

# A PROPOSAL FOR A MORE SUSTAINABLE CATERING SERVICE FOR KL CITYHOPPER FAIRLINE

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# Preface

This report is the result of my graduation project for the MSc program of Integrated Product Design at the Delft University of Technology. This project has been developed in collaboration with KL with the purpose of finding more sustainable ways to provide catering before and during flights. I am proud to present my last deliverable of 6 years of studying at the Faculty of Industrial Design Engineering. In this section I want to express my gratitude to the people that accompanied me on this difficult but most of all enjoyable journey.

First, I want to thank KL, Caroline and others at KLC, for providing me with the opportunity to dive into this world of catering products and other ancillaries. Thank you also, together with Linde, for sharing your knowledge, discussing my findings, pushing me to look further and believing in me.

Sicco and Rick, my supervisory team, thank you for your feedback during our meetings, challenging me to look differently at insights and pushing me into the right direction.

I want to thank the participants that helped me with the questionnaires and the interviews. You have provided me with many insights. Thanks to the interviewees for answering my questions and sharing your travel stories.

Finally, I want to thank everyone who made this graduation a little easier. Thanks to my friends and family, for being there when I needed it. All the delicious meals to enjoy in study breaks, brainstorming and giving feedback, many phone calls, finding new music to listen to, a listening ear and words of encouragement. Lastly, studying and working together when almost everybody was on a summer holiday. This all made the journey so much better.

This would not have been possible without you, thank you and enjoy reading the report!

Maryette Lumeij

# Summary

Reducing the impact of flying is a concern in the aviation industry, especially on the short haul flights. The Dutch aviation company KL Cityhopper (KLC) noticed they create a lot of (food) waste onboard of their European flights. They are aware that all back-up food and beverage options brought into the air cause extra weight and extra CO<sub>2</sub> emission. Additionally, they want their catering to be personalized to the needs of their passenger instead of the one-fits-all solution that they have now. KLC is researching what it takes to become a more sustainable airline, with the goal to fly with the name Cityhopper Fairline. This graduation project explores what a new way of providing catering service to the passenger could be for the Cityhopper Fairline.

The goal is to figure out what the customers need during flights in terms of service. In addition, what their preparations are when going on a short haul flight. The current situation and operation are looked into and brought together with the company vision. And together with market trends, several concept directions can be identified. However, the final solution needs to have a user-centered solution for the passenger and it should take effects for the operation of Cityhopper and their catering services into account.

KLC wants to make the passengers comfortable during the entire travel, making them feel they are in control and have options from which they can choose. During the time in the air, KL provides free food and beverages to all the passengers. These catering trolleys are made by KL catering services. For the European flights, they are stocked to fulfill the outbound from and inbound service to Schiphol Airport. The contents of the trolleys are always the same and are not dependent on the number of passengers on board, making it easy for the catering services to fill the trolleys.

However, the current catering service across KLC is a one-fits-all solution and not possible to personalize on shorter flights. It is not communicated to the passengers what to expect during the journey. Further, the packaging of the food lacks the allergies information thus the passengers need to ask the cabin crew about this. KLC gives away more free food and beverage items than competitors do in the same region. These competitors create more awareness of what is possible and they even generate revenue from their catering service. Even though the catering of KLC is a free service, it is the least performing part of the service onboard. Next to that, it has no insights into the actual use per destination since everything is given away for free and there is no system to keep track of use by the cabin crew. Additionally, the cabin crew on

the shortest flights need to rush with giving the food and beverage service since the flight time is so short.

Passengers of KLC are demographically different, so it is best to describe them on their needs during the journey with the passenger typologies. Roughly half of the passengers have last-minute food and beverage preparations since the European flights are so short. The other half want to be prepared and bring their own snacks and bottle. All passengers need to wait at the airport between passing security and boarding the plane. Dependent on the time, most search for a place to pass the time. This time is perfect for leisure passengers to start their holiday festively by buying a coffee and a delicious snack. For travel for work passengers, it is the time either to be focused and work for some time or relax after a day of meetings. This shows the complete opposite of the food types they want, some want healthy and others unhealthy. In addition, international travelers want to experience the typical Dutch food but the Dutch would like to go for the bigger coffee or food brands. The onboard preference is nearly the same across the different passenger typologies. Passengers like to be surprised by the free things they get during the trip. Even if they do not like the option, they will take it because it is free. The passengers during the interview

said that the food and beverage service is not necessary on flights of 1h since you can eat before and after the flight.

The proposed new catering service for the KLC Fairline is a brand store located at Schiphol Airport and branded pick-up points for the outstations across Europe. The brand store and pick-up points are located at the airport after the security and passengers will pass these locations on their way to their gate. The passengers can receive their basic catering after scanning their boarding passes. The store at Schiphol Airport will have all typical Dutch products, both healthy and unhealthy. The store is for economy passengers to European destinations but it should feel like the Crown Lounge for business class passengers. The pick-up locations at the outstations provide the KL experience of service but with the opportunity to try something local. The passengers have a wide variety to choose from and they are in control of when they want to eat it, either at the airport or on the plane.

This brand store is the most sustainable and passenger-centered solution because it will remove all catering trolleys from the planes, reducing weight and CO<sub>2</sub> emission. The food waste will decrease significantly since the store has a system to keep track of the actual use of

the service. Further optimization of the food and beverage options is possible with this system. Together with more information online and in e-mails the passengers are made aware of what is possible. If they are connected to the KL-app, a notification can be sent after passing the security.

A roadmap for the entire service of KL is made that includes the short, medium and long haul flights is created, see chapter 8. Roadmap. The steps from the current situation to the vision service are explained. This includes how the current A La Carte product on the long haul can be extended to the medium haul. Next to what the main teams of KL should focus on improving the catering service to be more sustainable.

# Abbreviations

KL	Dutch Aviation company
KLC	KL Cityhopper
KCS	KL Catering Services
AF	Air France
AFKL	Air France KL Group

NPS	Net promotor score
F&B	Food and beverages
ALC	A La Carte

SH	Short haul flights
MH	Medium haul flights
LH	Long haul flights

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# 1. Introduction

Koninklijke Luchtvaart Maatschappij (KL) is the biggest airline company of the Netherlands, with around 35 million passengers in 2019. This dropped in 2020 to 11 million due to Covid. They want to offer the customers the world and accomplish this by connecting Schiphol Airport to 92 European and 70 international destinations. During these trips, KL has a mission to create memorable experiences for each passenger by making them feel recognized and comfortable during the complete trip. Another mission besides providing the best service to customers is 'to be the leading European network carrier in efficiency and sustainability'.

KL is a legacy carrier that gives a full service for each customer. Meaning when the customer buys a ticket they will not just receive the transfer from A to B, but they can bring a minimum of 2 bags and receive some food and beverage during the travel. The basic offering of KL during the flight consists of a meal and drink. KL provides the option to personalize trips by adding different paid products and services, for example your preferred seat or an A La Carte meal for economy passengers on long haul flights. Furthermore, KL has partnerships, with Booking.com, CarTrawler and others, to enable customers to arrange everything before you fly to a new destination like a car rental, parking at Schiphol or an accommodation.

