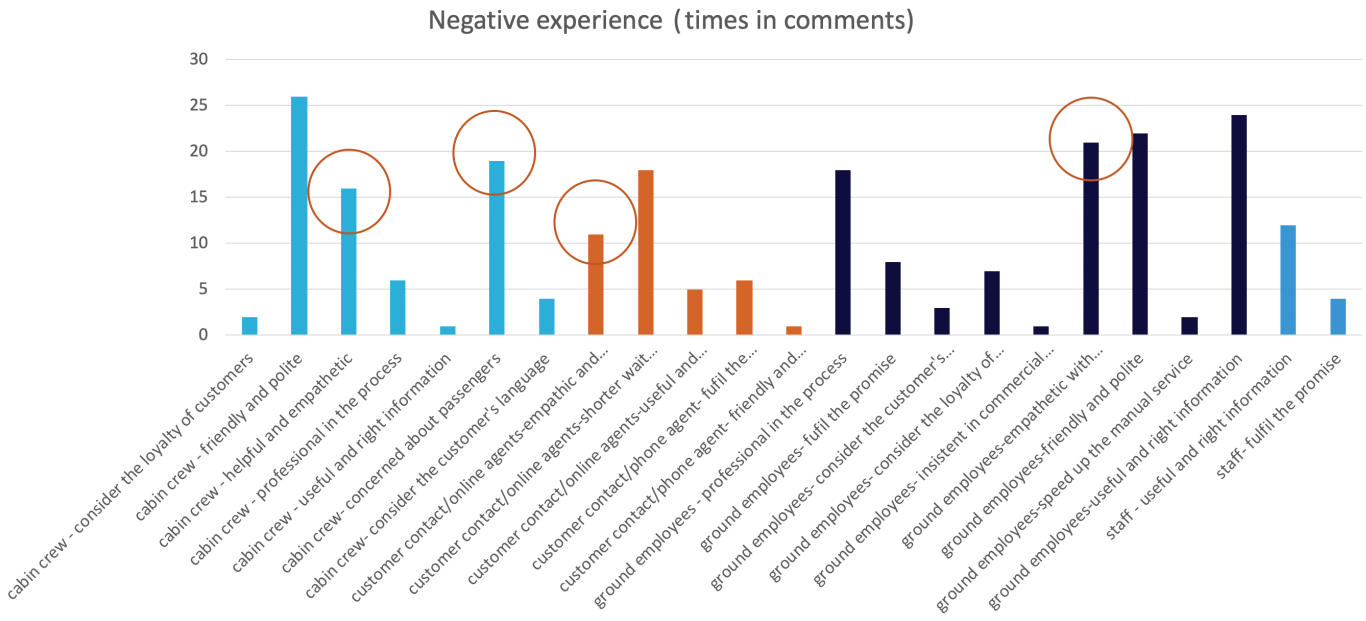


Figure 3.2 Analysis result of Negative experience

crew, ground agents and customer contact/social media agents have more negative comments rate from customers. From content analysis, except for the performance issue, the main complaints are related with empathetic with customers, consider their situation and be helpful is the main reason.

So, compare the findings from Figure 3.1 and Figure 3.2, there is a time effect from the Kano model

"Over time delightful innovation becomes another basic need" (Kano,1984).

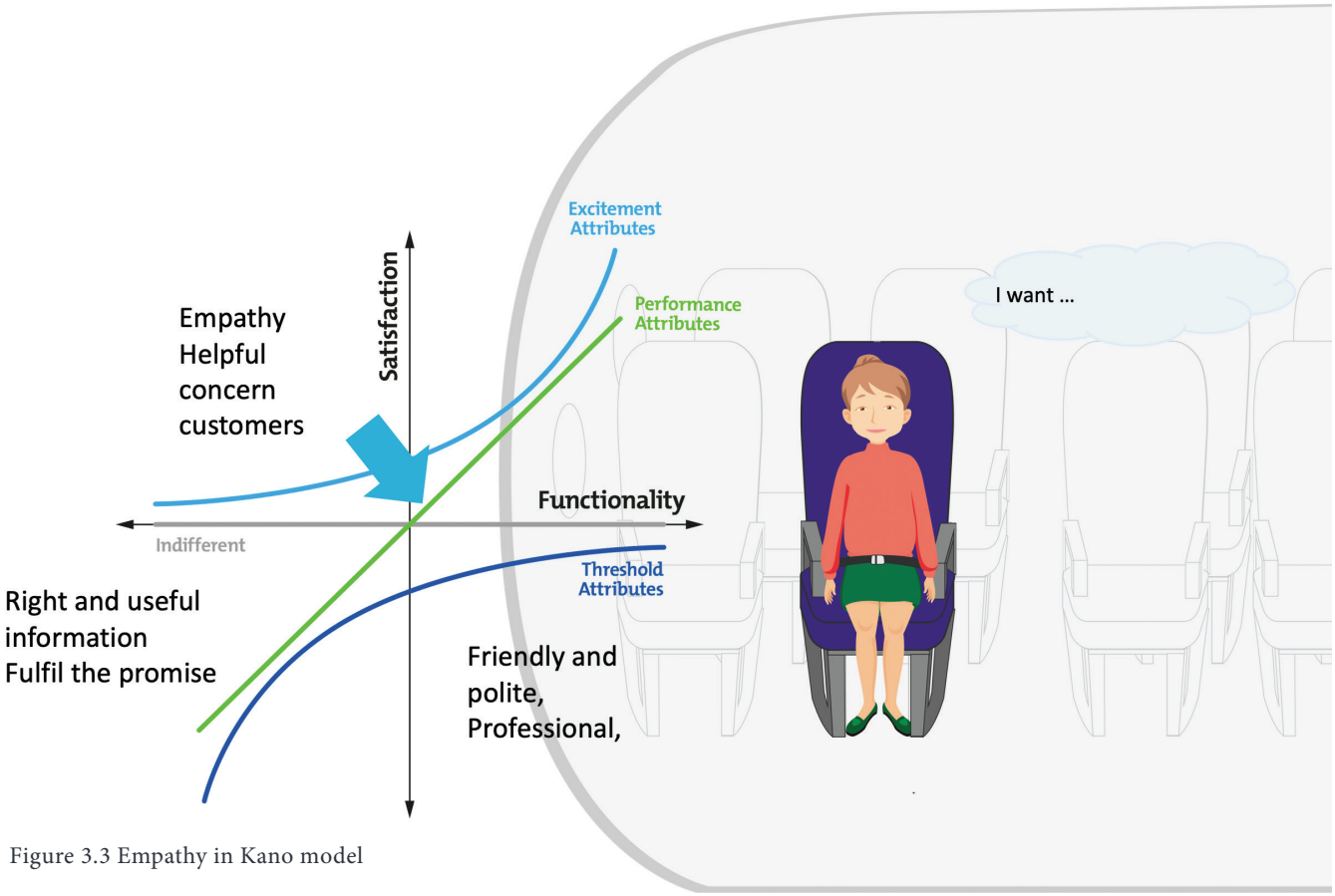


Figure 3.3 Empathy in Kano model

Look back Basfirinci, C., and Mitra, A.'s research in 2015, in the aviation area, emotional connection or we say empathy is becoming performance needs in the interactions between customers and employees, as Figure 3.3 shows.

3-1-2, Customer Journey

To understand the real customer status in this dutch aviation company service, this section analyses a real customer journey, which in the diagram below is facilitated by photos, notes, and observations' records from real customers' interaction experience with customer-facing employees.

The main findings in Figure 3.4 the customer journey before on board are:

- The feeling, behavior, demands, and situation, which belong to customer status are dynamic in the interaction with customer-facing employees
- When customers feel that they are in control of their trip the emotion line of the journey reaches the peak of the whole experience.
- The expectations of customers– extra service, more information, and empathetic gestures, impact the satisfaction of customers and show as an emotion change result.
- Every customer has their own definition of the perceived disruption. When perceived disruption happens, the journey slides to low points. In this journey, when Lisa finds she cannot select the (desired) comfort seat by herself, there is the first low point.
- Customers look at all of the customer-facing employees as a group, every time they have

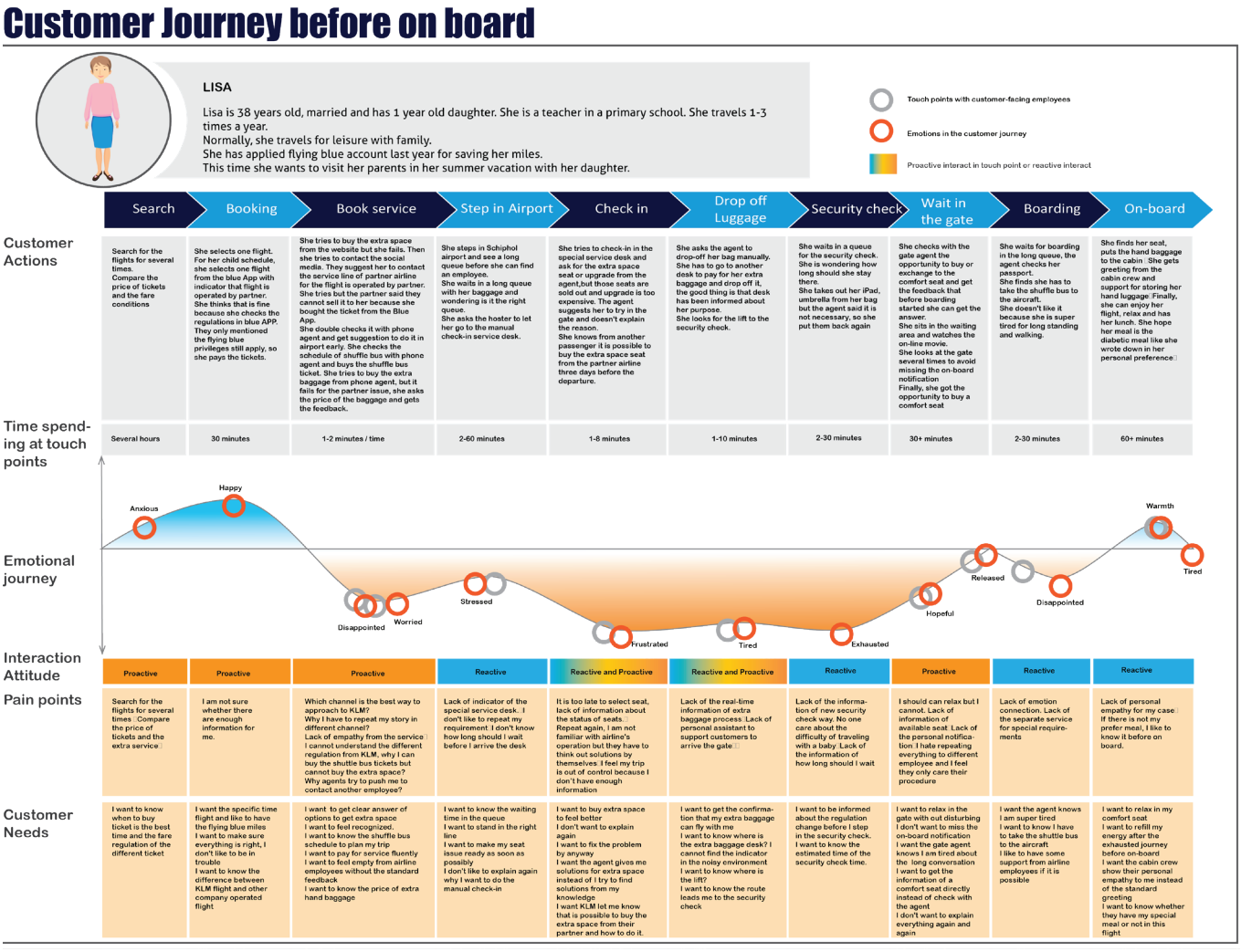


Figure 3.4 Customer journey before on board

to explain their negative experience again to an employee it causes the journey to become worse (e.g. the lowest points in this journey).
- Lack of emotional connection and extra suggestions from customer-facing employees, based on their knowledge, cause the journey not to reach the expected high point even after the problem has been solved (e.g. A lower point after the problem solved)

So, the customer status in airline service is a dynamic, changing, personalized status. It changes based on customers' perception of service. When perceived disruptions happen, the perception is impacted especially by the connection with customer-facing employees.

3-1-3, Characteristics of the airline customer status

We can see here an overview of findings of customer comments analysis and customer journey, some characteristics of the airline customer status have been revealed.

- Empathy and emotional connection is becoming the biggest performance need that impacts customer satisfaction of airline services
- The customer of the airline service has a dynamic, changing, personalized status. It changes based on customers' perception of service.
- Passengers have high expectations from employees in the situations that they failed to self-service, these expectations link with emotional connections, fulfilling the promise and extra actions from customer-facing employees.

As a conclusion,
customers have high expectations for customer-facing employees to become aware of their changing mood, dynamic situation and requirements, and loyalty to this company, as well as based on these to deliver their expected services.

3-2, Pain Points of customer-facing employees

We know highly satisfied employees deliver high-quality service (Chamberlain, A., & Zhao, D. 2019). To explore how to engage employees in this company, understanding their pain points in their working context is necessary. This section includes the following research methods for this purpose:

- Observations and open interviews for collecting insights about customer-facing employees' working context, their interactions with customers, their main working goals in their working context and their needs for information
- Work as a volunteer to feel the real feeling as a customer-facing employee
- Personas of customer-facing employees to describe who they are and their stories
- The backside employee journey to summarize what are the needs and pain points from customer-facing employees about supportive resources.

Consequently, the main pain points and needs of customer-facing employees have been identified.

3-2-1, Insights of observations and open interviews

To explore the real working context of customer-facing employees, observations or open interviews have been conducted with customer-facing employees in their working contact when they interact with customers or prepare to interact with customers.

Totally, 26 customer-facing employees from different departments have been observed or interviewed. Appendix 4 includes all of the records of touch points, insights into their working context, interactions, and their needs for information. Employee' journey, and the final

Figure 3.5 The long queue of passengers
Note: euronews (2019). Operations resume at Schiphol airport but delays continue. Retrieved from https://www.euronews.com/2019/07/24/delays-and-cancellations-amid-fuelling-problem-at-amsterdam-s-schiphol-airport

conclusion of pain points and needs in the following sections.

Long story short, the main summary is:

- Customer-facing employees have different working contexts.
- They interact with customers in different ways and different touch points.
- Their main working goals in their working context and their needs of information have a common part but also differences.
- They all use their supportive tools less or more to find the information that they want and support their services.

3-2-2, Volunteer as a floorwalker

To feel the pain points and feelings as a customer-facing employee, I got an opportunity to be a volunteer in Schiphol to communicate with real passengers directly when an unpredicted major disruption happened on 24-25 July 2019 for fuel supply. The following are my insights in this experience.

- When there is not enough time to train employees to communicate with passengers, the only word has been emphasized is empathy, to understand passengers' situation, express sorry and try to help them by any way.
- To locate who is the highest priority in a long queue (As Figure 3.5) is frustrated, the only way is trying to use eye contact and then ask passenger proactively. The similar background supports me a lot to understand Asian passengers' feelings and needs.

- Data & Tools become very important supportive resources to support passengers' requirements, IPad with Appy2Help is the best resource in this case, but a phone with the internet and even laptop (Show in Figure 3.6) with the internet are good resources too.
- When I see passenger was crying in front of me (a strong negative emotion), I can feel my empathy was growing and want to try my best to help this passenger.
- Even I cannot solve the re-book issue of passengers, but after showing understanding of passengers' situation, help them to check-in or just search the flight information for them. A big part of passengers calm down and show understanding back.
- The feeling of recovering customer mood or solve their requirements is the charming part, it engaged me to stay as a volunteer until the end of the day.

3-2-3, Personas of employees

To describe customer-facing employees' stories, three personas are created based on findings in section 3-2-1 and 3-2-2.
There are three groups of customer-facing employees that have been identified. Social media and customer contact agents have been considered as one group because both of them deliver customer service via Non-face-to-face interaction and customers recognize them as the same group. Besides this, they are using or will use similar tools to operate customer requirements. Ground agents who include check-in agents, floorwalkers, and gate agents have been considered as one group for a similar reason. Cabin crew includes one-strap crew, two-strap crew, purser and senior purser, who deliver in-flight service has been considered as one group.

Figure 3.6 One volunteer supports passengers

This is the story of **Amar**, the persona of customer contact/social media agent.

Amar is a social media agent who works in Manila. He is 25 years old, a freshman as a service agent.

Before this job, he did not have any experience in aviation. Normally, he has a list of customers who have sent a private message to this Dutch aviation company's social media accounts. When he picks up one case, he is busy looking for different information from the ticket system(Oscar), Ground operation system(Altea) and the conversation history in the customer relationship management system(Salesforce) and operates in different systems. Sometimes, he is curious for additional information from other touchpoints,e.g, the flight will be delayed, the passenger is angry, via which he can make up for the defects of non-face-to-face communication but the resources are limited.

One important procedure for him is to check whether this is a standard answer existed. But his standard answer has been seen as an automatic chat Rob[illegible]
pened.

This is the story of **Paul**, the persona of ground agents.

Paul is a special service agent in the check-in area, sometimes he is a floorwalker. He is 30 years old and has worked in this dutch aviation company for 10 years.

When he works as floorwalker he encourages passengers to check-in at the Kiosk. When he works behind the special service desk he always faces a long queue with a mix of children, pets and impatient customers, who have requirements they want to be fixed and different background stories. He likes to be kind but he doesn't think he has time to explore all of those stories. And sometimes, he is annoyed about the promises that the customer got from other touchpoints or other employee delivered wrong information, but he does not receive it in the internal ground operation system(Altea), or his personal support tool (Appy2Help). Passengers are angry that he cannot achieve the promise, he feels upset too.

He likes to have information to support him to solve the passenger problem in service with more efficiency. Sometimes, his passenger perceives a disruption and is crying in front of him, there is a dilemma to him. There are not airlines' disruptions from their regulations, so it is not the airline's fault and he should follow the formal procedure. But as a human, he feels the passenger's mood and it is difficult to ignore it.

This is **Lucy**'s story, she is persona of cabin crew.

Lucy is a 34 years old 1-stripe cabin crew, She is a part-time CA, at other times she works as a product specialist in this aviation company.

She delivers her service in the economy class of Intercontinental flights. She has a service mindset and cares about passengers. She always views her personal support tool (Myflight) before the briefing in the Schiphol crew center or on the bus going to Schiphol. She reads the information about the passengers who belong to her responsible area and who have some special notifications,e.g. Wheelchair, birthday, that they will discuss in the briefing. She is always curious about the background story of her passengers' emotions or needs and tries to understand her passengers through these pieces of information before she meets them.

In the flight, she acts on customer requirements depending on her talents and shows her empathy from listening.

To summarize these three personas, they have different main purposes, annoyances in their specific working context. All of them have a need to understand their customers and customer information requirements.

3-2-4, The backside journey of employees

This section shows the backside employees journey to give a map to understand the challenges of customer-facing employees. It has been used to link three personas,the findings of observation about interactions, and the customer journey that has shown in section 3-1-2.

This backside employees' journey Figure 3.7 explains employees' actions, which directly related to the actions of the customer journey.

And plus the average time that every customer-facing employee spends with the interactions with customers and the time for understanding context with the customer requirement. Finally, it describes employees' pain points and needs. This journey gives a deeper insight to consider customer-facing employees' challenges under the understanding of what are their working context, who are they, and their feelings.