Sustainability is one of the pillars of KL's strategic flight plan and one of the ambitions is to be the most sustainable airline on short hauls executed by KL Cityhopper (KLC) with the name 'KLC Fairline'. The name Fairline is invented because KLC wants to be the most sustainable airline on the short haul (SH) flights. One of the goals is to limit the CO<sub>2</sub> emissions and bring food waste to 0%. Previous research with an elective course XLab: Designing the Future Travel Service at the TU Delft shows that there should not be any food offered to our customers on flights shorter than 2 hours to reduce the (food) waste problem. The question remains what is left of the service if there is no food at all onboard.

In this report, the current food experience of the KL Cityhopper will be evaluated and combined with other research to give a suggestion for a new food experience for the KLC Fairline on the short haul flights.

## 1.1 Problem statement

The current meal offers on short and medium haul flights are not completely up to the standard for the customers and KLC. The product is not personalized enough for the customer and it is proving to be wasting food and causing more CO<sub>2</sub> emissions due to the extra weight. With the KLC Fairline coming, it is important to find a sustainable way to offer a personalized food experience to the economy class customers that extends beyond their flights to European destinations.

## 1.2 Goal

The goal is to figure out what the customers of KL Cityhopper (KLC) need during flights in terms of service. Does that mean a warm welcome when entering the plane, an extensive meal or just being left alone to relax? Next to that, what are the passengers' preparations when going on a short or medium haul flight. Combining these results with other research into the market trends, concepts and directions can be developed and evaluated. What will it mean for the operation and would it work for KLC, Schiphol and the customer. The end result of this project is a roadmap towards a more sustainable food and beverage service for the KLC Fairline and the rest of the company.



## 1.3 Scope

The current KLC flight times are between 0h45 and 3h00 and that will be the starting point of the project. Only the KLC service that is taken into account for doing research towards the new service. KL medium haul (MH) flight times are above 3h00 and are outside of the scope even though it has the same service as KLC. Also, the focus is only on the economy passengers on these flights and the business class passengers are out of the scope. Both these choices are made because KLC is smaller, what makes it easier to perform tests with. Furthermore, before the KLC Fairline is going to use a new service, it needs to be proven that this type of service works and is more appreciated by the customers than the current service. If the service is proven to work, KL might consider using it on their flights too.

## 1.4 Stakeholders

This project has different stakeholders, see figure 1 for the complete overview, starting with the Delft University of Technology (TU Delft). The TU Delft is involved in this project because KLC has done an elective course at IDE masters program called *Xlab Designing the Future Travel Service*. Focusing on the how the catering can be made more sustainable. Some of this previous research is used as a starting point of this graduation project.

KL is the biggest airline in the Netherlands, and they give direction to its different subsidiaries. KL is a stakeholder, but all the divisions and subsidiaries have slightly different views between each of them as a stakeholder too. KLC is one of these subsidiaries; they perform the operation of most of the European flights. The idea of the KLC Fairline was started by

volunteers within KL during the pandemic in 2020 and was further developed within the KLC. These volunteers worked under the name of Boldmoves because they believed that bold moves needed to be made to be more sustainable. This makes KLC one of the important stakeholders of this project.

While doing this project, I was placed in the Offer Management and Ancillary (OFMA) team at the head office of KL. This team is focused on improving the offer of KL on all flights, including how seats, bags and meals are sold before the flight. All catering products in the trolleys on KLC flights are prepared by KL Catering Services (KCS), they are their only supplier. KCS does supply for the other KL flights too.

Lastly, the most important airport for KL is Schiphol because this is their main airport from where all flights depart from and arrive at. This location is where all of their passengers come by at least once while flying with them.

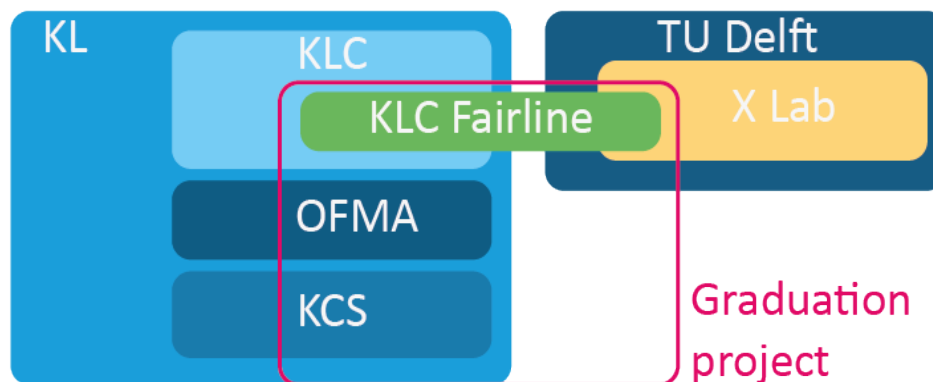


Figure 1. Stakeholders overview

## 1.5 Approach

As discussed in the previous chapter, there are multiple stakeholders involved in the project. They all have necessary information about the current product and processes and act as an important source during the research phase. However, the KLC Fairline wants to find a good solution that fits with the needs and wishes of the user. Therefore, a user-centered approach is used. Their input is the main source of information in the research phase and it will guide the design phase.

The current service is a complex system and the customer only sees a small part of it, and the new situation will be similar. By taking a service design approach it will help with focusing on how the bigger parts of this service will work together. The smaller details like the product specification will be left out.

## 1.6 Reading guide

The double diamond is used as a method to approach this project. The double diamond has two main phases, the research and the design phase (Design Council, 2005). The report is divided in these same sections. Starting with the research phase to reveal the real problem, in this case discovering what KLC does with its current service but also what the customers do during their flight journey. Or how KLC performs in comparison with the other airlines. Followed by defining what the real problem is. The design phase has a developing and delivering phase, which focusses on finding the right solution to the problem. Figure 2 shows the overview of all phases and each page is colorcoded at the bottom to show which part of the double diamond process it refers to.