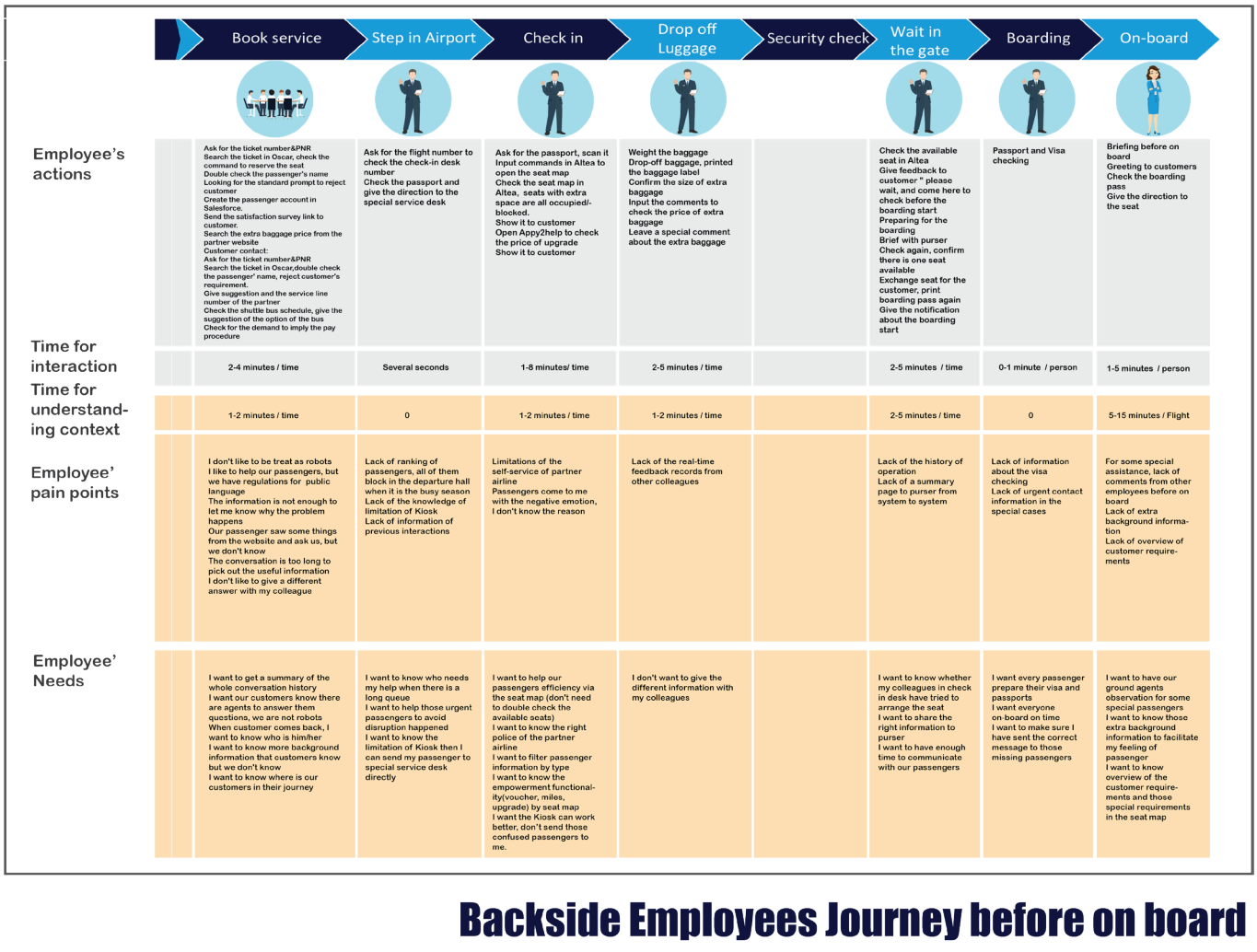


Figure 3.7 The employees' backside journey

3-2-5, Pain points and needs of employees

The main pain points of employees have been summarized from all of the research findings in Chapter 3

- Employees sometimes have to guess the customer's current mood by their language, tones, or from the frequency of claims. (e.g. For different background customers)
- Employees do not have enough background information(e.g conversation history) to understand customer's behavior, situation, and context to facilitate their service gesture.
- Data is everywhere in different channels without an aligned structure. It is impossible to read all of them, judge the priority of them and get an aligned understanding in a very short interacted and preparation time.
- Employees are supposed to know more and have more options when perceived disruptions happened, but actually they are just following their regulations and their tools do not have the information that passengers have.
- Customers come with promising from other employees or channels but customer-facing employees cannot achieve it via their procedures.
- Employees (Non face to face) want customers to know that they are being dealt with by a human rather than an automated response robot.

As a conclusion,

Employees want to aware customers' mood, behavior, situation, and requirements in a timely manner with aligned, prioritized, enough information and have options to show their concern.

Chapter 4, From gaps to research questions

This chapter summarizes the ambition of X-way and defines the research questions from comparison between the ideal situation and current supportive resources. The ideal situation comes from the assumption in literature review, the expectations of customers and the needs of employees. After the gaps have been identified, the ambition is submitted as “Define and deliver the real-time and optimized customer status to engage customer-facing employees for customer satisfaction”

The main takeaway topics from this chapter,

1, Gaps in current supportive resources
2, Ambition of X-Way and research questions

4-1, Current support resources to employees

To explore customer-facing employees' support resources, this section mainly focuses on exploring data, tools and working procedures as supportive resources. The following research methods have been used.
1, Internal analysis to understand employees' data and tools resources
2, The service blueprint before on board for exploring employees' supportive procedure

4-1-1, Internal analysis of data and supportive tools

From the previous observation in 3-2-1, one table(Appendix 5) has been created to list the main supportive tools for customer-facing employees to view customer information and the main database to support these tools.

From this table,besides knowing this company has a lot of customer information and supportive tools, the current situation of the supportive data and tools has been identified. That is

- Every customer-facing employee group has its own tools' system and every system has several tools to view customer-relevant data, but no tool has a summary view of this data.
- The database delivers a lot of possible data feeds, different tools have selected different raw data feeds to show based on their preferences. But there is still too much to read by employees in their limited preparation time and more importantly to decide which information or message is the most important in the employees limited time frame to understand customers.
- In supportive tools, normally they have customer profile, sometimes customer requirements and records of customer behavior. Plus, situation relevant information is everywhere.
- The database of this company has a full customer profile, some descriptions of customer requirements, behaviors, situation relevant data, and satisfaction score. However, there are no real-time customer emotions and satisfaction data, summary of customer from data mining results, and priority property of all these data.

4-1-2, The service blueprint

After the real situation of supportive data and tools has been identified, real connections are continually explored between supportive data & tools and working procedures of customer-facing employees.

The service blueprint Figure 4.1 has been created for this purpose. It collects the relationship among front of stage interactions, back of stage interaction, and support processes. All of the lines in the service blueprint are confirmed by the product owner, data & tooling manager, and internal working procedure documents.

The service Blueprint reveals:

- There are a lot of vertical information links from customer actions to back to stage interactions and support processes, but only several horizontal information lines exist to link information and outputs between different departments, which indicates employees exchange more information in their department than across different departments. So, they seldom align and share their understanding of customers across departments.
- Passenger name record (PNR) is one of the most important information from customers to connect with the ticket records in the data pool. Besides PNR, Flying Blue number(the account of the customer loyalty records system) is also can be an entrance to connect with the customer information in the database. Then it decides without PNR or Flying Blue number, employees hardly have the opportunity to access to the database to get support.
- There is not a procedure about the priority of the customer status in the customer journey, or an option to give action suggestions to customer-facing employees based

on customer status. So, employees always refer customers to the next touch point to solve their requirements when they cannot make the judgment.

(PNR) is a record in the database of a computer reservation system (CRS) that contains the itinerary for a passenger, or a group of passengers travelling together

To summarise the current situation of current customer data, supportive tools and relevant working procedures:

This dutch aviation company has a lot of customer-relevant data, some supportive tools, and supportive procedures to customer-facing employees. However there are some existing

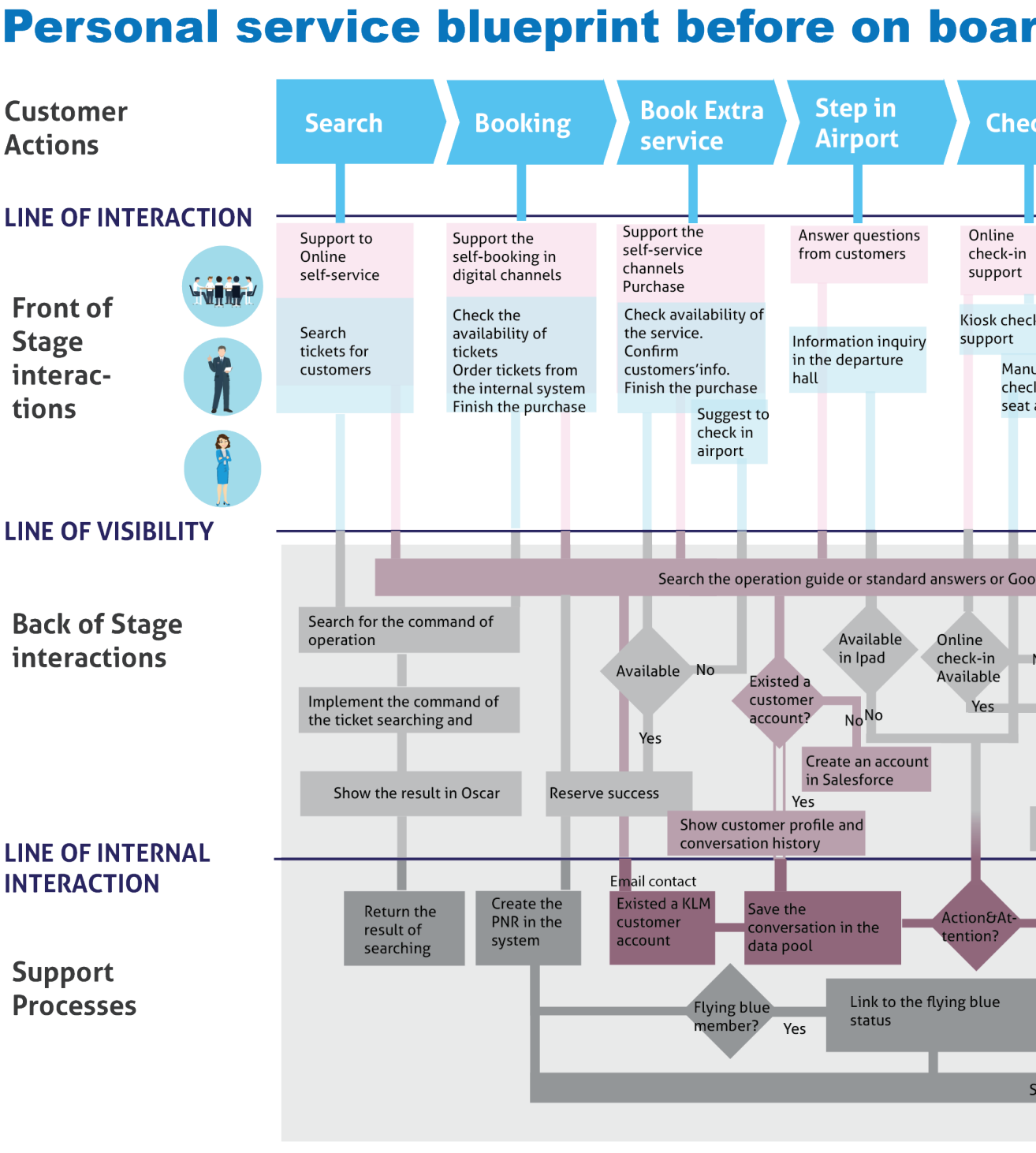
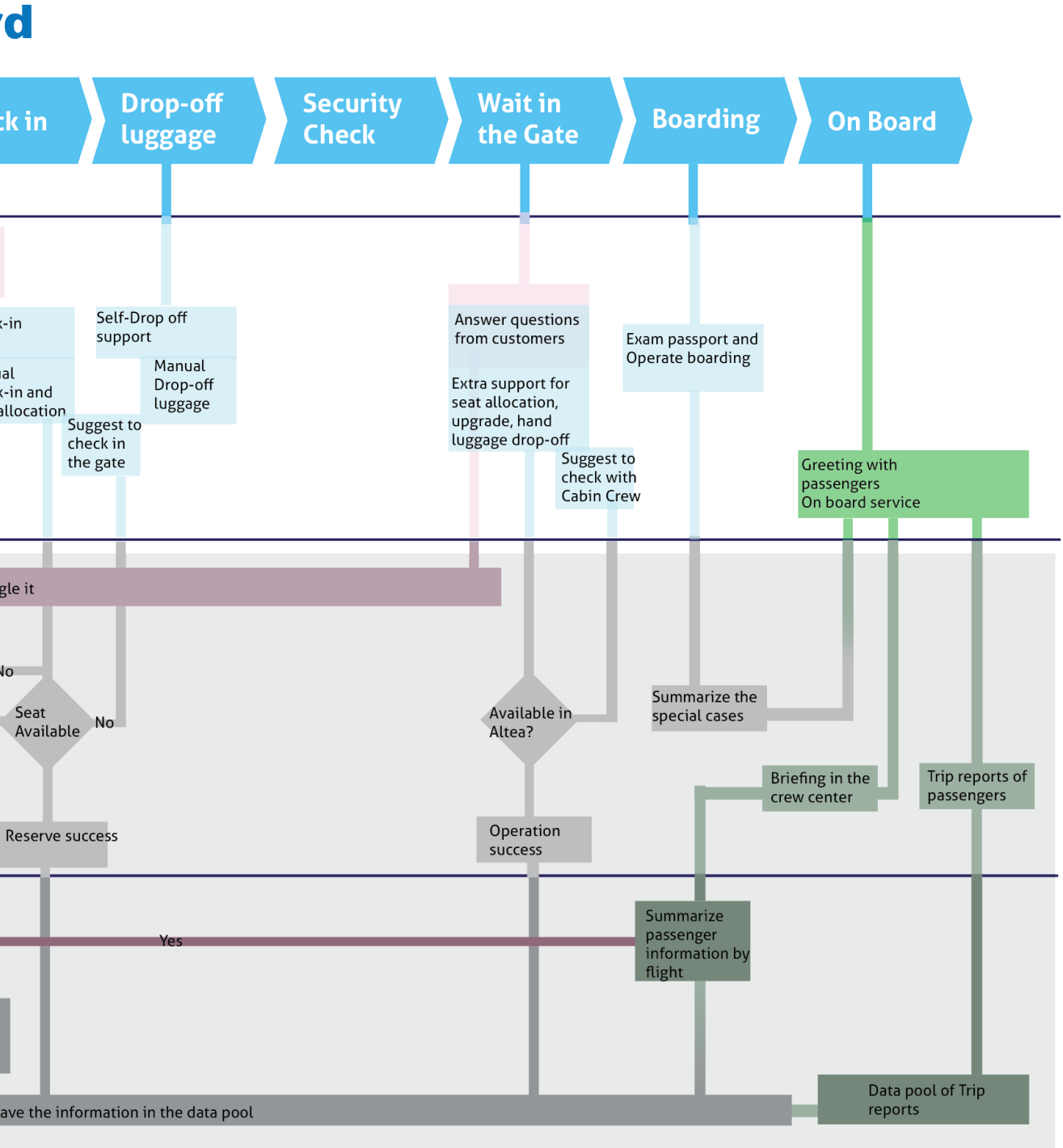


Figure 4.1 Personal service blueprint before on board

issues:

- Customer information overload and no summary or ranking of the passenger to customer-facing employees. So there is less an aligned plan of customer data usage and selection across different tools.
- Different supportive resources and working context cause little consistent understanding of customers among different groups of employees. And there are few procedures to support them align understanding and exchange it.
- No real-time mood collection and storage even though employees have a lot of interactions with customers.
- No clear action requirements for all of the information they get and no following actions suggestions to employees.



4-2, Gaps between ideal supportive resources and the real situation

To describe gaps between ideal supportive resources and the real situation, one compared figure was drawn, as figure 4.2 describes. Gaps are existing after comparing the summary of the assumption from the literature review, the expectations of customers and the needs of employees with the current situation of supportive resources.

As a detailed explanation, In Chapter 1, customer satisfaction is the win point of this company, and from Chapter 2, the assumption is the real-time, optimized customer status can enable customer-facing employees' empathy in their working context, via which the customer satisfaction will increase. From the literature, optimized customer status should include customer demands, situation, mood, behavior, and profile.

On the other hand, from Chapter 3, from the customer side, customers want empathy, more than before, when they have perceived disruptions. They want employees of this dutch aviation company to know their requirements, understand their situation and behavior, feel their feelings and consider their loyalty to this company. Their status is dynamic and demands are changing based on interactions. From the employee side, customer-facing employees want to understand customers in a timely manner with aligned, prioritized information and be empowered in these perceived disruptions to show their concern.

Ideally, this Dutch aviation company should deliver supportive sources as the assumption and meet these needs, however gaps are there. One is that there is not an approach to make sure customer-facing employees can have an aligned, prioritized, real-time, full customer status across

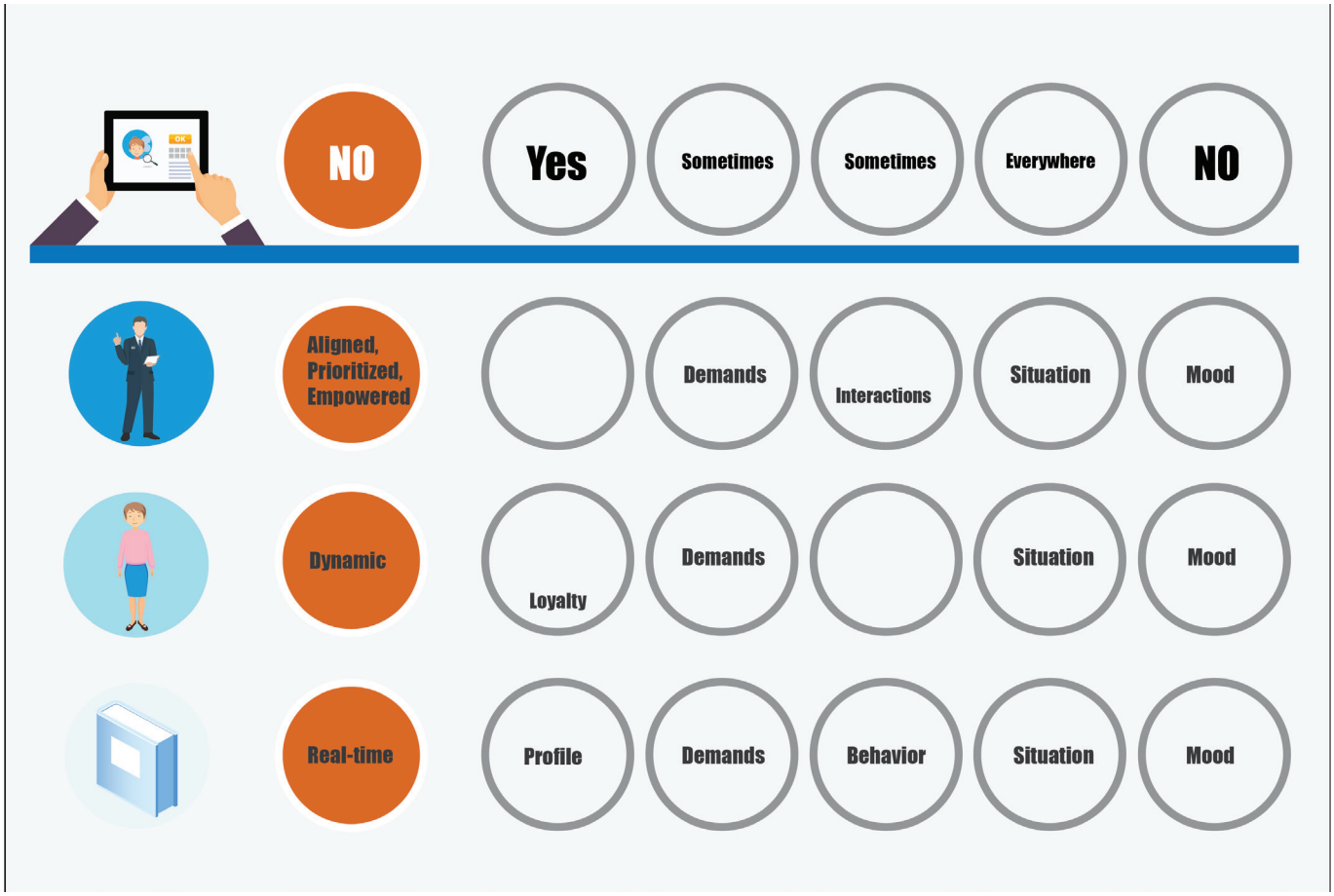


Figure 4.2 Gaps between ideal supportive resources and the real situation

their supportive tools. This is one is the basic tools to exchange the employees' understanding internally. Another one is, except customer profile, there is not a summary of customer situation, behavior and demands, plus no mood and satisfaction in employees' supportive tools. Not to mention that there is no action suggestions based on these.