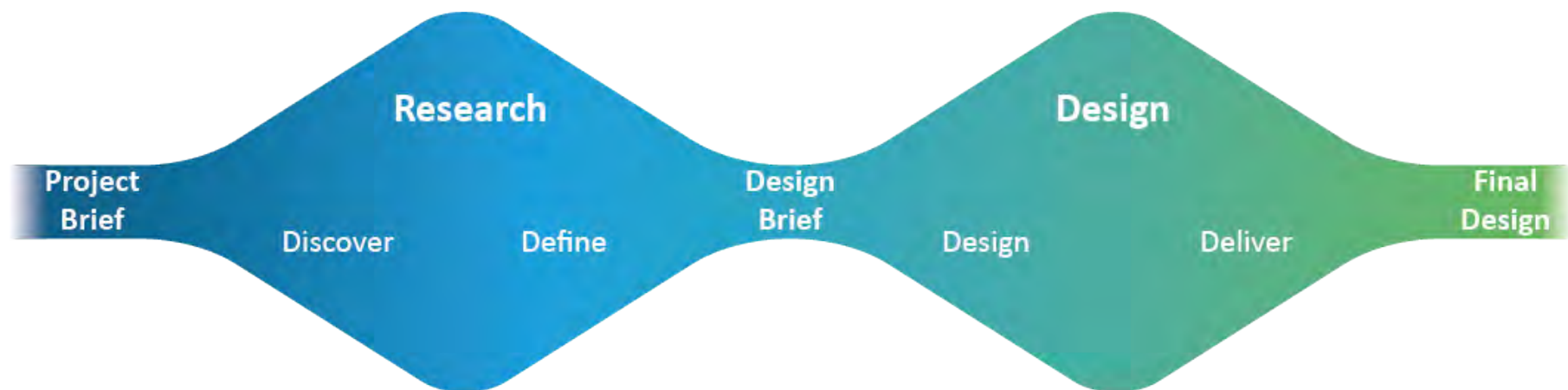


Figure 2. Double Diamond approach

## PART 1

# SOLVING THE RIGHT PROBLEM

Catering Services



## Research plan

The first part of the research phase is all about finding out what the real problem is. This phase can be divided into the internal analysis with the current products of KL and KLC and who their customers are and what they need. The second part is the external analysis, which goes deeper in the environment where KL and KLC are operating in, including what the competitors are doing. Each theme will be concluded on a page at the end of the chapters.

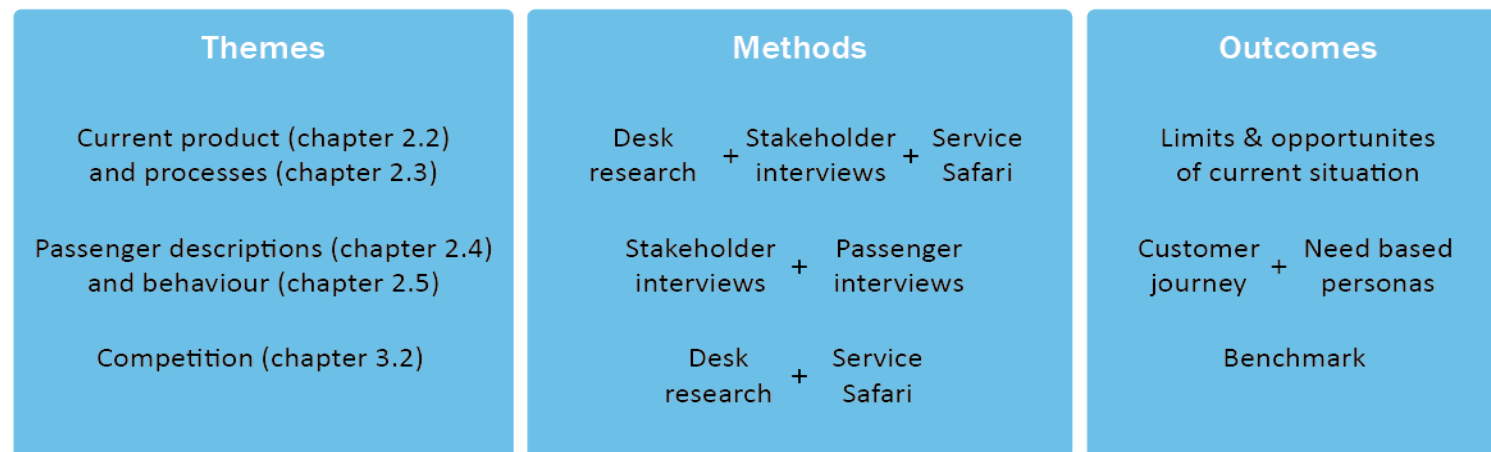


Figure 3. Themes, methods and outcomes of research



## 2. Internal analysis

This chapter explains all relevant internal research. Starting with some general information about the company and its structure and alliances. Followed by what the current food & beverage (F&B) service on the short- and long-haul flights and how this is organized with the help of KL Catering Services (KCS). Ending with information about the typical KL passenger and how their general journey looks like.

### 2.1 The company

KL Royal Dutch Airlines or in short KL is the biggest airline of the Netherlands. They started their operation in 1919 and are still providing safe transport for passengers all over the world. This chapter explains further what their mission is and how they work together within the company and with others to make it all possible. Ending with how to measure if the customer is still satisfied with the service.

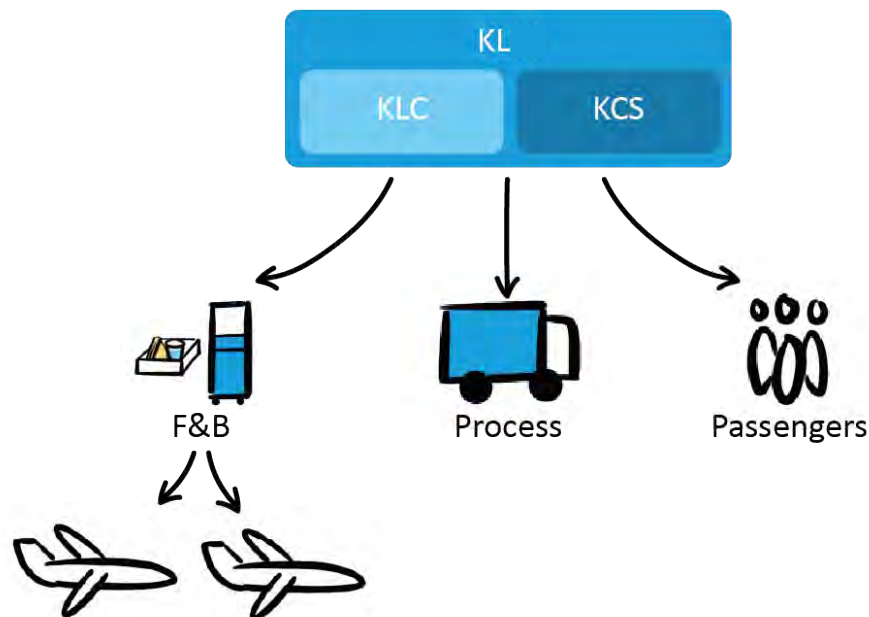


Figure 4. Structure of internal analysis

#### 2.1.1 Their compass

The purpose of KL is to *'Move your world, by creating memorable experiences'*. They identify themselves as aviation pioneers with a Dutch heart. The ambition is to be the leading European network carrier in customer centricity, efficiency and sustainability. With the spirit that the customer, their own people and the planet needs to be cared for. The desired customer experience comes down to that the customer feels that they are taken care of. KL wants to do this by making them feel recognized, comfortable and touched. Also, to make sure that KL is easy to deal with (KL Compass, 2022).

## 2.1.2 The company structure

KL merged with Air France in 2004 to form the Air France KL Group (AFKL). Transavia is also part of the AFKL group. However, it is divided into the French part with AF and the Dutch part with KL. AFKL has a hub and spoke network with Paris Charles de Gaulle as the hub for AF and Amsterdam Schiphol as the hub for KL. The hub is the main airport for these airlines.

KL has several subsidiaries, such as Martin Air, KL Cityhopper (KLC), and KL Catering Services (KCS). KLC operates almost all European destinations for KL. KLC does not have its own website to book tickets because KL sells the tickets for KLC and KLC only runs the operations.

## 2.1.3 Departments involved

Within KL are several divisions to make sure the operation runs as smooth as possible for the passengers. The divisions mentioned in figure 5 are most important for this project.

KL inflight makes all general plans for all services onboard. KLC has little freedom in changing this service onboard because they are the subsidiary of KL so they need to follow all procedures about what is offered. KLC is looking into what changes need to be made to become the most sustainable airline. When KLC becomes more sustainable, they want to start flying with the name KLC Fairline. KLC is used to research, test and implement any new and more sustainable ways of providing services

before KL implements it to the entire KL fleet.

The Offer Management and Ancillary (OFMA) team focusses on how the extra paid services are displayed. Making sure all information on how to reserve a seat or buy extra baggage is clear during the booking phase of the customer.

The Customer Experience (CX) team focusses on the complete customer journey and each subteams is in charge of one part of the customer journey. Thus, the communication in e-mails or the app are made there.

Sustainability the sustainability office is to enable and equip KLM to transform into a truly net-positive company and to drive the industry change towards sustainable aviation. Internally, they focus on developing strategy and position on sustainability topics, proposing the companies' sustainability targets and assisting the business in creating the roadmaps to reach the ambitions of KLM while pushing for transparency in everything the company does. Externally the team proactively reaches out to industry and policy makers for sustainable aviation

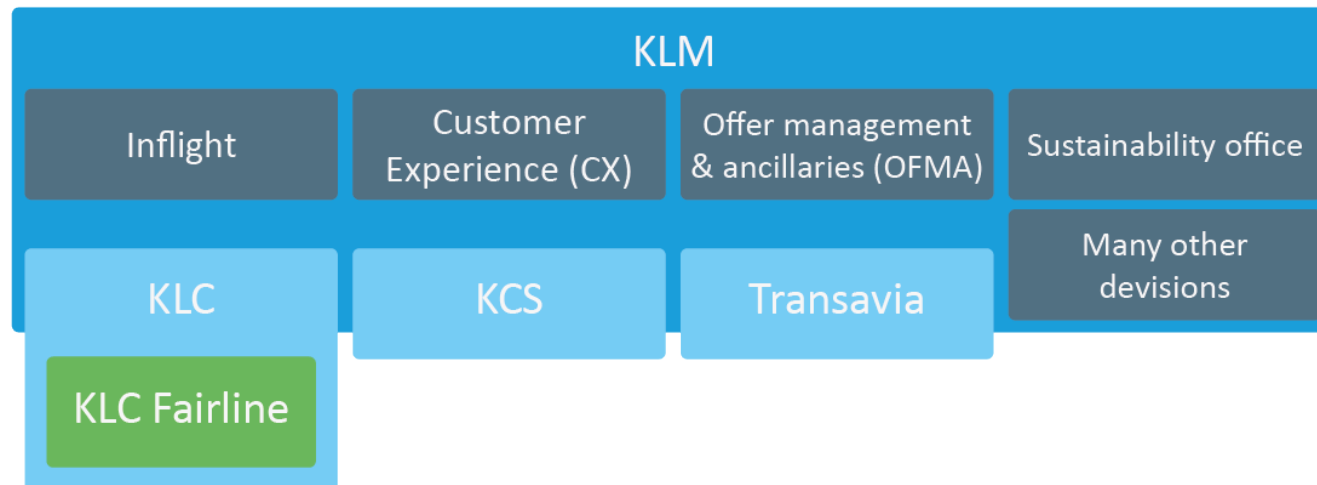


Figure 5. Company structure of KL

### 2.1.4 Alliances

The main business of KL is providing the air travel from A to B. They extend their service by adding different partners to their portfolio, to make it possible to enrich the travel of the customers. These additional services are focused on the departing airport, during travel or for at the destination.

#### Schiphol Parking

Some passengers go by car to Schiphol Airport and they will park at the Schiphol parking location. This can be booked before you arrive at the airport or you just show-up. The latter is more expensive and has the chance that there is no availability. KL has a its own page for Schiphol Parking, this page looks like it is from KL but is in charge of Schiphol parking. The prices are the same on this KL page and the Schiphol Parking page for the customer.



Figure 6. Schiphol parking

#### SkyTeam Airline Alliance

SkyTeam is an alliance between 18 airlines all over the world in which they agree to widen their network (SkyTeam Air Alliance, 2022). If a passenger is searching for a specific destination, then the SkyTeam members do not only show their own tickets but also the ones of the other members. This alliance makes it possible to fly to more destinations with a transfer between the different airlines.



Figure 7. SkyTeam members

#### Flying Blue

Flying Blue is the free loyalty program of KL together with other partner airlines some from the SkyTeam (The Flying Blue Programme, 2022). Rewarding is in Miles and in Experience Points (XP). The Miles are earned by booking a flight or spending money at any other retail or financial partners. The amount of Miles received is dependent on status level and amount of money spend. The passenger gains XP by combining the distance of flight and type of flight class. The status level of the passenger is linked to benefits received in XP. Thus, a higher level of XP will give more benefits. If a status level is not reached within a year people will drop back to a lower level. Besides collecting the Miles, they can be used as payment at the Flying Blue store for products or services.



Figure 8. Flying Blue status levels

### Booking.com

Every passenger that goes abroad needs a place to stay. With the partner Booking.com, the passengers of KL can arrange their stay in hotels or B&B's around the world. The benefits of using Booking are no booking fees and the best price guaranteed. Additionally for Flying Blue members, they get 1 Mile for every euro spent (KL, Booking hotels, cars and tours, 2022).

### CarTrawler

The partnership with CarTrawler is for enabling the total mobility for the passenger abroad. CarTrawler connects with over 30.000 car rental locations worldwide. This makes it possible to find the best type of car for each passenger. The benefits of using their service are the 24/7 customer service, no hidden charges and free cancellations (KL, Booking hotels, cars and tours, 2022). CarTrawler has also the possibility to arrange transfers to and from the airport.

### GetYourGuide

With GetYourGuide the passengers can enrich the experience abroad by booking a tour or attraction. By booking in advance you can skip the line and be guaranteed of the best price. They have over 30.000 tours and attractions available all over the world to choose from and there are no booking fees. The last benefit is that all tickets are digital so you cannot lose them (KL, Booking hotels, cars and tours, 2022).

Want to enrich your trip?