Look back to Chapter 2, this research is about solutions from customer information to foster the employee engagement to achieve customer satisfaction. The identified gaps match the research blank in this company.

As a result, the ambition of X-Way is defined as "Define and deliver the real-time and optimized customer status to engage customer-facing employees for customer satisfaction."

The research problems of following two rounds of X-Way are deepened explanation as:

1) What information of customers status should be shown to customer-facing employees, that is related to the gap of no approach to align, summarize and prioritize customer status.

2) How to show the optimized customer status in the service process and employees' digital tools, that are relevant with no real-time mood or satisfaction information, no summary of customer situations and behaviors, and following action suggestions in employee's supportive tools.

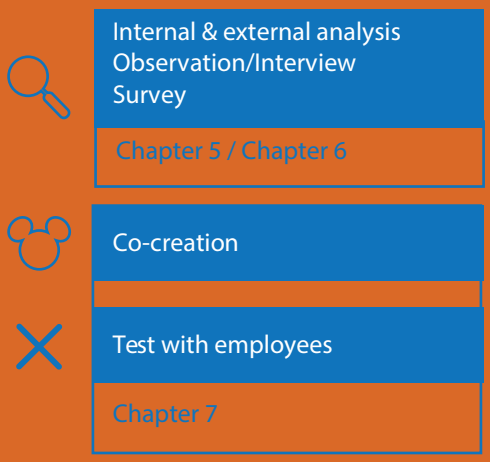
Ambition of X-Way:
"Define and deliver the real-time and optimized customer status to engage customer-facing employees for customer satisfaction."

What to show

The first round X-Way

After the ambition and research questions have been defined, the following part implements the first round of X-Way for what should be shown to customer-facing employees as customer status. The research process starts from the Sherlock phase to define the missing part of the information structure of customer status and explore the ranking of customer status elements. Then, to consider customer-facing employees who are not familiar with information structure and have a time limitation. Mickey and Dummy stages have been combined in one co-creation workshop to test the concept of alignment and explore their suggestions about it.

Finally, the alignment approach of the customer status "JET principle"and ranking of customer status elements are released. This approach solves the first gap in making aligned, summarizes and prioritized customer status' possible.



Chapter 5, Categorize customer information

In order to find what should be aligned as customer status structure for organizing data, this chapter includes research from both internal and external sides to define what data this dutch aviation company has, will have and should have for customer status. And then a list of customer status elements has been created with examples to describe these data set.

The main takeaway topics from this chapter,

1, The information structure of customer status for this company
2, The list of customer status elements with examples

5-1, Internal & external analysis

To draw the full map of customer status relevant information in databases, several internal documents have been explored, as well as an internal data manager and one data scientist have been consulted. The complete list of customer information and relevant database are enclosed in Appendix 5-3.

After discussing with several researchers, this list also includes some ongoing projects about a prediction of the passenger journey, location of passengers and employees' feedback.
To locate more possible information that should be included in this map, other aviation-related data models or tools have been explored.
One Airline Data Model from Oracle (2012) built up a passenger data model that includes reference, base, aggregations and derivations in every part of the customer journey to drive the customer experience. From this data model, it indicates the separates satisfaction of interactions in different parts of the customer journey, customer consumer behavior prediction and Non frequent flyer profile in data mining should be included in the customer status, that means it also can enhance the understanding of customers of airlines employees.

Apart from this data model, some changes happened in aviation to improve customers' awareness of airlines' operation. IATA released the data communication standard ONE Order to support across airlines' operation, a lot of flight tracker applications in App store try to make aviation operations transparent. These changes should be considered in the explanation or motivation of customer requirements.
To sum up, the reason for requirements, real-time satisfaction, customer consumer habits, Non frequent flyer profile should be added into the information list of customer status.

ONE Order is a data communication standard to support the vision of simplified and enhanced airline distribution (IATA, 2018)

5-2, Categorized customer status structure

Based on findings from internal analysis and external analysis, one categorized customer status structure is established as Figure 5.1.
All of this customer information has been divided into four groups, customer needs, customer situation, customer feeling, and background information. Customer needs include all data feeds or information fragments which describe customer requirements or demands. The customer situation includes all of the information that describes the customer journey life. Customer feeling includes all mood, satisfaction related information. Background information

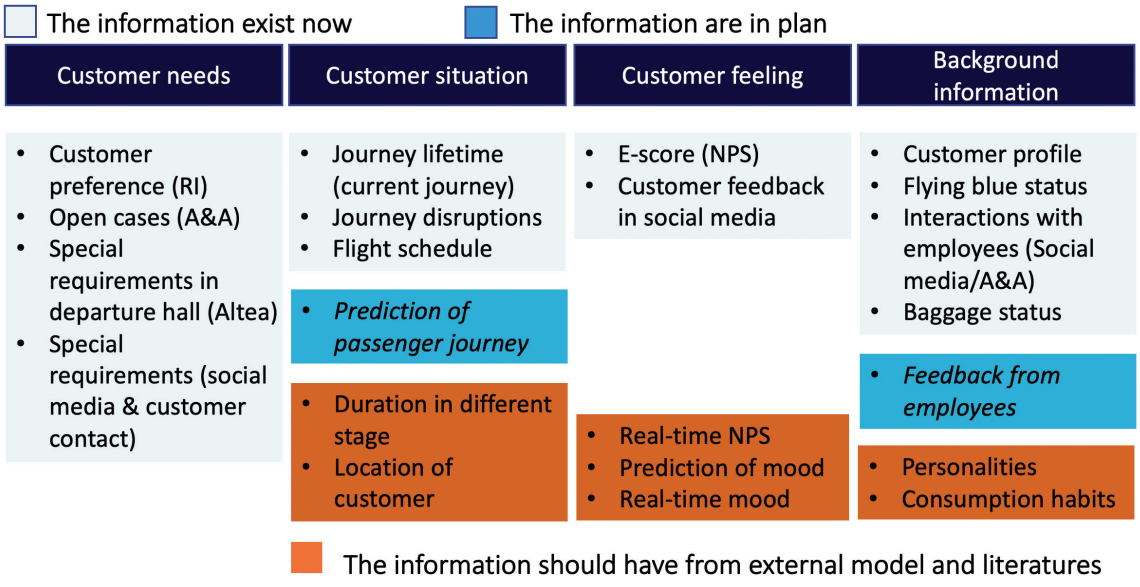


Figure 5.1 Categorized customer status structure

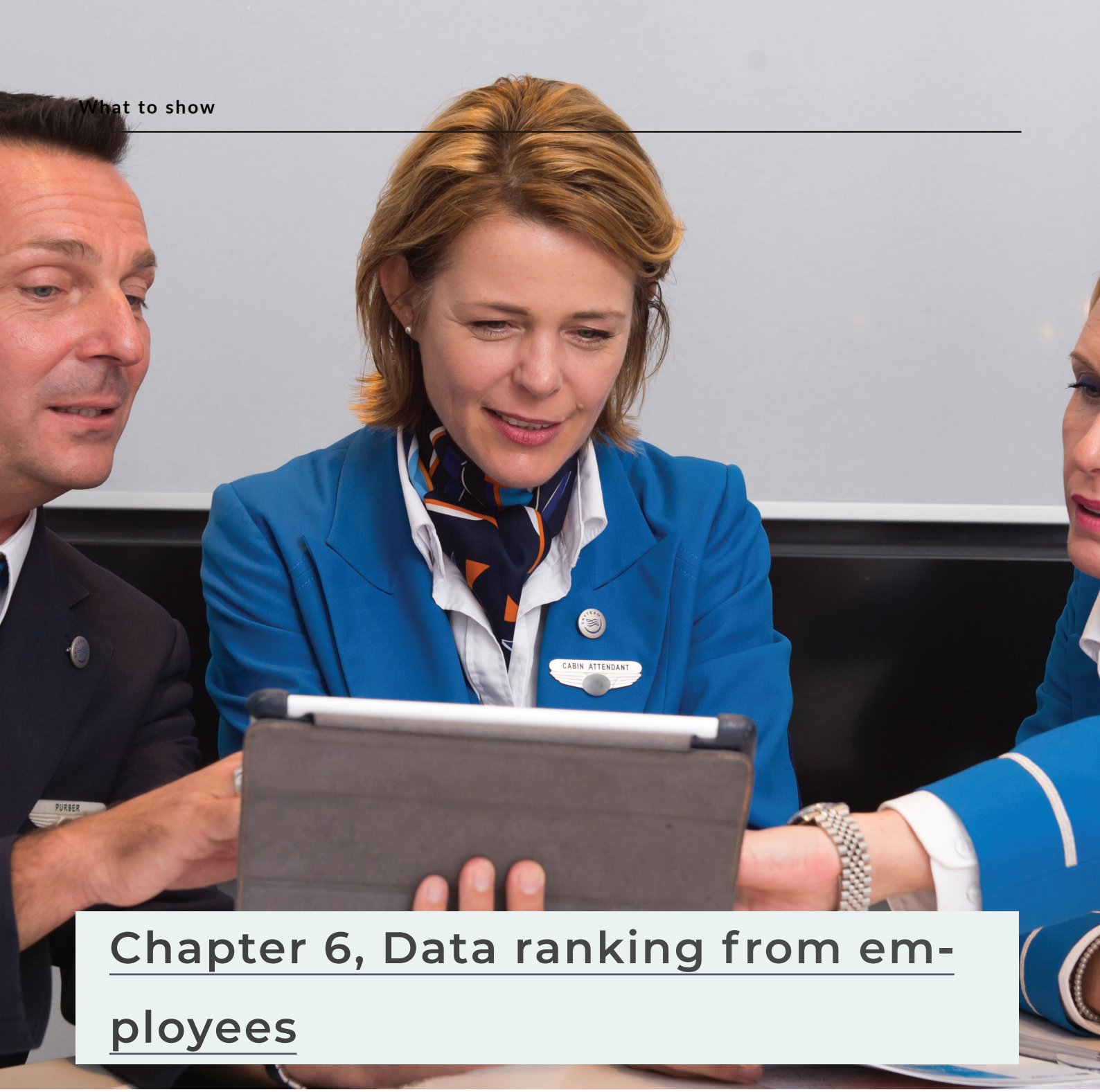
includes all trip-related information, records of behavior and customer profile.

5-3, Customer status elements

In order to explain those customer status relevant information more detail for understanding and have similar granularity for subsequent research, “Customer status elements” have been suggested by stakeholders to describe all of this detailed information. The following table 5.1 are all of 35 customer status elements with examples. They have been identified from the previous categorized customer status structure. All of them have been reviewed with at least two employees per group to align the understanding. The priority of those customer status elements is discussed in the following chapter.

Customer needs	Customer situation	Customer feeling	Background information
Request to let the Cabin Crew take action (e.g. Could I change my seat?)	Flight information	Customer satisfaction regarding the interaction with social media agents or customer contact	Basic customer information
Description of the customer's problem (e.g. My daughter and I are not sit together)	When and how the customer has booked the ticket	Customer satisfaction regarding online self-service	Customer travel document information
What has been done by customer with other channels	Booking class and fare condition	Customer current mood	Customer contact information
Other employees support actions (e.g. Check-in agents have tried, but failed)	The customer has bought a special service	Customer current satisfaction	Special note in PNR
Conversation history of the customer with different KLM staff (e.g. Has asked twice with social media agents and once with customer contact)	In what part of his/her trip the customer is	The previous flight satisfaction score of the customer on KLM owned channels	Personalities of the customer
Customer preference	Whether the customer has experienced any disruptions	Explanation of the customer's previous flight satisfaction score	Consumption habits of the customer
Number of requirements	Customer complaints	The previous flight satisfaction in other channels	Milestone of the customer
Already handled requirement including answer	Walking or waiting time prediction to the next step		Flying blue status
	Actual duration of each phase of the customer's trip		Flying blue miles
	Location of the customer		Flying blue years of loyalty

Table 5.1 Customer status elements



Chapter 6, Data ranking from employees

After getting the output from Chapter 5, it becomes possible to align the information structure of customer status. But for solving the first gap from Chapter 4, this information structure should have priority property. So, In this chapter, the main focus is to collect what is the ranking of customer status elements from customer-facing employees for empathy and their suggestions to customer status elements. Then, the alignment approach could be completed. Three surveys(Appendix 6) based on the information structure in chapter 5 have been conducted. The conclusion of these surveys shows the first version ranking from three customer-facing employees and their insights of customer status elements.

The main takeaway topics from this chapter,

1, Insights from the ranking result
2, The extra customer status elements from open questions

6-1, The survey in customer-facing employees

To collect what is the priority of customer status elements to enable employee's empathy, I designed three questionnaires (Appendix 6) for social media/customer contact agents, ground agents, and cabin crew. Following the X-Way, all of these surveys happened in employees' working environment. The results release some common and different parts of priority preference across three groups.
For cabin crew, 120 cabin crew have filled in the questionnaire in the crew center in Schiphol by one to one survey. The online questionnaire has been shown to cabin crew after getting their personal permission.

Figure 6.1 Survey with ground agents

For ground agents, 100 ground agents have filled in the questionnaire. 24 of them filled it by shared on-line survey link in their closed on-line community, others have filled in the questionnaire by the same way in their relaxing area in Schiphol.

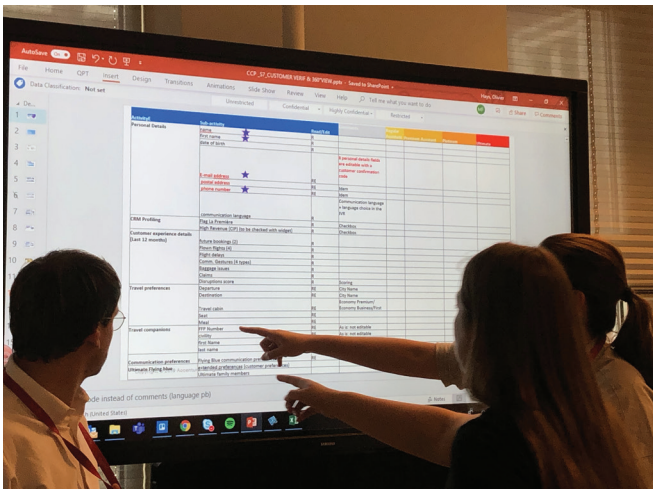


Figure 6.2&6.3 Workshop of customer contact agents

25 customer contact agents have filled in the on-line questionnaire in their on-line working community. For completing the ranking information for this group, I observe and analyse one workshop about the information requirements of the new working platform in the customer contact agents group. The findings from the workshop have been combined with the findings from the survey to evaluate the priority of customer status elements.

The ranking is mainly based on the number of people selected for the element and the number of times highlighted and mentioned in the workshop. More than half of the respondents choose to be marked as high priority information, and less than half of the respondents are selected as a middle priority. Moderate information, less than 20% of people choose to be marked as low priority information.

The first version of ranking (as figure 6.4) has been shown in Appendix 6-4.After the concept from it has been validated with employees,the final ranking results from three groups are shown in the following chapter.

6-2, Results and analysis

To summarize findings from ranking result and the open question's feedback:

- The backside reason for customer action requirements, flight information, the current mood of customers and the basic customer information are necessary pieces of customer status elements to customer-facing employees. That can be seen as PNR+Mood+Problem.
- Compare with the current experience of customers, customer-facing employees pay less attention to the previous experience. (e.g. The NPS of the previous flight, solved cases)
- Employees at different touch points also have different information preferences. Ground agents like to know the travel document information, cabin crew like to know the flying blue status, and customer contact agents like to know disruptions and customer personality.
- Two more customer status elements have been identified from the open question "Do you need more passenger information to empathize(engaging) with passengers in the conversation? Please specify". That two elements are "Promise from other staff" and "What happened(whose fault)"

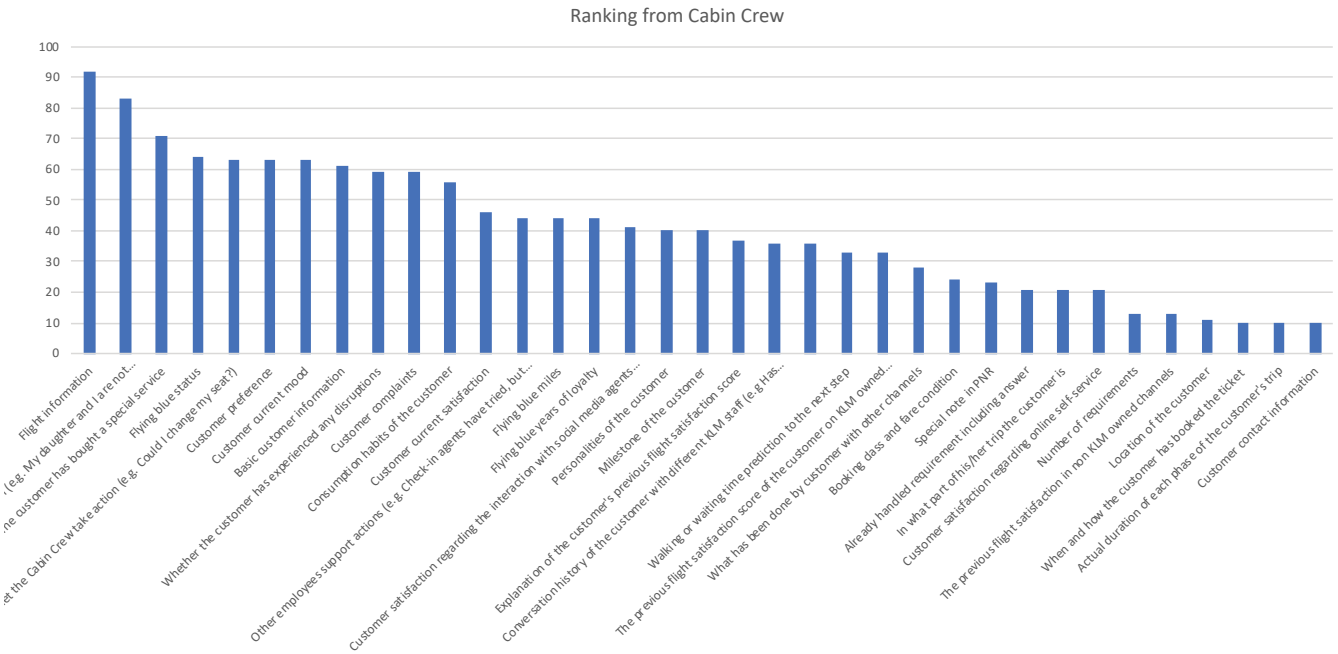
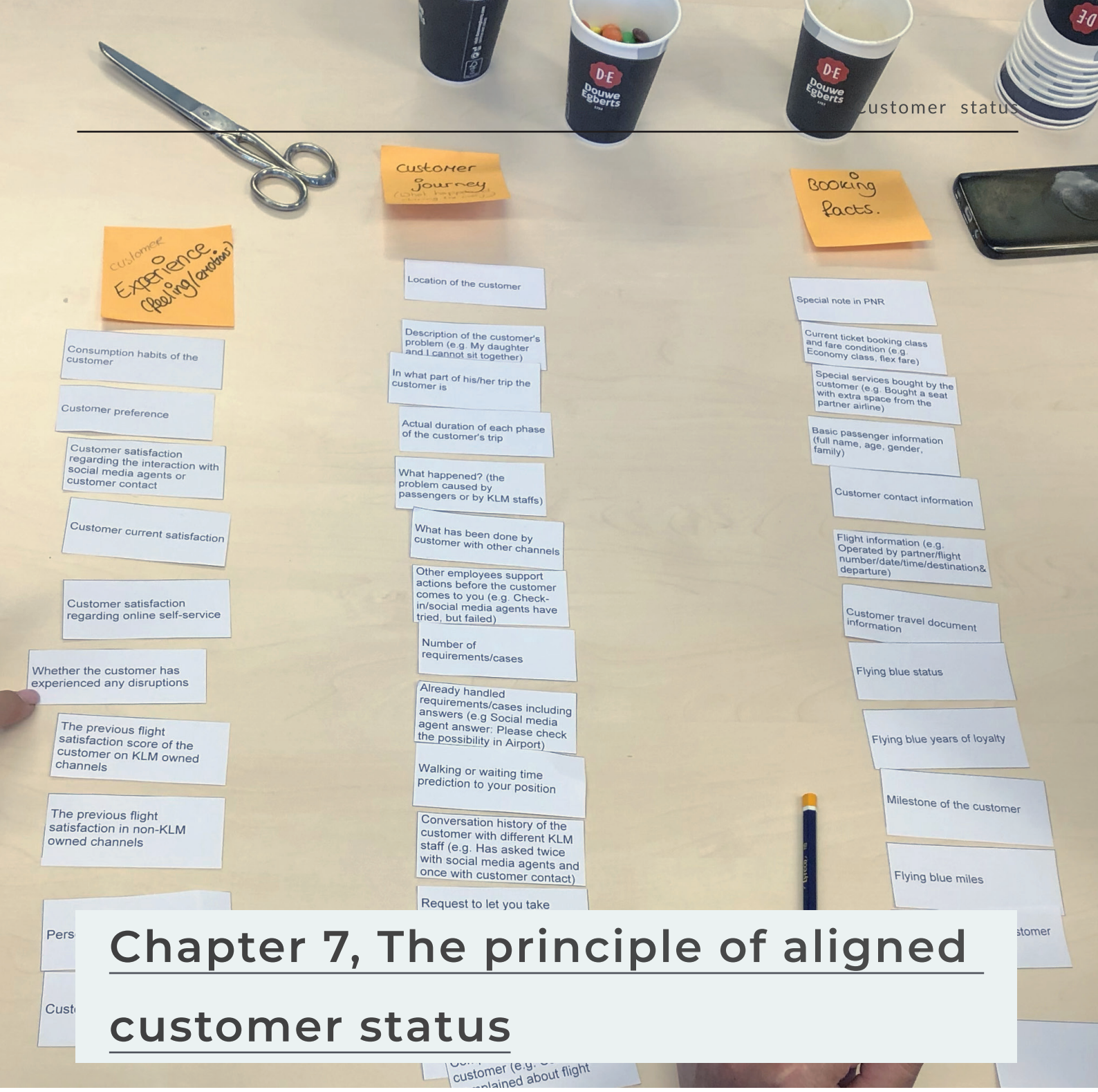


Figure 6.4 Customer status elements ranking from Cabin Crew



Chapter 7, The principle of aligned customer status

Figure 7.1 Card sorting in workshop

To explore more ideas of how to align the information structure of customer status across different customer-facing employee groups and validate the ideas from Chapters 5 and 6, this Chapter includes one concept proposal and one co-creation workshop with two social media agents, two ground agents, and two cabin crew. In this workshop, the concept of customer information structure has been tested and the new alignment principle has been proposed by employees.

The main takeaway topics from this chapter,

1, “JET principle” for customer status information structure
2, Customer status elements ranking in “JET” structure

7-1, Concept of customer status alignment

Based on the structure for the customer status in section 5-2, and the analysis results from section 6-2. One alignment concept has been built up as the “DEEP” principle, D as demands to present customer needs, double E present customer experience(situation) and customer emotion(feeling) and P as customer profile to present backside information. And the principle to define the priority has been proposed in the following table 7.1

7-2, Validate the alignment concept and explore more

To validate the concept of alignment, at first, the card sorting method has been used. Participants, who are divided into two groups across function(Figure 7.1), have been asked to categorize customer status elements in cards that include elements from section 5-3 together with two new elements from section 6-2, and define the name of each category.

Figure 7.2 The card sorting stage

After that, the concept of alignment “DEEP” has been shown to participants and discussed. Then they are asked to create their principle to define high priority status and low priority status and organize them below in the categories that they have built up.

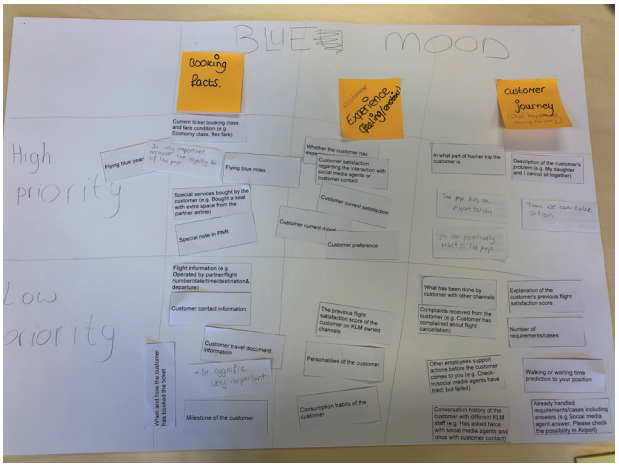


Figure 7.3&7.4 The alignment principle concepts

	Demands	Experience	Emotion	Profile
High priority	Necessary Based on the backside problem of customer	Negative experience	Strong emotions (Negative or positive)	Important customer
Low priority	Nice to have	Improvement	Medium intensity mood	Normal customer

Table 7.1 Concept of alignment principle

This validation indicates that the emotion/experience should be categorized in one group, participants of the workshop name the customer situation with customer needs as " Customer Journey", and all of the customer information which exists in PNR or booking related information should be in one category. For priority, the result is similar with the findings from the survey, the common important part are problem,mood and basic travel information. And every part should has its own status to show priority. They emphasize again except the common part, every customer-facing employee group has their unique preference in some customer status elements.

7-3, Final principle and information ranking

After the validation, the first round X-Way about " What to show" is ended in one principle. Customer status can be organized by the "JET" structure and defined by the "JET principle"(Figure 7.5).

As a principle to align the information structure of the customer status, it consists of three customer status element categories "story in Journey", "Emotion and Experience" and "Ticket fact", as well as detail principles for defining the priority of customer status. The priority of customer status in every category will follow high priority, middle priority and normal.

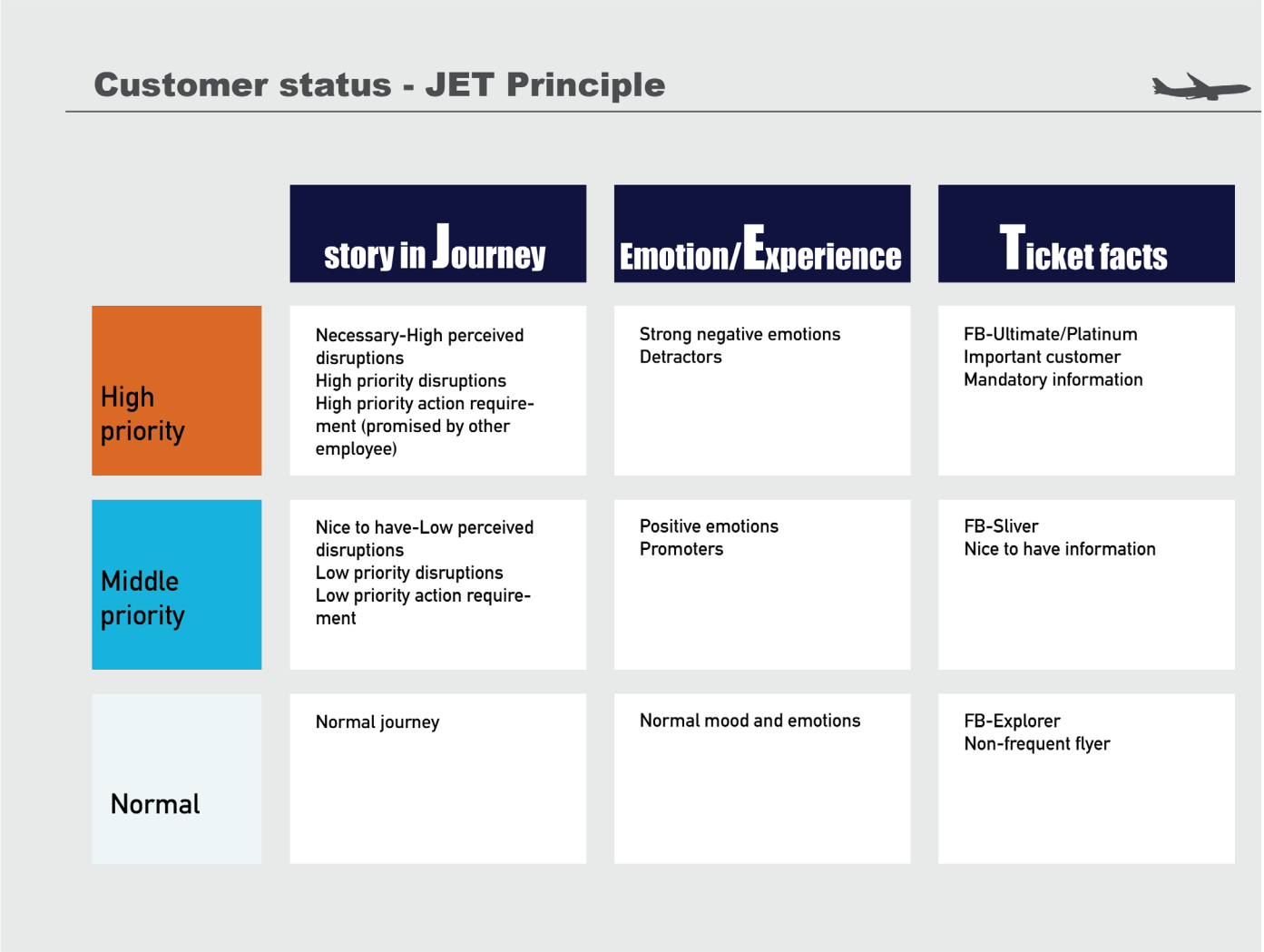


Figure 7.5 The JET structure and JET principle

The flow in Figure 7.6 explains how the customer status will be described via the “JET principle” in the personal service of the customer journey. The customer status will be shown in different touch points by the same structure of “JET”, the status will be updated based on the real-time customer information updating, and the status will be the same in different tools of different employees’ group at the same time. The detailed information that is used to explain the customer status could be organized based on the ranking of different customer-facing employee groups.

To sum up, the “JET principle” gives the opportunity to align and optimize customer status, it can be used to describe real-time customer status. The detailed ranking of customer status elements indicates every customer-facing employees’ group has their preference of customer information, but the main high priority part is similar. The main high priority part indicates the main focus should be the summary of the situation part and the real-time mood part of the second gap, which identified in Chapter 4. After that, keep the difference of supportive tools for the different working contexts should be considered too.

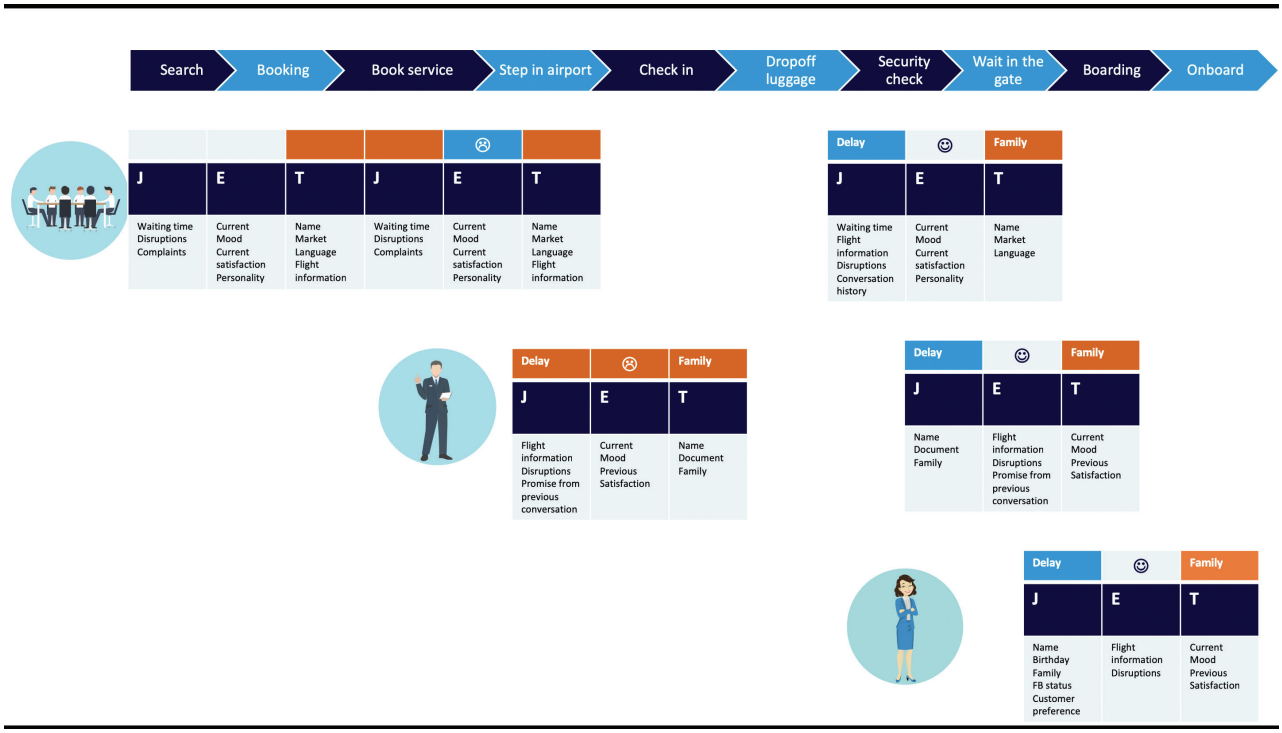


Figure 7.6 Usage of the JET principle

Finally, the ranking of customer information of three customer-facing groups has been updated based on the “JET” information structure and show in Table 7.1,7.2,7.3. Orange means important to customer-facing employees, light blue means normal, white means that elements are not important to customer-facing employees.

Ranking from customer contact/social media agents

Customer journey	Feeling/Emotion/Mood	Ticket facts
Description of the customer's problem (e.g. My daughter and I are not sitting together) What happened?(the problem caused by passengers or by KLM staffs)	Customer current mood	Basic passenger information(full name, age, gender, family)
Conversation history of the customer with different KLM staff (e.g. Has asked twice with social media agents and once with customer contact)	Customer current satisfaction	Flight information
Whether the customer has experienced any disruptions	Personalities of the customer	Current booking class and fare condition
The promise from other staff	Customer satisfaction regarding the interaction with social media agents or customer contact	The customer has bought a special service
Walking or waiting time prediction to your position/the next step	Customer satisfaction regarding online self-service	Flying blue status
Request to let you take action (e.g. Could I change my seat?)	Explanation of the customer's previous flight satisfaction score	Flying blue years of loyalty
Actual duration of each phase of the customer's trip	The previous flight satisfaction score of the customer on KLM owned channels	Special note in PNR
Number of requirements	The previous flight satisfaction in other channels	Customer contact information
What has been done by customer with other channels		Customer travel document information
Complaints received from the customer(e.g. Customer has complained about flight cancellation)		Milestone of the customer
Other employees support actions (e.g. Check-in agents have tried, but failed)		When and how the customer has booked the ticket
Already handled requirement including answer		Customer preference
Location of the customer		Consumption habits of the customer
In what part of his/her trip the customer is		Flying blue miles

Ranking from Ground Agents

Customer situation/journey	Feeling/Emotion/Mood	Ticket facts
Description of the customer's problem (e.g. My daughter and I are not sitting together) What happened?(the problem caused by passengers or by KLM staffs)	Customer current mood	Customer travel document information
Complaints received from the customer(e.g. Customer has complained about flight cancellation)	Personalities of the customer	Flight information
Whether the customer has experienced any disruptions	Customer satisfaction regarding the interaction with social media agents or customer contact	The customer has bought a special service
The promise from other staff	Customer satisfaction regarding online self-service	Basic passenger information(full name, age, gender, family)
Requests from the customer for the agents (e.g. Could I change my booking to KL0123?)	Customer current satisfaction	Customer preference
Self-service support history (e.g. Tried my trip, but failed)	Explanation of the customer's previous flight satisfaction score	Flying blue status
Conversation history of the customer with different KLM staff (e.g. Has asked twice with social media agents and once with customer contact)	The previous flight satisfaction score of the customer on KLM owned channels	Current booking class and fare condition
Already handled requirement including answer	The previous flight satisfaction in other channels	Consumption habits of the customer
Other employees support actions (e.g. Check-in agents have tried, but failed)		Special note in PNR
Location of the customer		Flying blue years of loyalty
Actual duration of each phase of the customer's trip		Flying blue miles
In what part of his/her trip the customer is		When and how the customer has booked the ticket
Walking or waiting time prediction to your position/the next step		Customer contact information
Number of requirements		Milestone of the customer

Ranking from Cabin Crew

Customer situation/journey	Feeling/Emotion/Mood	Ticket facts
Description of the customer's problem (e.g. My daughter and I are not sitting together) What happened?(the problem caused by passengers or by KLM staffs)	Customer current mood	Flight information
Request to let you take action (e.g. Could I change my seat?)	Customer satisfaction regarding the interaction with social media agents or customer contact	The customer has bought a special service
Whether the customer has experienced any disruptions	Personalities of the customer	Flying blue status
Complaints received from the customer(e.g. Customer has complained about flight cancellation)	Explanation of the customer's previous flight satisfaction score	Customer preference
The promise from other staff	The previous flight satisfaction score of the customer on KLM owned channels	Basic passenger information(full name, age, gender, family)
Other employees support actions (e.g. Check-in agents have tried, but failed)	Customer satisfaction regarding online self-service	Consumption habits of the customer
Conversation history of the customer with different KLM staff (e.g. Has asked twice with social media agents and once with customer contact)	The previous flight satisfaction in other channels	Flying blue miles
Walking or waiting time prediction to your position/the next step		Flying blue years of loyalty
What has been done by customer with other channels		Milestone of the customer
Already handled requirement including answer		Customer travel document information
In what part of his/her trip the customer is		Current booking class and fare condition
Number of requirements		Special note in PNR
Location of the customer		When and how the customer has booked the ticket

Table 7.1,7.2,7.3 Ranking from employees

How to show

The second round X-Way

After the alignment principle of customer status "JET principle" has been defined, this part explores how to show the optimized customer status in the service process and employees' digital supportive tools to enable their empathetic gestures. The second round of X-Way has been conducted.