Arrange your transport  
to and from the airport



Book your accommodation  
with Booking.com and earn  
miles



Rent a car at a favourable  
price  
and earn Miles



Park at Schiphol  
Reserve your spot

Discover more

Figure 9. KL links to enrich the trip of passengers



### 2.1.5 Fly Responsibly

Sustainability is more and more important, especially in an environment where products are used that are slowly getting depleted. The definition of sustainability is meeting the needs of the present without compromising the ability of future generations to meet their own needs (Our Common Future, 1987). In other words, avoiding depletion of natural resources. The entire airline industry uses fossil kerosene to fly around the world making it in essence not very sustainable. However, KL does work on several efforts to make their product more sustainable. All efforts are communicated on the website of KL Fly Responsibly (KL Fly Responsibly, 2022).

#### CO<sub>2</sub>ZERO

Any improvement in the operation with CO<sub>2</sub> emission reduction on all levels of the operation is needed (KL Fly Responsibly, 2022). To make it more specific, the CO<sub>2</sub> is measured per passenger-km. So the total CO<sub>2</sub> produced is divided by the passengers flow per kilometer they were in the plane. In 2019, KL set a goal of reducing CO<sub>2</sub> by 50% in 2030 compared to the 2005 baseline (AFKL Group, 2020). Achieving these needs can be done in many ways; one of them is changing to Sustainable Aviation Fuel (SAF). This is a product of biological waste oils combined with fossil kerosene to be used as substitute for only kerosene fuel. This leads to at least 75% decrease of CO<sub>2</sub>-emissions compared

to only fossil kerosene (KL Fly Responsibly, 2022). KL already mixed a part of SAF into the fuel if flight departs Schiphol. However, the production is not yet on a large scale, resulting in two to three times higher cost compared to the regular kerosene. Currently the customer can compensate their CO<sub>2</sub> emission per trip by adding it to their ticket during the booking process, see figure 11 and 12. It is up to the customer if they want to pay for the SAF or contribute to the reforestation project and in which combination of both (KL Duurzame vliegtuigbrandstof, 2022). KL mentions to the customer that by joining the reforestation project, flying does not become more sustainable but does help with minimizing the CO<sub>2</sub> footprint. The reforestation program is about creating more opportunities for trees to grow and absorb the CO<sub>2</sub>. This solution is really an end of the cycle solution and the CO<sub>2</sub> emission should be minimized a lot earlier.



Figure 10. KL Fly Responsibly poster

## Communication to the customer

On the same website of Fly Responsibly, KL does mention some actions that passengers can do themselves. Firstly, short travel is better to do with other travel methods than airplanes, for example trains. Bring only the necessities for your trip to reduce weight and thus fuel. Try traveling less and if you go, travel for a longer period. When staying abroad, pick environmentally friendly hotels or other places to stay. (KL, Wat u kunt doen, 2022).

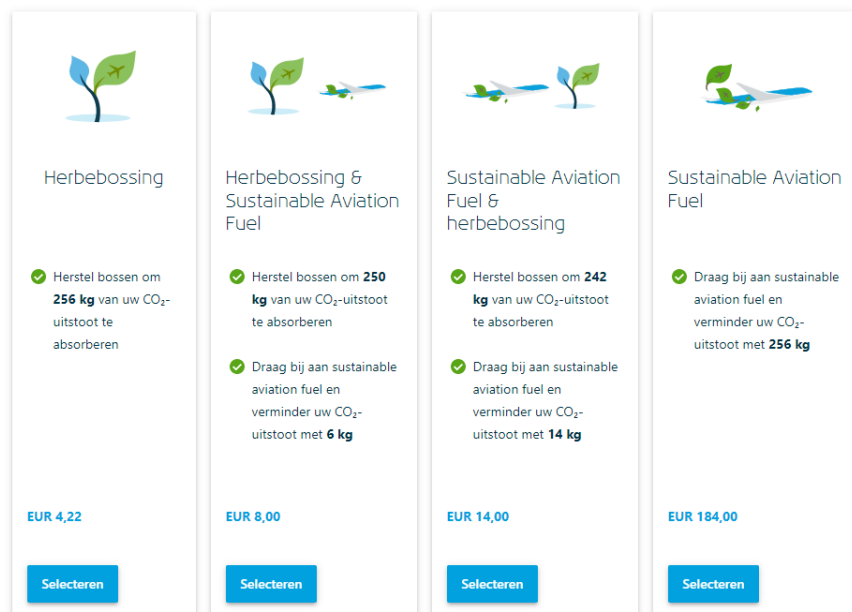


Figure 11. CO<sub>2</sub>ZERO communication during online booking

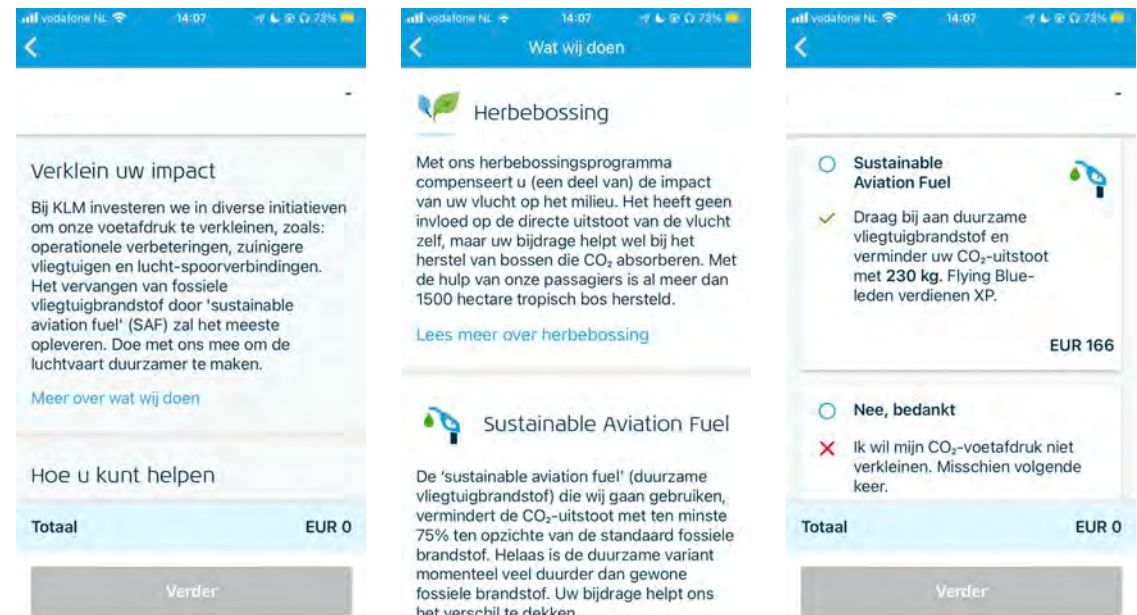


Figure 12. CO<sub>2</sub>ZERO communication during KL app booking

## Sustainable catering

At KL Inflight, they are working on more sustainable catering. They have identified five pillars on which to improve the current product on the long term, see figure 13. To be able to realize the ambition in the short term, the first focus is on reducing the amount of beef and experimenting with meals with reduced or no animal protein in order to measure customer acceptance. Next is focussing on buying and using products with sustainability certificates and that are locally produced. The certificates include Aquaculture Stewardship Council (ASC) and Marine Stewardship Council (MSC) about seafood production and fishing. The Round Table on Responsible Soy Association (RTRS) about certified soy in any form in the supply chain. The Roundtable on Sustainable Palm Oil (RSPO) about