As a result, one design roadmap has been released. It includes one set of tools to show customer status indicators in all of the supportive tools, the relevant improvement suggestions of services and procedures, and the implementation plan of the customer status indicator.

These solutions match the main focus that comes from the second gap in Chapter 4 and the result of Chapter 7. The main focus is a summary of customer stories, real-time mood or satisfaction information, and keep the difference in employee's supportive tools.

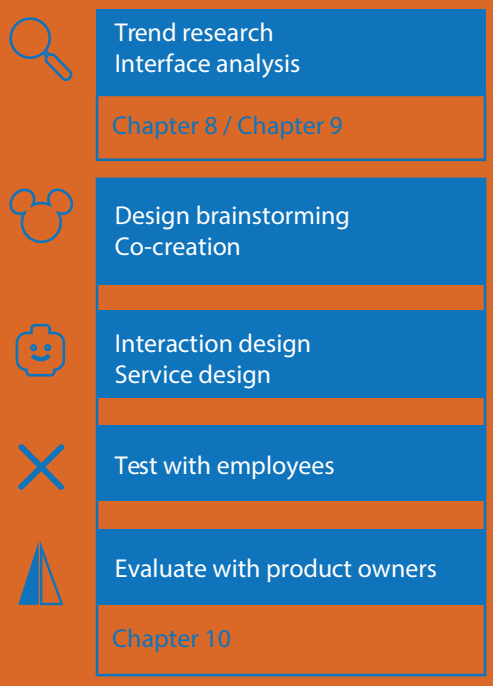


Figure 8.1 Trend-Service robot

Note: Future travel experience (2019). Retrieved from https://www.futuretravelexperience.com/2019/01/10-technology-trends-airlines-airports-2019/

Chapter 8, The opportunity identification

In order to explore opportunities for “how to show”, there are the trend research of technology, service design, interface analysis, and the theory review of empathy in this Chapter . Some opportunities have been identified from these researches.

The main takeaway topics from this chapter,

1, Opportunities from trends
2, Opportunities in internal interaction design
3, Opportunities from turn-on empathy

8-1, Opportunity in trend research

To identify opportunities in future trends, this section invests technology trends in aviation, design trends in the future five years and match them with internal promoted trend. The opportunities from these trends have been summarized.

8-1-1, Technology trend

Future Travel Experience (2019) posts their prediction of the technology trend in Aviation, among them, 1) Biometrics, as Figure 8.2. 2) Artificial intelligence (AI),3) Robotics & Autonomous Vehicles,as Figure 8.1, 4) Onboard connectivity, 5) Assistive technology will or have supported the digitalization trend in this dutch aviation company and will give the opportunity to build a new touch point or add-on in the old touch points.

One more trend is discussed in data scientists for a long time, that is 6) Artificial Empathy. OM Malik (2013) believes “Data without a soul is meaningless. The problem with data is that the way it is used today, it lacks empathy and emotion”. Bill Mark, president of Information and Computing Services at SRI International, whose AI team invented Sir, said “We don’t understand all that much about emotions, to begin with, and we’re very far from having computers that really understand that. I think we’re even farther away from achieving artificial empathy”(InformationWeek,2018). Till now, the Machine cannot really understand emotions or deliver empathy. So, there are some Machine plus human opportunities “For the next decade (at least) the machine + human opportunity offers more. Think about the awesome power of scaled computing doing the grunt work whilst the evolved human brain works through the most complex end of the spectrum” (Freestone, O. 2019). This trend can link back to the internal trend of real-time and relevant customer data to support employees in everywhere.

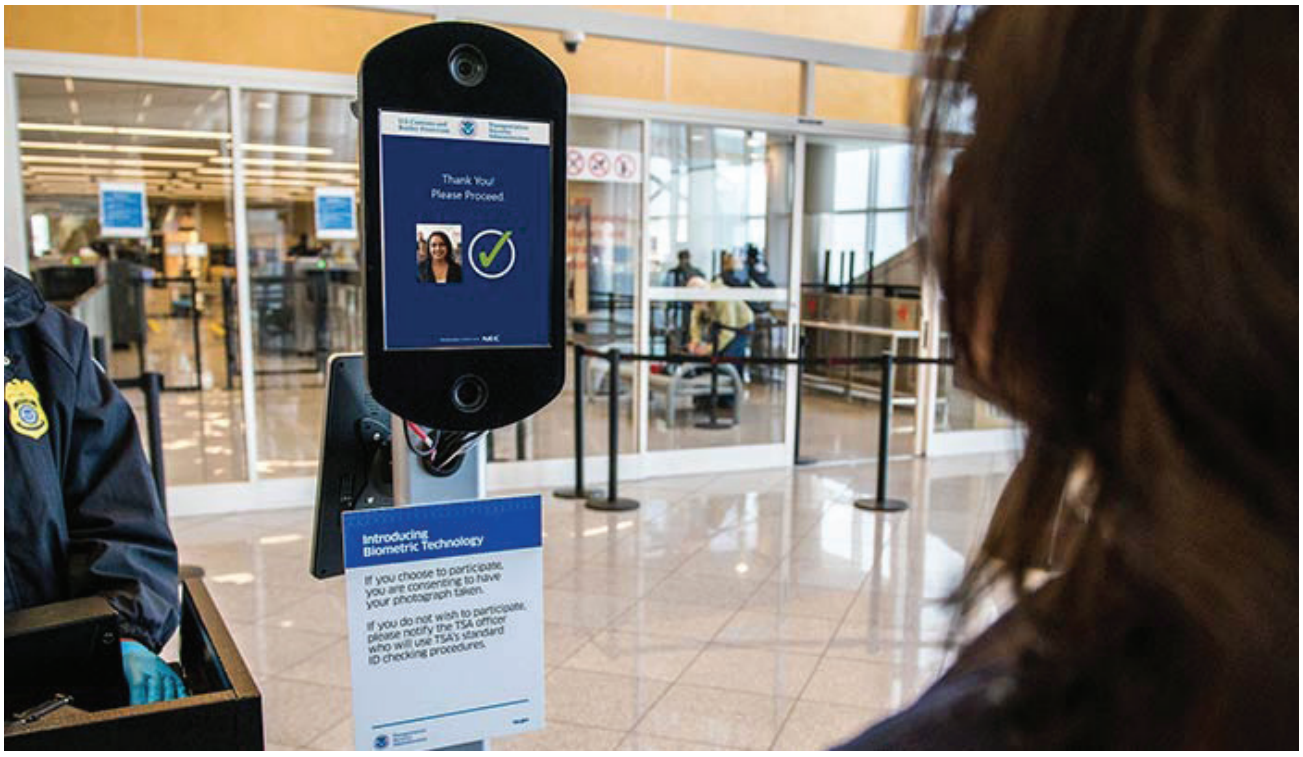


Figure 8.2 Trend-Biometrics

Note: Future travel experience (2019). 10 technology trends for airlines and airports to focus on in 2019. Retrieved from https://www.futuretravelexperience.com/2019/01/10-technology-trends-airlines-airports-2019/

8-1-2, Design trend

John Knight (2018) releases twelve service design trends to predict 1) Data can enable every experience of the customer to be personalized 2) Service design will need to move from delivering usability on interactions to more complex domains that blend human and technology 3)"Getting out of the abstraction business",move to smaller, data-driven service, (John R Knight ,2018) and join existing sub-service instead of a new one to create tiny moment value. Other trend comes from the Service Design Network Finland's National Conference is 4) More empathy and action (Kuudes, 2018), explained by a decision of customer is "a sophisticated process consisting of both emotional and rational aspects".Service design should put more focus on the emotional aspects.

Mixing technology trend and design trend, following opportunities are attractive to this project.

- Machine + human opportunity
- Small moments of value rather than big wow delight as User Experience tackles profit and value
- Customer data mining
- Supporting employees everywhere
- New touch points and proactive interaction

8-2, Opportunity in internal

To analyse opportunities in user experience design, the "JET principle" has been used to examine several main interfaces of supportive tools(Appendix 7)

From this analysis, summary are some suggestions to improve current supportive tools
That is:

- Consider using the"JET principle" to summary customer status on interfaces
- Give the emotion indicator on interfaces of every tool
- Increase the "story in Journey" part in App2Help
- Link different information areas to the summary
- Show the following action options based on different customer status

8-3, Opportunity from theory of empathy

As definition and research of empathy have been analysed in Chapter 1,this Chapter summaries opportunities to foster empathy from the theory and customer suggestions.

The book "Six habits of highly empathic people" (Krznaric, R., 2012) introduces some ways to enable empathy, that is 1),turn on the switch of empathy, 2) facilitate empathy by other one's stories, 3), spend time and increase ability to explore and practice empathy, and 4), try to expand empathy in your world.

And following quota lists abilities to achieve empathy from the company side,

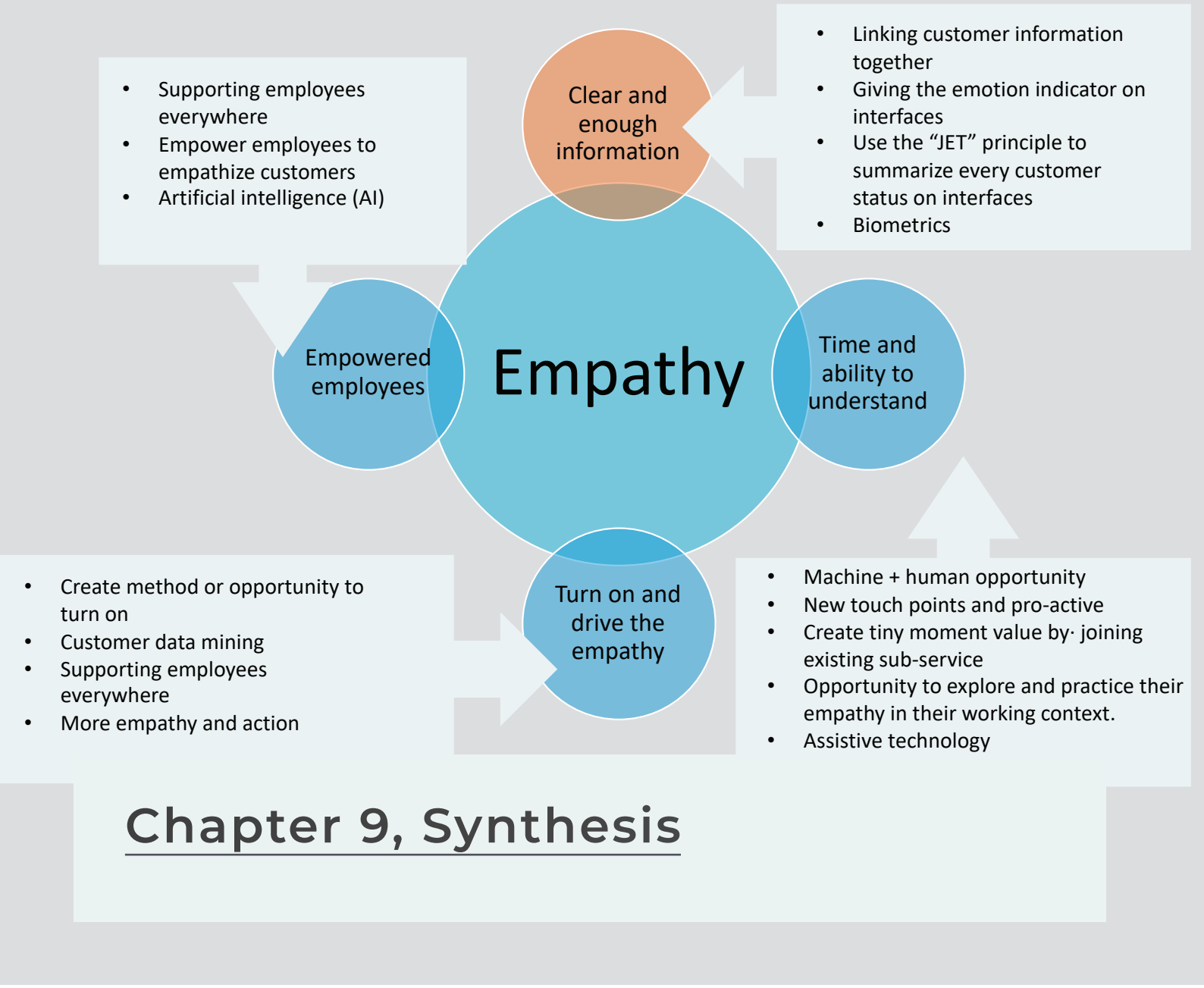
"In order to detect and respond to shifting customer needs, companies need to show more, not less, empathy with their customers. Some companies have found an approach that achieves that — one that joins three important capabilities: the ability to optimize business processes and technology, the ability to foster emotional connections and the ability to use data empathically."
(Ritu Agarwal,Peter Weill, 2012)

Even customers of this dutch aviation company have some great suggestions.

> "Implement a service in the app so we can send a message to the boarding gate that we might be late…"
>
> "I believe the best way to improve services would understand more how these circumstances truly affect people and compensate them more generously"

To sum up, for aviation service, how to foster customer-facing employees' empathy? The following can be opportunities in the future.

- Facilitate them by customer information or story for understanding customers more
- Let them have time and ability to explore and practice empathy to build emotional connections
- Try to empower them by optimized process and action options
- Let them expand their empathy in their working context



Chapter 9, Synthesis

After the exploration of opportunities, this section consists of the synthesis phase of this project to explore how to transfer opportunities to design. All information is gained in previous sections is analysed and key topics are selected in order to inspire design ideas to enable employees to deliver their empathy. Finally, the main design directions, future vision and design goal are released.

The main takeaway topics from this chapter,

1, Design opportunities
2, Future vision and design goal

9-1, From opportunities to design

In order to start designing to enable customer-facing employees to deliver empathy for customer satisfaction,it is important to filter the most important opportunities out and define a design goal. As it is clear, even the information structure of customer status has been aligned, “JET principle” makes the alignment across different supportive resources are possible. Empathy of customer-facing employees is still complex. Because the second gap is still existing that there is not a real-time summary of customer story and mood data in their supportive tools, and following action option suggestions. The synthesis of opportunities should be able to bridge this gap.

The following opportunities summarized from Chapter 8 is interesting for this phase.

Clear, organized and aligned customer status in every tool

As the design should consider linking customer information together, giving the emotion indicator on interfaces of every tool, and use the “JET principle” to summarize every customer status on interfaces. This opportunity is about clear and organized customer information to enable customer-facing employees to understand customers more .

Time and ability to explore and practice empathy

The design should build up support or inspire the ability of employees to corporate for empathy. And design should consider blending human and technology in service design to improve employees’ time to understand customers. For example, using new technology, like AI, assistive technology even artificial empathy to support customer-facing employees. Meanwhile, create small moment value by joining existing sub-service and put more focus on human’s emotional connection. Overall, try to combine the advantage of technology with humans to facilitate customer-facing employees by time, ability and opportunity to explore and practice their empathy in their working context.

Empathy can be turn on

The design should try to create a method or opportunity to turn on the empathy of customer-facing employees. Because everyone has empathy, but it can be recessive when there is no suitable soil. Research has proved that empathy can be turned on and increase by training or a similar background (Krznaric, R. 2012).

Empower employees to empathize with customers

The design should enable customer-facing employees to do something in service or procedure about the customer situation. That means, after information to foster empathy, time and ability to explore and practice it, a method to switch it on, the last pace should be empowerment, giving customer-facing employees options to do something for their customers.

9-2, Future vision

To inspire ideas of how to show the optimized customer status in the service process and employees’ digital tools to enable their empathy, one future vision, Figure 9.1, has been created to describe the destination of the design, and show the unlimited solution in the future (Simonse, L., Iwanicka, B., & Whelton, J. 2018).

Future vision:

Give back to Human what is Human’s and to Machine what is Machine’s by enabling employees with a real-time, optimized, empathetic data.

In the future, there is a balance between personal service and self-service from machine. The machine is good at data mining, match information and operate service efficiency. Humans are good at building relationships, understand the feelings of customers and show empathy. Technology can recognize the status of customers, deliver the information that customers want, arrange the customer journey automatically and summarize that information to employees in time. Then, employees have enough information and time to foster their empathy and proactively build an emotional connection with customers.