palm oil being produced sustainable and retracable (Big Room, 2022). Animal welfare with Beterleven certificates and Fairtrade products with labels of UTZ and Rainforest Alliance Certified. While finding new products, there should be no compromise on the quality and taste experience of the product. KL Inflight is aware that if they offer a more sustainable F&B, there must also be a logical story behind it. This includes an attractive product that meets the set ambition on customer appreciation. The substantiation of the sustainability claims are factual and easy to explain based on choices made. Finally, know what the customer perceives as (not) sustainable. The rationale of these points come from KL Inflight team who has embraced several Sustainable Development Goals that fit the catering

product and a consumer survey regarding what does the customer find/perceives as sustainable with the catering product on board.

From a qualitative research ISM Wageningen Research came the following opportunities. Starting with the fact that the sustainability of airlines does not yet play a role in the choice of the airline. The expectation of sustainability at airlines is low, this gives opportunities to exceed expectations. Mainly because the industry is not sustainable, thus any correct and credible initiative quickly creates understanding and sympathy.



Figure 13. The 5 pilars for sustainable catering

## 2.1.6 Customer satisfaction

KL wants to know how their overall service is perceived by the customer to make sure everything is working correctly and to know where to improve. This is done by sending a short survey to a roughly 10% of the passengers that will result in a Net Promotor Score (NPS). This selection is big enough to represent the complete flight of that day and still be sure that everybody will respond. The NPS questions include the quality of the service, such as the baggage check-in and inflight service, and their loyalty towards the brand. The passenger is asked how likely they are to recommend the product to others, on a scale of 0-10 (Bain & Company, 2022). From these numbers the score can be calculated. Everybody that gives a 9 or 10 is a promotor and is extremely likely to recommend the service. The respondents are passives if they give a 7 or 8 and a detractor if a 0-6 is given. The detractors are not likely to recommend it to others. The final number is the percentage of promoters minus the percentage of detractors. These numbers are a good indicator how a service is generally doing but the real insights are the follow up questions after the giving number. In figure 14 the NPS is shown for the satisfaction across the complete journey for KL and KLC; at the levels or international (ICA) & European (EURO) and business (C), World Business Class (WBC) & economy (M) passengers. It becomes clear that the F&B is the least performing service & thus the smallest contributor to the NPS.

Weekly NPS per product - fixed segments ⓘ

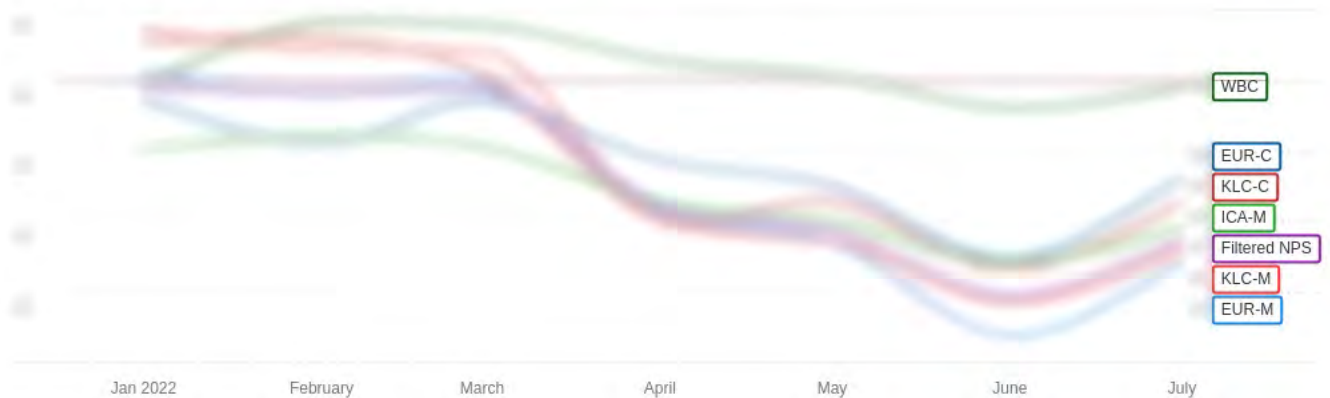


Figure 14. Weekly NPS of KL, data from Jan 2022-July 2022

Satisfaction across the journey - Including Health & Hygiene ⓘ

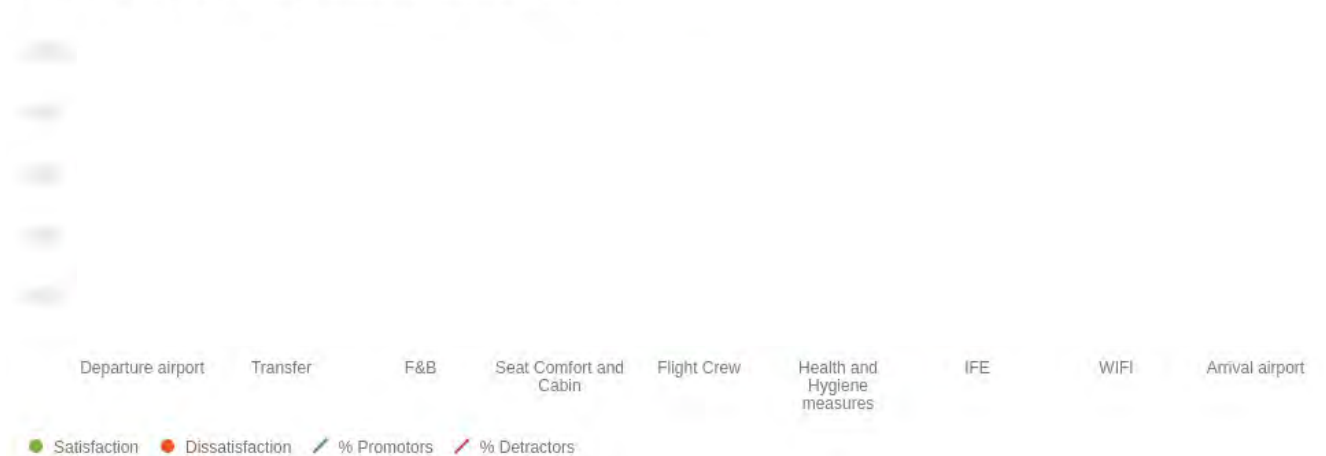


Figure 15. Satisfaction and dissatisfaction points to the NPS, data from past half year



## 2.1.7 Conclusions of the company analysis

### General insights

- The difference between KL and KLC services is not noticeable for the passenger. They can only know by looking at the name on the plane when boarding who is operating the flight. It is important to have a same look and feel over the entire fleet, this will make it easier to understand.

### Opportunities

- The focus of KL on the Flying Blue program is mostly to gain miles and it is less on how the miles can be spend. More opportunities to show ways of spending miles could be interesting to explore.
- KL has different alliances to make the journey of passengers more comfortable, not all brands are as known around the world. There is not yet an alliance that is visible during the stay at the airport.
- The results of the customer satisfaction questionnaire show that the satisfaction score of F&B is the lowest of all service contributors to the NPS at KL and KLC. The most improvements can be made in this area.

### Risks

- Actions to become more sustainable coming from an airline company might look like a green washing act and could spread a bad reputation. To prevent this, factual rationale is needed when mentioning sustainability efforts.
- KL is a legacy carrier that might want to change something in their service. Their customers have expectations about this service and could get disappointed when the services are changed without good reasoning and communications or are different than what they are used to.

## 2.2 The food and beverage service

KL exists for more than 100 years making them a legacy carrier. During all these times, their standard is to deliver the full service on board to the passenger but also in every other touchpoint with the airline. The focus of this research is a full service where each passenger receives some kind of food and beverage (F&B) when the take-off is finished. However, the flights departure and duration do influence how much food and drinks are offered. The SH flights consist of destinations in Europe within 3h flight time. These customers receive a snack besides their drinks. The longer flights in Europe are the MH and there the passengers receive a double serving of food. On the long haul (LH) flight, the customer can expect a full meal services depending on the time of day.

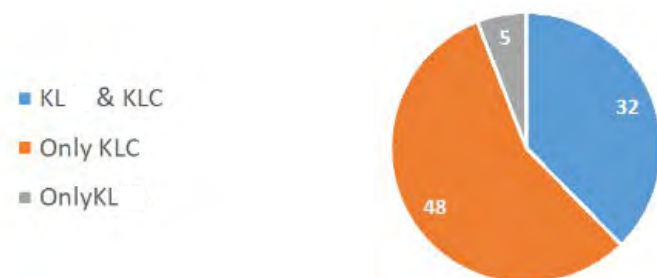


Figure 16. Number of destination in Europe for KL and KLC

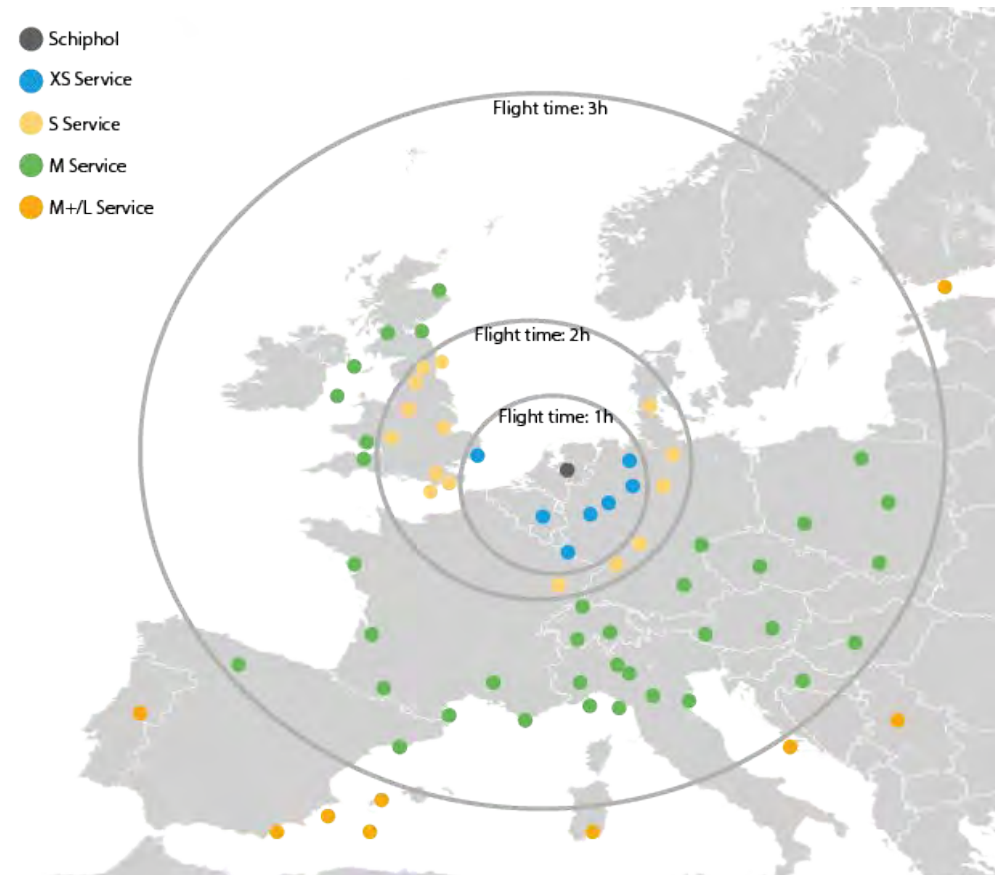


Figure 17. Map of Europe with destinations and service schedule

## 2.2.1 The short haul service

KL has 85 destinations in Europe that have flight time up to 3h00. Most of these destinations are operated by KLC, see figure 16. The shortest operated flight is to Brussels and has a flight time of 0h45. The longest flight by KLC is to Lisbon and has a flight time of 3h00. These flight times can differ a lot per destination, making it impossible to give the same service on XSH, SH and MH flights. KL made a service schedule with the distinction based on flight time because more time in the air means more time to provide the service. Figure 18 shows the service available on KL and KLC SH flights. The XS service is also called a one-shot because the drink and food can be pre-packed in a box that can be given to the passenger in one go. Sometimes on the shortest flights, the cabin crew does not have enough time to give the full service and need to rush to get everything done. The onboard F&B services are organized in the trolleys by the KL Catering Services (KCS). The plane is loaded once for a round trip due to the smaller volume of the F&B on SH flights. Figure 19 shows where in the roundtrip of the plane it is refilled with trolleys. Only at Schiphol Airport the trolleys are loaded on the plane.