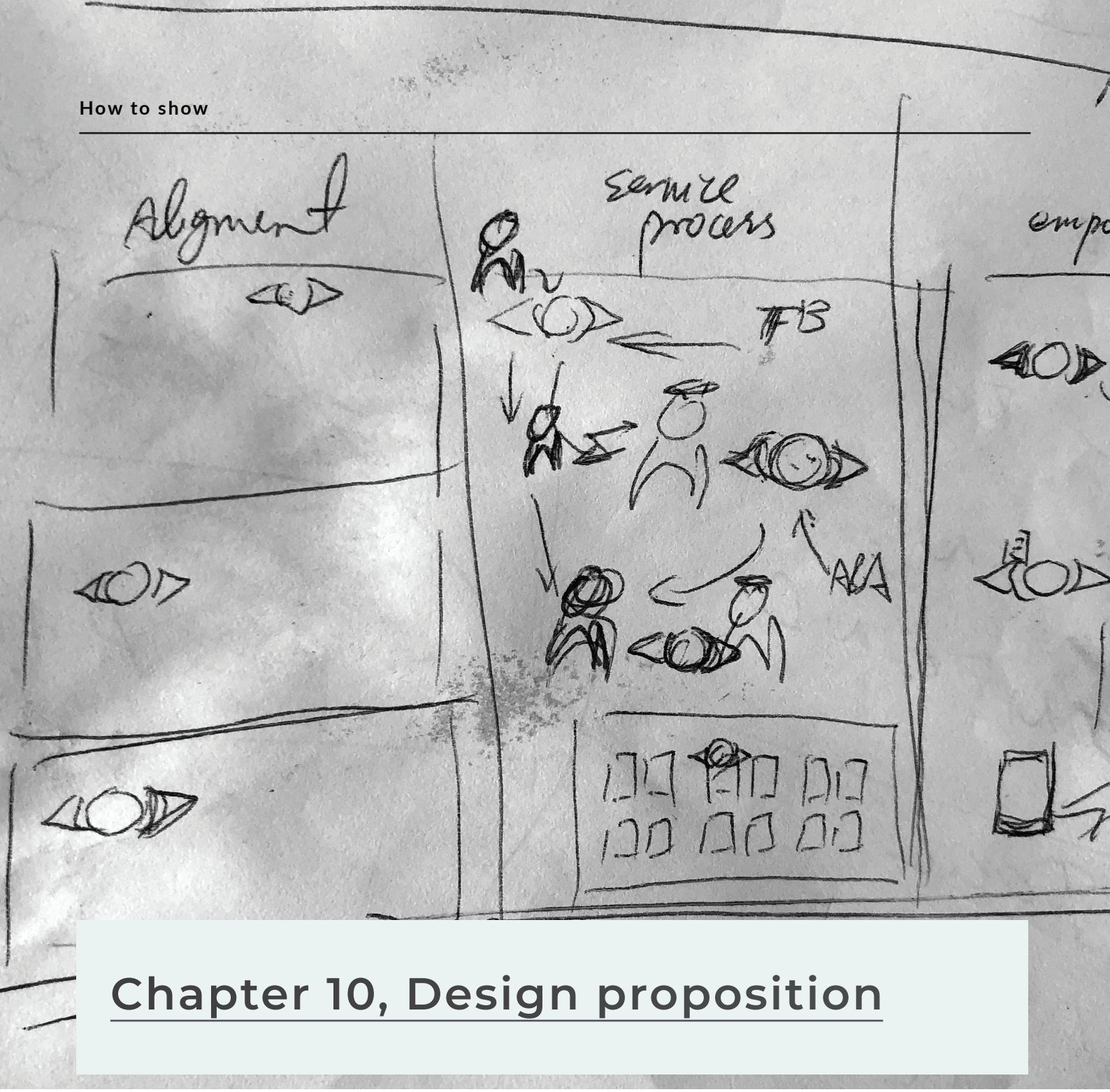
9-3, Design goal

From the four main opportunities from synthesis, the design goal has been selected and organized based on the defined ambition, which is "Define and deliver the real-time and optimized customer status to engage customer-facing employees for customer satisfaction". Therefore it is decided that the design goal of the "How to show" part is the following:

Design solutions for employees to access and contribute real-time optimized customer status and empower their empathy based on customer status

> **"We believe that in most unpredictable business environments, successful growth will hinge on the combination of optimization, emotion and empathic use of data."**
> (Ritu Agarwal,Peter Weill, 2012)

Figure 9.1, Future vision



Chapter 10, Design proposition

This Chapter outputs design solutions for how to deliver real-time and optimized customer status in employee tools to support them to empathize with customers.
This section has conducted two workshops separately to explore ideas with six employees from three customer-facing groups and design students who have experienced this dutch aviation company projects. After that, concept iteration has been done based on feedback from customer-facing employees. And those concepts and iterated concepts have been validated with the product owners of those employees supporting tools. The final delivery consists main concept in three horizons, which will be introduced in the next Chapter.

The main takeaway topics from this chapter,

1, Design concepts for three horizons
2, Iterated concept
3, Validation outputs

10-1, Ideation with employees and students

In order to explore ideas based on defined future vision, design goal and main design opportunities, this section includes two workshops.

Co-creation with employees

One co-creation workshop with customer-facing employees is about ideas of “clear and enough information”. It is organized in this aviation company CX lab with two cabin crews, two ground agents and two social media agents after they categorized the customer information. They have been divided into three groups based on their department. They were asked to build up one customer status in the working interface based on the customer journey, which is created in 3-1-2. The framework of their current main supportive tools and other creative items (stickers, color pens, scissors) were prepared for them as materials.

Figure 10.1 Doing in co-creation workshop

Figure 10.2 Discussing in co-creation workshop

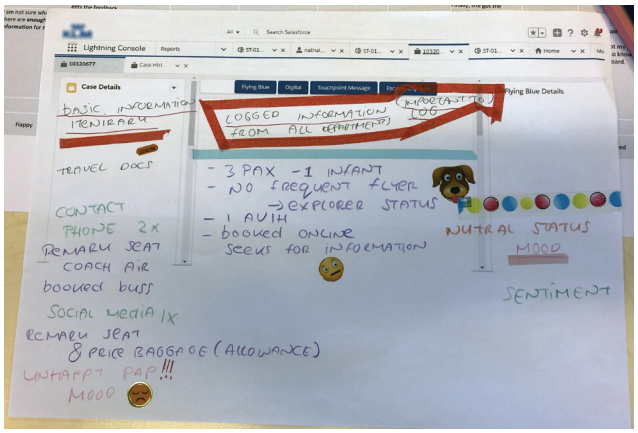


Figure 10.3 Results of Co-creation

After doing and discussion the customer status in their main supportive tools structures, as Figure 10.1&10.2 shown, The results like Figure 10.3, participants explain their ideas and the meaning of items.

Their ideas and their presentation show they prefer the visualization of real-time customer mood, special service and highlight different information by color.

Brainstorming with students

Another brainstorming workshop has been conducted in the TU Delft library meeting room with six design background students who have at least three months of project experience of this dutch aviation company. This workshop in-

cludes two rounds of brainstorming, one round is role play. After the introduction of this graduation project assignment, the customer expectations, and personas of customer-facing employees, role-play has been conducted among these students following the service blueprint. Ideas have been generated to enable customer-facing employees to deliver empathetic gestures. The second round of brainstorming is conducted to inspire deeper and more focused ideas after the introduction of the future vision, design goal and the main four directions from the synthesis section.

Finally, their ideas have been analysed based on these matching with this dutch aviation company strategy and the time pacing based on the technology trend timeline, as Figure 10.5.

Figure 10.4 Workshop with students

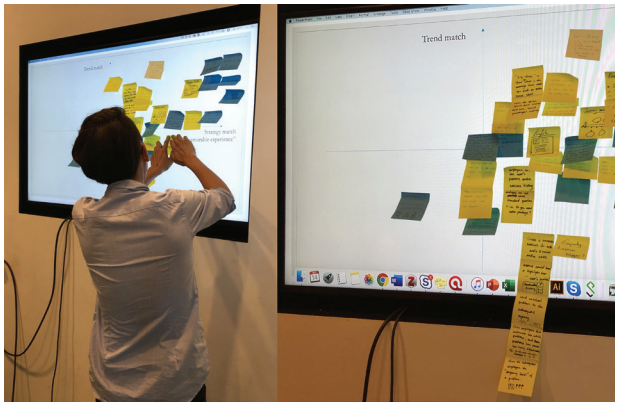


Figure 10.5 Matching ideas

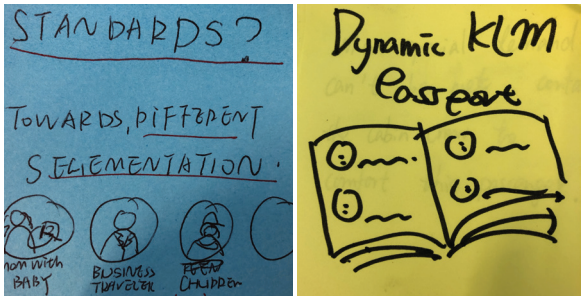


Figure 10.6 ideas

A lot of valuable ideas (e.g. Figure 10.6) were gained during this session. In figure 10.7, the main ideas are shown on the strategy and time pacing map. The most valuable ideas that have strong links with identified opportunities are divided into concepts in Horizon 1, 2, 3 based on this map, those concepts will be presented in the next paragraph.

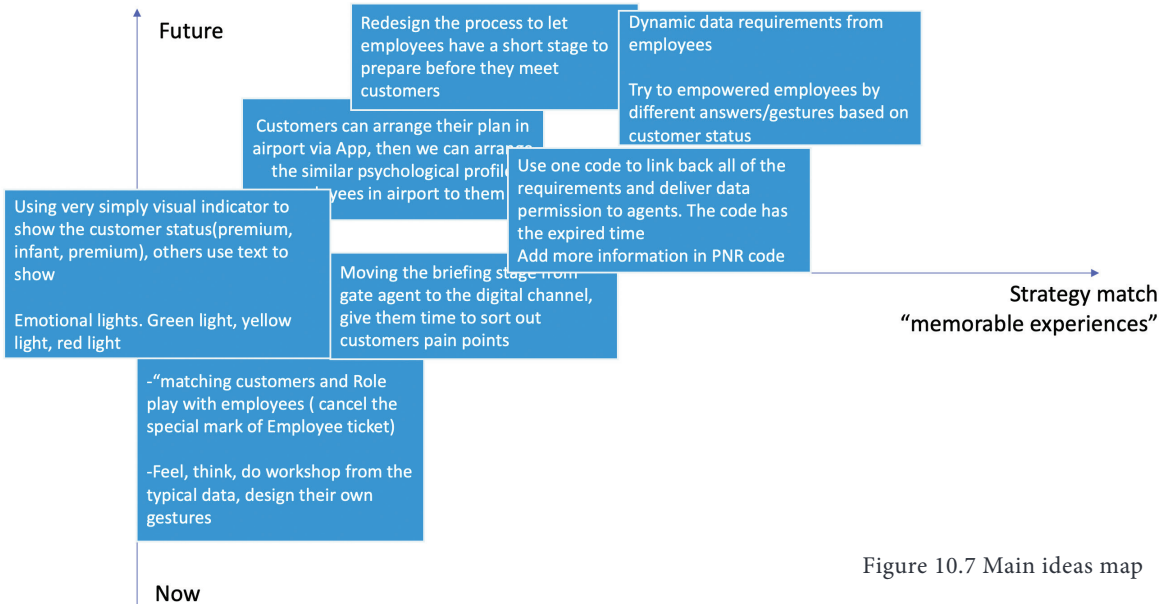


Figure 10.7 Main ideas map

10-2, Concept & Prototype

The ideas have been designed as concepts at different time pacing. The following part introduces the first version of the concept in different horizons. Horizon 1 is for the following one year, horizon 2 is for 2-5 years, and horizon 3 is for 5-10 years based on the possibility of technology and resources in this dutch aviation company.

Concept 1, The JET banner

As Figure 10.8, in this concept for horizon 1, there are six indicators represent the main common high priority customer status elements in “JET” categories, which are customer journey, experience, and ticket facts. The data resources of those indicators list as following table 10.1.

Proposition for the horizon 1

- Allow the machine to maximize the value of customer data by implementing the customer status into the employee’s tools and align information structure of interfaces based on the JET principle

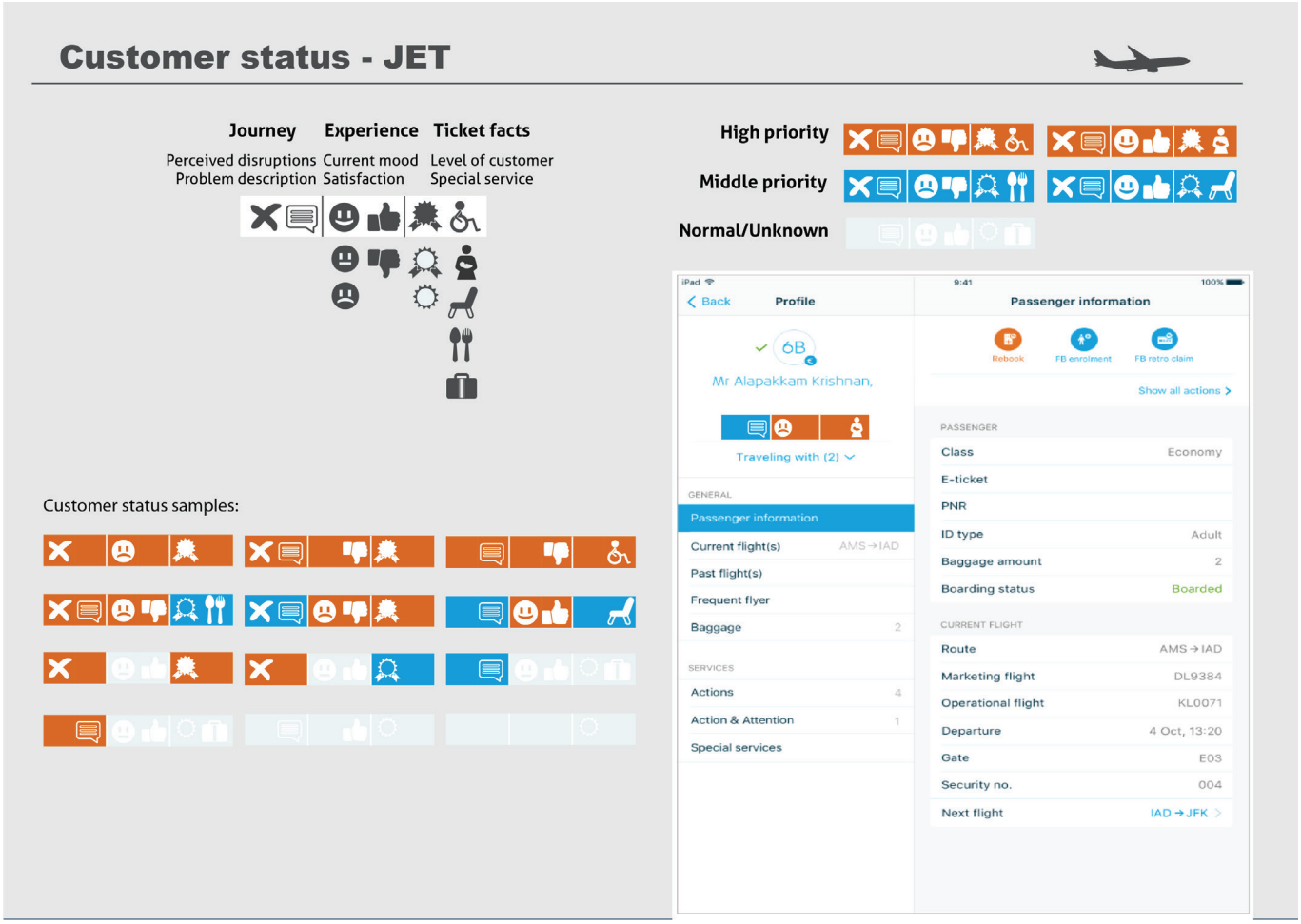


Figure 10.8 Concept 1-the JET banner

	Information	Data resource in Horizon 1	High priority	Middle priority
	Perceived disruptions	Disruptions records in flight operation system in recent one month	High perceived disruptions in system. (e.g. cancelation)	Middle perceived disruptions in system. (e.g. delay)
	Problem/Action requirement	Action & Attention message and special comments in Ground Touch point message in social media Crew message and passenger related trip reports	Urgent or high priority messages	
	Current mood	The emotion description in Action & Attention messages and special comments from employees	Strong emotion words in message content (e.g. Upset, frustration,fear)	Emotion words in message content (e.g. happy, boring)
	Satisfaction	The E-score from this customer previous journey	Promoter	Detractor
	Level of customer	Flying blue status	Platinum Gold	Sliver
	Special service	Special service records in operation system	Wheelchair Infant	Paid seat Paid meal

Table 10.1 Icons definition and data resources

Concept 2, The "JET" Exam tool for designers and product owners

To support the customer status, the information structure of passenger related information in supportive tools should be improved based on "JET principle". One tool as Figure 10.9 is proposed for this purpose. The designer or product owner who decides how the "JET banner" will show in the application. They can use this tool to evaluate their current information structure or future plan of new versions to build up their information structure.

Follow this tool, they can select their persona, check this persona's working goal and then define the information category of the customer information page in their application based on the "JET principle". For some new elements that do not belong to the customer status elements list, they can measure the priority by comparing it with the sample element to decide is it important or not to employees.

The “JET” Exam tool for designers and product owner

How to use this tool

Select the persona → Check the goal → Define the category → Compare the priority

	Does this information can help me solve the problem in service more efficiency		
	Story in Journey	**Emotion/Experience**	**Ticket facts**
It is important to me	e.g. Customer complaints	e.g. Customer current mood	e.g. Travel document
It is not important to me	e.g. In what part of his/her trip the customer is	e.g. The previous flight satisfaction in non KLM owned channels	e.g. Customer contact information

	Does this information can help me to make up for the defects of non-face-to-face communication?		
	Story in Journey	**Emotion/Experience**	**Ticket facts**
It is important to me	e.g. Waiting time e.g. Description of the customer's problem (e.g. My daughter and I are not sit together)	e.g. Customer current satisfaction	e.g. Basic customer information(market, language)
It is not important to me	e.g. In what part of his/her trip the customer is e.g. Already handled requirement including answer	e.g. The previous flight satisfaction in non KLM owned channels	e.g. Flying blue miles

	Does this information can help me understand the passenger’s emotion more?		
	Story in Journey	**Emotion/Experience**	**Ticket facts**
It is important to me	e.g. Whether the customer has experienced any disruptions	e.g. Customer current mood	e.g. Flying blue status
It is not important to me	e.g. Number of requirements	e.g. The previous flight satisfaction in non KLM owned channels	e.g. Special note in PNR

Figure 10.9 Concept 2-the “JET” Exam tool

Proposition for the horizon 2

- Enrich the job resources of customer status from customers' input from new touch points and enhance the opportunity for employees to understand the customer and take actions accordingly

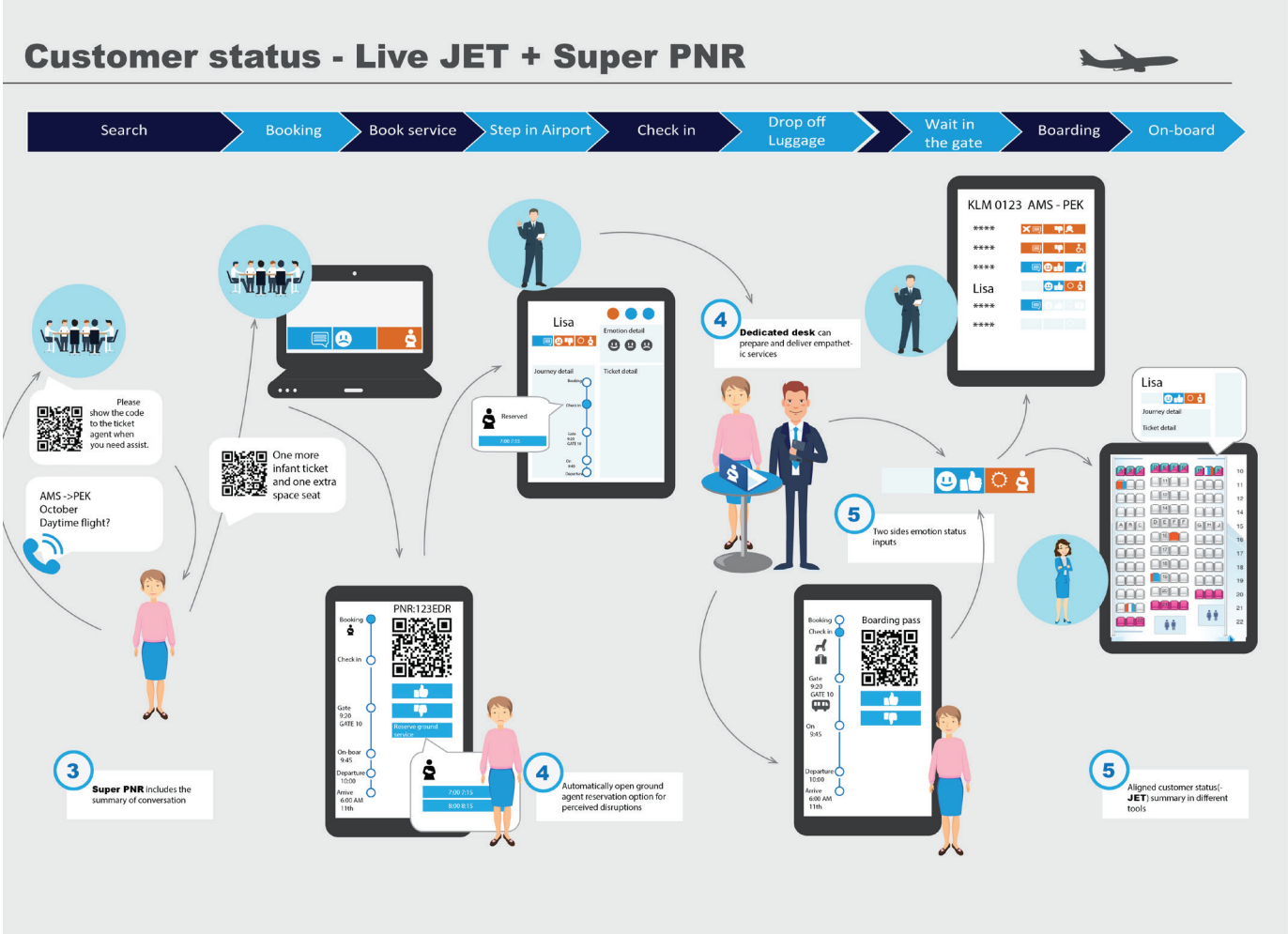


Figure 10.10 Concepts in Horizon 2

Figure 10.10 shows concept 3-5 in horizon 2, following are detailed concept explanations.

Concept 3, Super PNR

In horizon 2, the "Super PNR" concept is created to summarize and transfer customer status via the customer. Customer-facing employees can summarize their understanding of customer status as a QR code before this customer has a real PNR, this QR code is named as "Super PNR" because after customers have booked a ticket, this "Super PNR" will have all of the information of the traditional PNR plus the customer status. In this stage, customers can use "Super PNR" to ask for support from any customer-facing employee from this dutch aviation company and this employee will get the permission to view this customer status in their supportive tools. "Super PNR" is a tool to transfer understanding of customers through the interaction between customers and customer-facing employees.

Concept 4, Dedicated service employees in service procedures

Customers can make the reservation with their requirements and prefer a time block though the customer application. The option can be activated based on the judgment of customer status by system or customer-facing employees. After the reservation is successful, the dedicated customer-facing employee in the airport for this type of requirement will have one step in their working process to view requirements from customers to prepare their empathy. And these dedicated customer-facing employees should be the service expert for this type of requirements to make sure they have enough ability to show their empathy to customers.

Concept 5, Live JET

Live JET means after the JET banner has been added in those supportive tools, customer-facing employees can reflect the customer's current emotion after the interaction. And customers can mark their real-time satisfaction for every stage of the journey. Plus the real-time data feeds in the operating system. Then on horizon 2, the customer status is approaching real-time via the contributions from both the customer and employee side.

Proposition for horizon 3

- Empower employees by empathetic gestures' suggestions and emotion predictions from improved algorithm of the customer status from the full journey's information

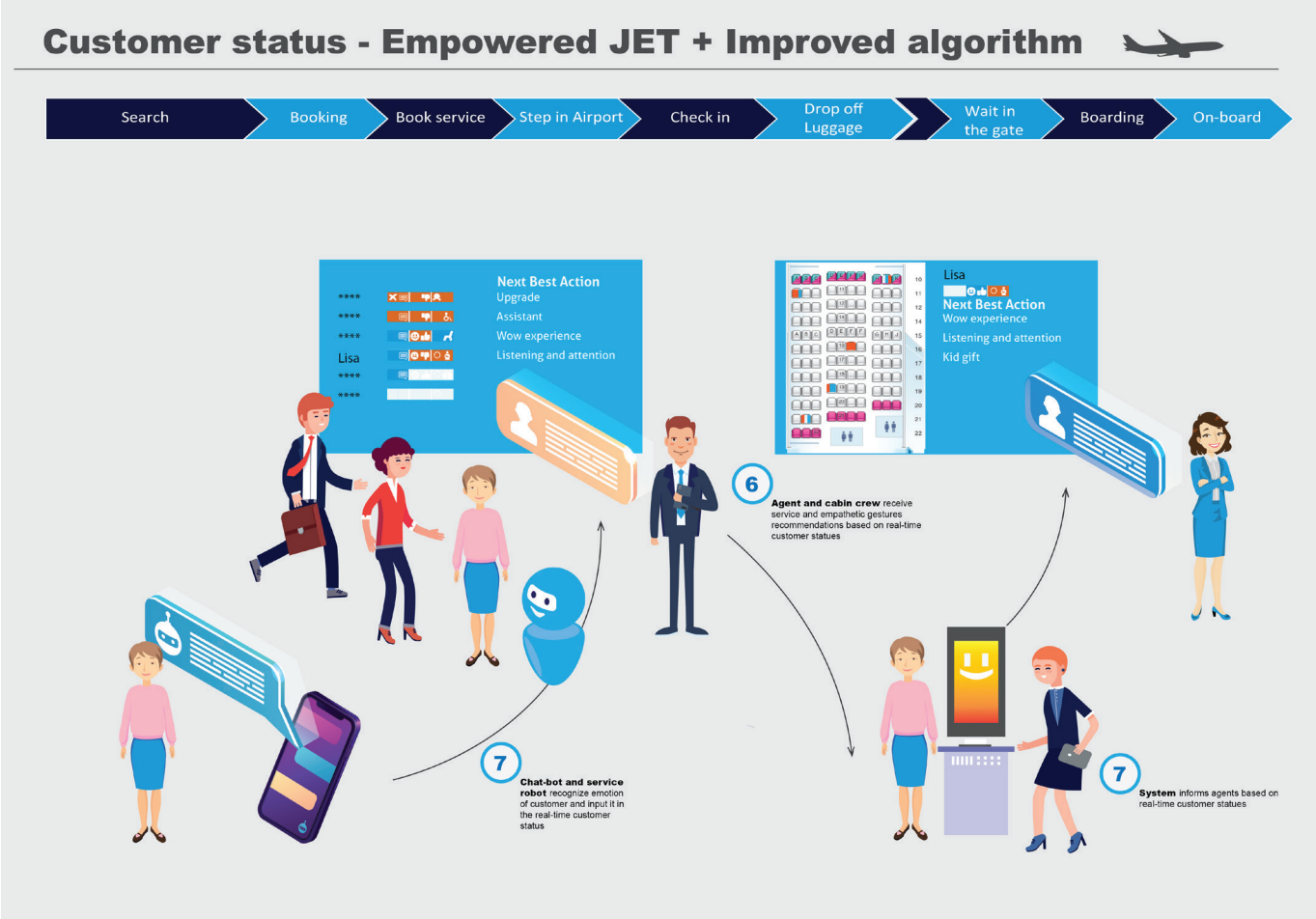


Figure 10.11 Concepts in Horizon 2

Figure 10.11 shows all concepts in horizon 3, following are detailed explanations.

Concept 6, Improved algorithm of customer status

Through the development of Nature Language Program (NLP) and biometrics of emotion detection, the chatbot in digital channels and the service robot in the airport can recognize real-time customer emotion immediately and judge their satisfaction after the interaction. Then a smooth emotion line and satisfaction line can be drawn through the customer journey. The algorithm should be improved based on both lines to define the priority of customer status.

Concept 7, Empowered JET

In this horizon, the system can inform customer-facing employees the priority of customer status and what are the recommendations for those high priority customers. The system will open some personalized options to the agent as empowerment. So, on this horizon, the “JET banner” becomes “empowered JET”.

10-3, Concept testing

To collect feedback from employees, concepts have tested with customer-facing employees and discussed with product owners. The main test questions come from the assumption in Chapter 2 and challenges in Chapter 4. That’s about the identification of icons, usage of the customer status indicator, the impacts of understanding of customers(turn on empathy), and effects of proactively do something to customers based on customer status(showing empathy).

For Concept 1, I created the JET banner prototype and asked employees(social media agent, cabin crew and ground agent) to put it on their tools with the real passenger information interface, as figure 10.12.

The identification of the JET banner and the usage of the banner have been discussed in this situation.

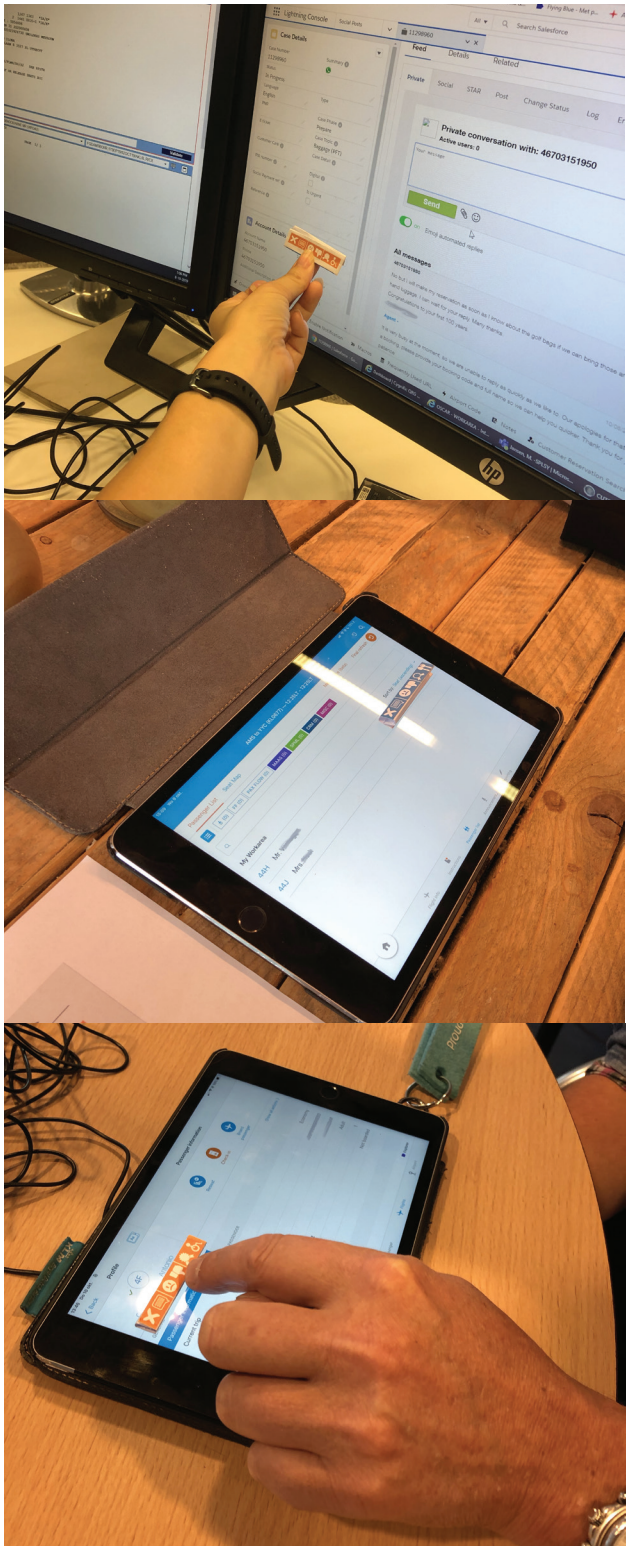


Figure 10.12 Concept testing

We discussed the identification of the JET banner,usage of it, information links between the current interface of the customer information and the JET banner, and possible data resources. The information ranking in the JET banner has been discussed too.

The concepts of horizon 2 and 3 have been consulted usage and benefits with employees after explaining the concepts about the service procedure and tools. New screen prototypes with customer status indicator have been compared with current similar screen in their tools, it shows in Figure 10.13.

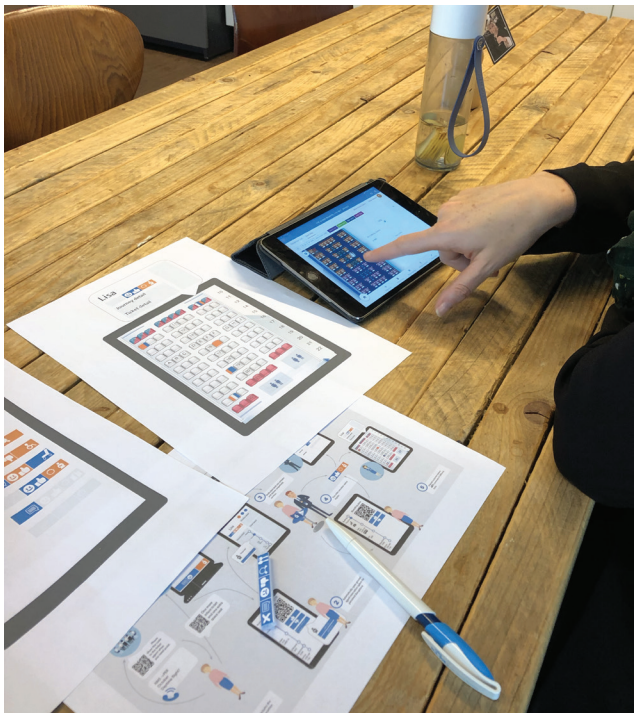


Figure 10.13 Concept test of Horizon 2

For concept 2,3,6, they are mainly tested with relevant product owners (social media to customer tool's product owner, data&tools manager,customer contact product owners) through showing these concepts in presentation and observing their reflections for these concepts. After the presentation, we discuss about their feedback on these concepts.

After the concept testing with customer-facing employees in their working context, and testing with relevant product owners, some insights have been collected to iterate concepts.

For concept 1 - The JET banner:

- Employees believe the customer status indicator can support them aware and understand customers in their working context.
- The first icon of perceived disruptions is not clear, but after an explanation, they can recognize it. Flying Blue icon should inherit the visual language from other applications.
- For the social media agent, the detail special services like infant with family does not have such a high priority, and the extra luggage has a higher priority in their working context.
- All of them agree the experience part especially current mood will have high priority in the future and help them understand customer status.
- Emotion should only have two status, negative as a high priority and positive as a middle priority, it is more efficient to agents.
- They want to have links between the status banner and detailed information in their working interface.
- They like to have recommendations about which status they should take action.
- For cabin crew, disruptions of current flight are not so important because they receive the information when they sign in the flight, the history of the disruption is more important.
- For cabin crew, they like to get the customer status indicator in the seat map, because their working procedure starts from the passenger list or the seat map.
- For ground agents, they like to get the customer status in the detail page because when one passenger approaches them, they start to check the passenger detail information.

For concept 2 - The "JET" Exam tool for designers and product owner

- Product owners look confusing to understand this tool, normally they only focus on their product users. And the tool structure looks redundant with the JET principle.
- They like JET principle and the ranking list, they believe that will contribute to their work

For concepts 3,4,5, - Super PNR,Dedicated service employees in service procedures,and Live JET

- Concept 3, Super PNR will help a lot in communication to transfer information. But there is a login issue and whether customers want to share their status and want to know about which information has been shared in Super PNR in employees.
- The reservation part from customers of concept 4 has the opportunity to move to the onboard part. It can highlight one customer from the customer side, then employees have the opportunity to know who needs their help.
- Employees think concept 4, dedicated service employees can deliver more opportunity to show empathy to customers.
- Concept 5, live JET in the future can have a combination version based on one algorithm, to give a direct indicator of the most important status
- Employees agree concept 3, 4, 5 in Horizon 2 will support them more to deliver empathize service, real-time experience(Live JET) is the key. But they like to know which parts of it come from colleagues and which parts come from customers
- They like the idea in concept 5 to have a summarized version of JET banner in the seat map
- Product owners think Live JET use the advantage of airline's service, which is airline always has employees in their services, then there is a huge opportunity to collect customer feeling and feedback. "We should use this advantage," they said.

For concepts 6,7 - ,Improved algorithm of customer status and Empowered JET

- For cabin crew, the real-time emotion line from concept 6 can give the background information to support their decision of next step gestures.
- For concept 7, empowered JET, all of them think that will improve their services. But employees want to have the flexibility to make their decision based upon those empowerment. They do not want the recommended options to limit their service. They believe they should be the expert in their working context to make the final decision.

So, the main insights from the testing part suggest that the indicator of customer status can improve customer-facing employee's understanding of customers and increase the possibility to show their empathy.

It suggests me to focus more on the JET banner, I decided not to iterate Concept 2, the exam tool and Concept 3, Super PNR continuously. Concept 4, dedicated service employees are seen as a support procedure of Live JET. And Concept 6 has been merged into Live JET and Empowered JET. Then I should iterate the JET banner to detail design concept in every horizon rather than keeping the banner in the same rule.

10-4, Iterated concept

To improve the indicator of customer status, the iterated concept of it in horizon 1, 2, 3,has been visualized as Figure 10.14, and the table 10.2 shows detail definition of icons.

Iterated concept for the customer status indicator

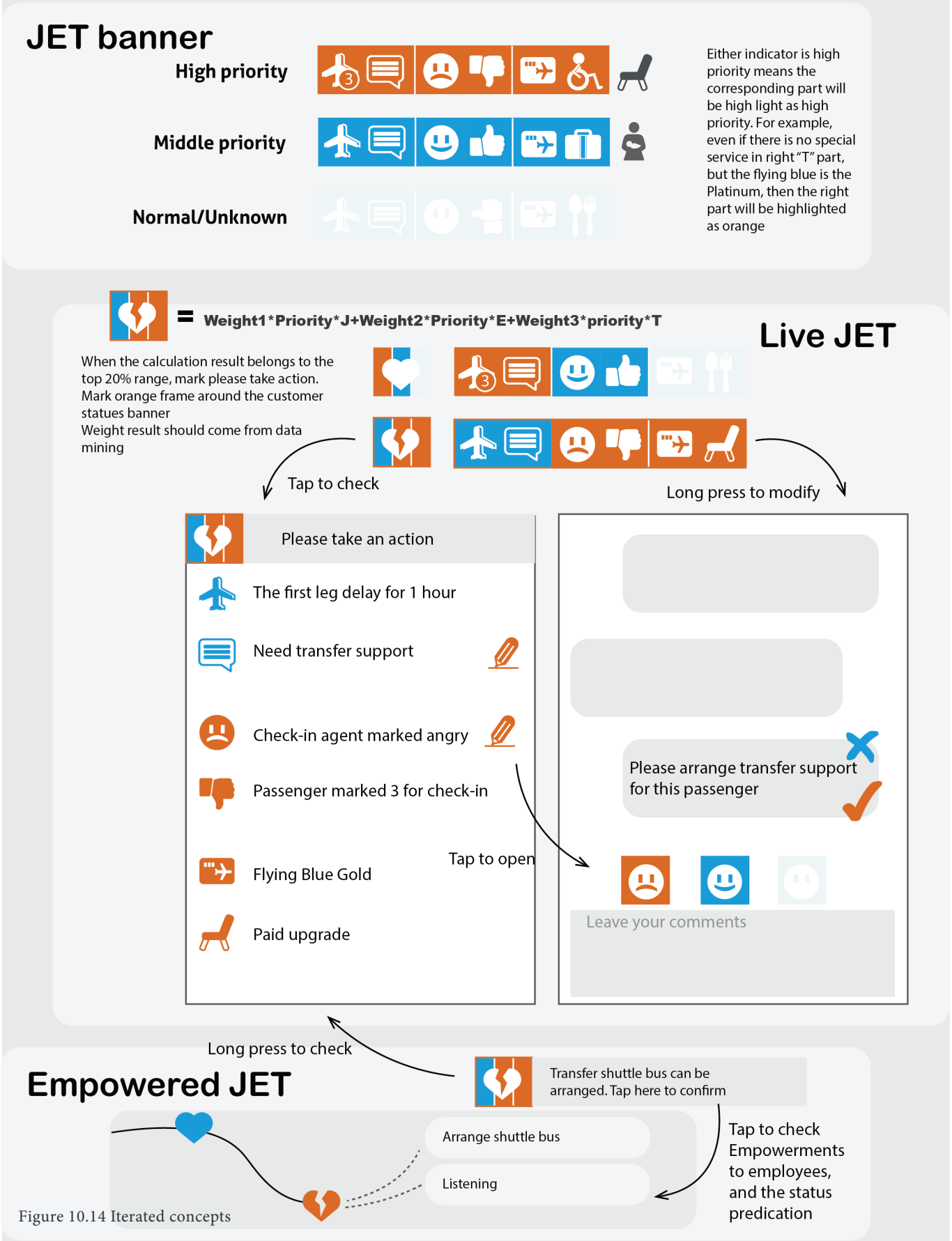


Figure 10.14 Iterated concepts

Icon	Information	Data resource in Horizon 1	Data resource in Horizon 2	High priority	Middle priority
	Summary of customer status		Calculate result from customer status algorithm	The top 20% range of customer status. Suggest to take actions	Without the breakheart icon and orange frame.But the background has orange part.
	Perceived disruptions	Disruptions records in flight operation system in recent one month	One-month disruption records + Data Mining of interaction records for perceived disruptions	High perceived disruptions in system. (e.g. cancelation)	Middle perceived disruptions in system. (e.g. delay)
	Problem/Action requirement	Action & Attention message and special comments in Ground Crew message	Data Mining result of customer real-time requirements summary	Urgent or high priority messages	
	Mood	The emotion description in Action & Attention messages and special comments from employees	Real-time mood remarks from	Strong negative emotion	Strong positive emotion Strong negative emotion or month ago(for horizon 1)
	Satisfaction	The E-score from this customer previous journey(In recent three months)	Real-time satisfaction remark from customers	Detractor	Promoter Detractor three months ago(for horizon1)
	Level of customer	Flying blue status	Flying blue status	Ultimate Platinum	Sliver Non-Frequent flyer
	Special service	Special service records in operation system	Special service records in operation system	Wheelchair Paid seat	Infant Baggage 

Table 10.2 Iterated icons definition

To sum up,

- Disruption, flying blue icons have been updated for the understanding issue. The number of disruptions in the previous one month has been marked on the icon to indicate the history. The priority of the special service part has been modified based on the suggestions.
- Define validity period for part of customer status in horizon 1.
- The idea of algorithm moves to Live JET to create a summary of customer status, and give a direct indicator for the suggestion of taking action based on the result of the algorithm.
- The short version of the customer status banner has been designed to support the usage in seat map or another required context.
- The detail interactions has been designed to support checking details, modifying the customer demands, and stressing the customer mood.
- The detail page of empowered JET has been designed to show the relationship between the status line and the suggested possible gestures.

10-5, Evaluation and Validation

To validate new tools of customer status and design concepts of this project, This section includes discussion and validation for new functionality, visualized status bar, and the interaction design concepts. They have been discussed with the product owners, business owners and designers of employee's tools from social media, ground and Inflight department separately by meetings. The JET principle, design proposition, concepts, and iterated concept have been shown in meetings. After that, one email with three open questions has been sent to them to collect their feedback(Appendix 8). Overall, I get their positive feedback about the usage of the "JET principle", the customer status toolset. They also give some suggestions that I should consider in the final design.

Figure 10.15 Validation with product owners

Sum up the Insights and learns from the face to face feedback and email feedback from the product owner, business owner, and designer, the suggestions are:

- The previous failed project has shown, the emotion remark without defined usage in working procedure only added workload to employees. So it is important that the design includes the relevant improvement of procedures and the corporation with different touch points.
- How to solve the fault issue between different touch point? The history and the detail page of explanation of customer status are very nice to solve this issue. But the awareness of the working mechanism should be aligned in different departments.
- It will be better to have one case to explain how to use the "JET principle". Product owners are certainly looking into it to structure customer information.
- The direction of empathy is an inspiration to customer data management and social media tools' plan. " We always focus on quantity but forgot the quality of social media cases" one product owner said.
- How showing passenger mood/satisfaction impacts the way the agents handle the case? We should measure it in following research.
- Empowered JET should have boundaries to control the flexibility of employees."Empowerment is crucial, of course within boundaries"
- Except for procedure improvement, the organization plan should also be considered for this purpose.

Chapter 11, Final roadmap of the customer status indicator

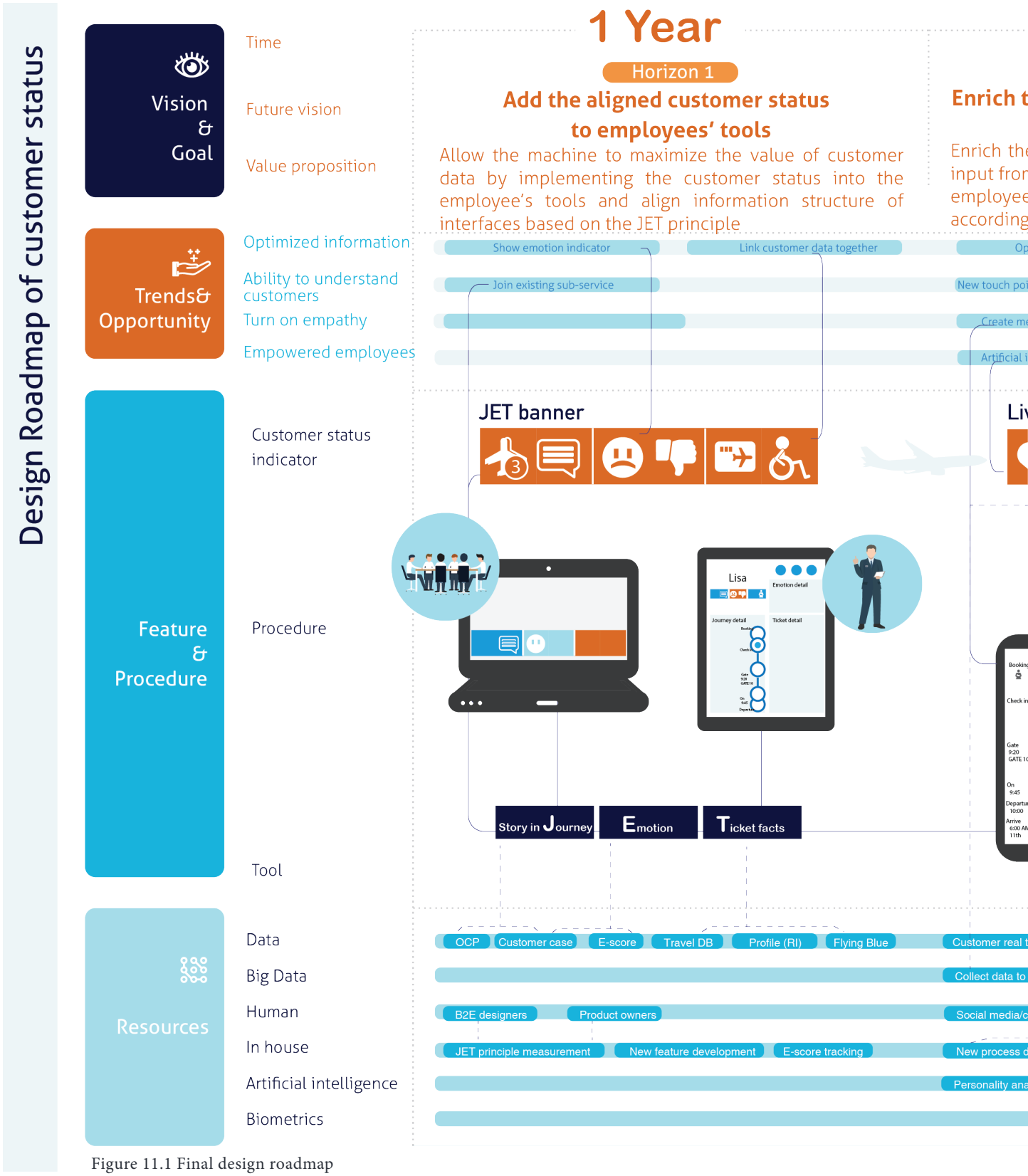


Figure 11.1 Final design roadmap

To explain how to implement the real-time, optimized customer status by time pacing, the final output is a design roadmap (Figure 11.1) of customer status.

2-5 Years

Horizon 2

he customer status from customers' input to increase employees' empathy

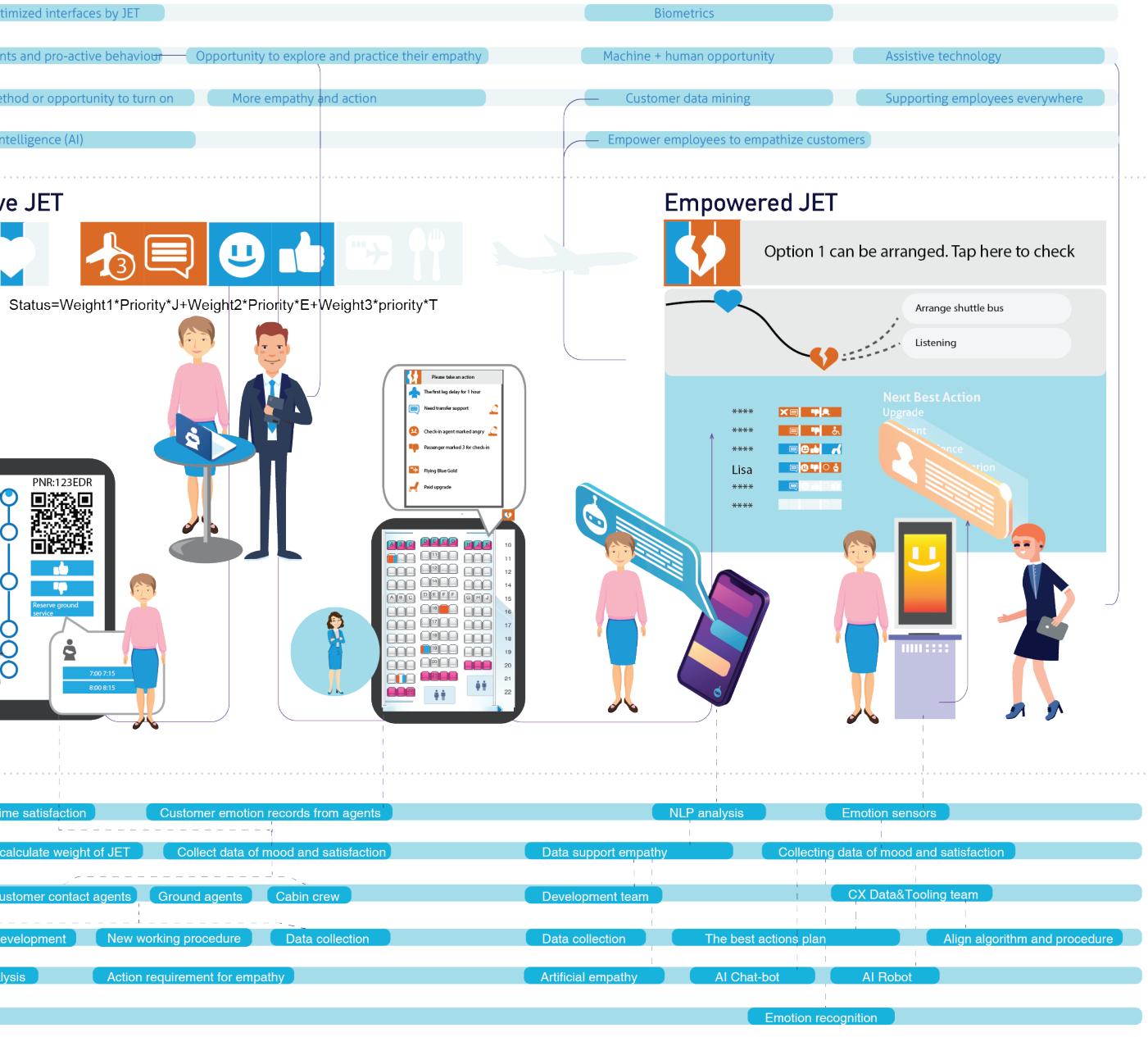
e job resources of customer status from customers' n new touch points and enhance the opportunity for es to understand the customer and take actions ly

5-10 Years

Horizon 3

Let the customer status empower the employees' empathy

Empower employees by empathetic gestures' suggestions and emotion predictions from improved algorithm of the customer status from the full journey's information



This roadmap has four layers, the first layer shows the vision and goal by different horizons. The second layer shows the identified trends and opportunities. And the third layer below it shows the final concept of JET banner, LIVE JET, and Empowered JET and the improvement of procedures to support the implementation of the customer status bar.

The last layer is the resources layer, it includes humans, data, in house resources, big data algorithms, Artificial intelligence and biometrics technology.

All of these layers have been connected by lines to show the relationship among resources, new tools and procedures, trends and future vision. Then this roadmap can be seen as an implemented plan of the new toolset, the customer status indicator, to show real-time, optimized customer status to customer-facing employees to engage them for their empathy, which will impact customer satisfaction.

Chapter 12, Conclusion, limitations and recommendations

This chapter is the final one to summarize the conclusion, limitations of this research, and recommendations for the following research directions. The conclusions come from the summary of the assignment, the research purpose, and the validation results. Limitation part submit from the challenges and scope of this project. The final recommendations are a summary of unfinished directions and suggestions from stakeholders.

The main takeaway topics from this chapter,

1, Conclusion
2, Limitations and recommendations

12-1, Conclusion

The findings of this graduation project, aim to solve the research blank that is “What could be the solutions to bridge the knowledge gap of fostering employee engagement and customer satisfaction through customer information”. The final solutions meet this research blank in this dutch aviation company.

Solution 1, JET principle

First of all, the output from the first round X-way is the “JET principle” plus the detailed customer status elements ranking, which makes it is possible to align the information structure of customer status across supportive tools. That is a solution which could solve the first gap that this company does not have an approach to make sure they can have an aligned, prioritized, real-time, full customer status. “JET principle” has been tested with product owners, business owners, and designers. Results of the test show that it can support them optimize the supportive tools’ plan and design.

Solution 2, Toolset of customer status indicator

In the second round X-Way, a toolset is released to show customer status that comes from summary and data mining of customer information in the customer journey. Furthermore, it delivers relevant improvement suggestions of working procedures to support the implementation of itself. The first tool in this toolset is “JET banner”,which can facilitate understanding of customers. And the second tool ”Live JET” includes real-time mood and satisfaction from customers and dedicated service employees. Feedback shows that it will increase the empathy of customer-facing employees. The last tool is “empowered JET” that gives the possible options automatically. From the employees’ test feedback, they agree it will engage them with their tasks to proactively understand customers and take empathetic actions. So, as Figure 12.1 shows, this set of tools will solve the second gap that this dutch aviation company does not have a summary of customer story and mood in their supportive tools,and less customer status relevant action suggestions.

Customer status foster empathy

From the feedback of employees, empathy and customer emotion status are like two sides of a coin, employees believe real-time mood and satisfaction of customers from the toolset of “JET” will be one important resource to support their service. Some product owners agree they will consider it in their future plans. All participants of the validation stage agree that empathy is a very important part of airline service and they are glad to have some improvement suggestions to foster empathy. We believe through the implementation of this set of tools, finally, we can increase employee engagement for customer satisfaction.

As a conclusion, the “JET principle” and the toolset of “JET” can be one solution to solve the majority of gaps between this dutch aviation company’s supportive resources and their customer-facing employees’ facing challenges. It makes delivering real-time, aligned, prioritized and empowered customer status to customer-facing employees possible. Those tools will

Figure 12.1 Toolset “JET” in three horizons

increase their awareness of customers, control the time spent on information overload, and follow the regulations of data privacy. By doing this, the approach will engage customer-facing employees to proactively deliver their empathy to customers when they have perceived disruptions. As a result, customer satisfaction will increase.

12-2, Limitations

There are two limitations in this research, one is time and resource limitation. Another one is the research scope limitation.

Time and resource limitation

From the start of this project, the scope has been defined based on twenty working weeks, the research scope only focuses on the journey before on board and for those customers with perceived disruptions. The measurement of increasing customer satisfaction is not in the scope of this research for the time issue. To measure how much empathy of customer employees can be impacted through the “JET banner” and “JET principle”, the quantitative research method needs more time and resources to conduct. So, in this research, all of the feedback of validation are qualitative resources. Some interesting concepts cannot be continued because of time and resources too. Apart from that, some resources have been limited because of company regulations. The planned survey with social media agents has been stopped due to resource limitations and regulations in the company, and the observation in cabin crew briefing has the same situation too. But to be a volunteer is a surprise to me to understand the employees’ feeling in their working context. These limitations show again, status is always dynamic, but if the goal is clear, solutions will come through the goal.

Research scope limitation

The second limitation is the set of tools and the principals which are designed for this dutch aviation company based on the research of their employees, working procedure and supportive resources. It has limitation to expand the usage of it to other companies and organizations. However, I believe to consider real-time and optimized customer status in supportive tools’ design to increase empathy can be considered by other service-oriented companies.

12-3, Recommendations

Although the toolset customer status indicator and “JET principle” have been validated with employees and stakeholders, and it is believed that they can engage employees for customer satisfaction, there are still a lot of possibilities to increase employee engagement and customer satisfaction through data and tools.
As I planned in Horizon 3, in the future, automatic empowerment in employees’ tools and the balance between personal service and self-service will become critical for using customer status to impact customer satisfaction.

Empowerment of employees for empathy

The next step research in this dutch aviation company in this direction should be the research about a roadmap to define specific empowerment of employees, as one product owner suggested:” A lot can be done by bots or AI, but I see both of those implementations merely as a supporting framework for the human agents that can deliver empathy and emotion. Of course, this can only happen when the service agents are empowered to make a difference” What should be the principle to link different levels of empowerment and the levels of customer status? How to balance the empowerment to employees and remain within the boundaries of company regulations? This can be one following research.

Balance of self-service

Another direction is an extension of this re-

search, this research focuses mainly on personal service, but it cannot be ignored that there is a sharp increase of self-service. Based on the priority of different customer status, how to define the rule to deliver dynamic self-service, and in which level of customer status, the system should enrol employees to deliver personal service.

Besides these two follow-on research directions in this dutch aviation company, we should explore more about the relationship between job supportive resources and customer satisfaction, this could be an interesting topic in the academic world.

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