	XS Service	S Service	M Service	M* Service	M*+ Service
Destinations	7	12	31	20	15
Flight time	Up to 1h	1h - 1h15	1h10 - 1h40	1h40 - 2h10	2h10 - 3h
Food options	1	1	1*	1*	2*
Drink options	1	10	12	12	12
Picture					

Figure 18. Service types per flight type and available food and beverages for the passenger

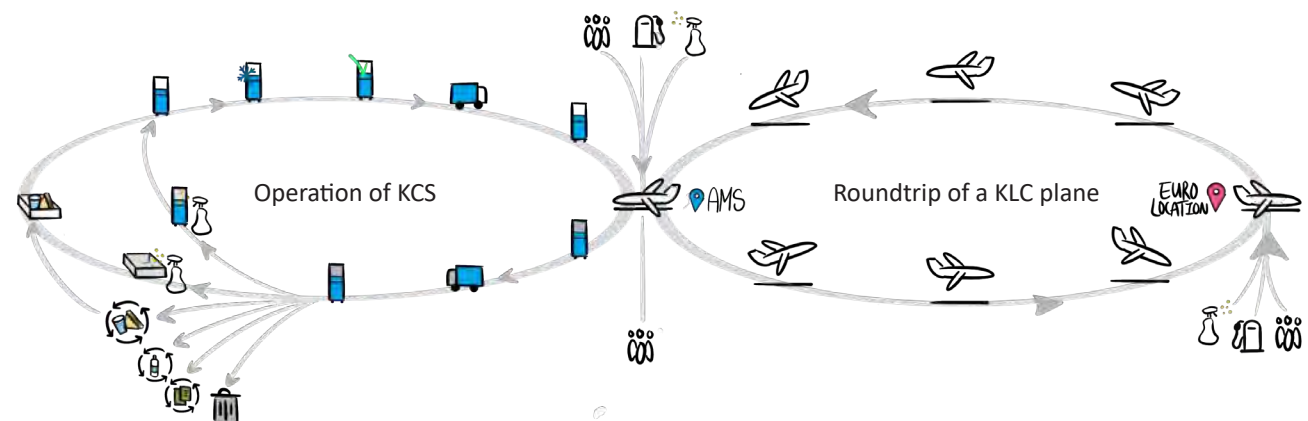


Figure 19. European trolley refillment on plane

## 2.2.2 The long haul service

KL has around 145 destinations in the medium and long haul (LH) network. These flight times range from 3h to 6h for MH and 6h or more for the LH. Like the SH, there is a meal service on these LH flights. However, the difference is the size of the meal and thus that a lot more food is brought on to the plane. Next to that, the passengers can choose during the booking process what they want to eat during their long flight. The standard meal and snack are included in the ticket price. Rules by the International Air Transport Association (IATA) state to have special dietary meals, for KL it includes 11 different options for allergies or religious reasons. These special meals are also included in the ticket price. If the passenger prefers to have a different meal they can also pick from the A La Carte (ALC) menu consisting of 5 paid meal options, Indonesian,

Ocean, Celebration, Italian and Veggie. The price ranges from €19,- for the Veggie menu to €30,- for the Celebration menu. During the booking process, the customer can click to see more information about these paid menus such as the ingredients included, see figure 21. This choice can be updated until 24h before the departure time of the flight. As mentioned before, the volume of food is a lot bigger and there are more food regulations on international flights. Resulting in trolley refilling at Schiphol Airport and at outstations, and the special meals being only possible when departing Schiphol Airport. Figure 20 shows the round trip to an international location of a plane and where in the trip it is refilled.

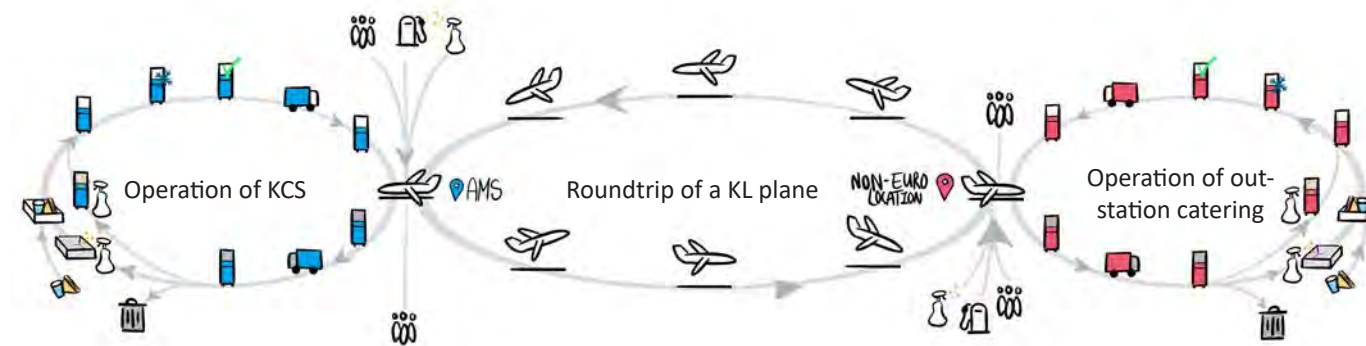


Figure 20. International trolley refilling on plane

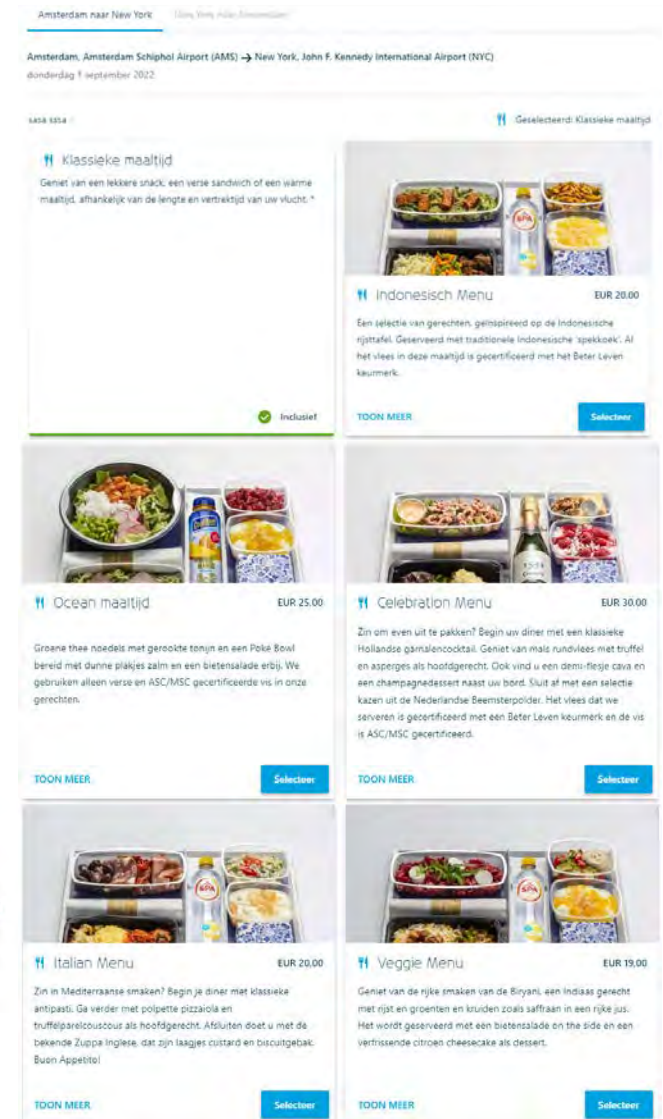


Figure 21. A La Carte paid meal options



2.2.3 The NPS per service schedule

Per flight people are asked by KL to fill out the questionnaire about the NPS. Looking at the different service schedules in figure 22, you can see that not all routes are perceived as the same. In general, the longer the flight the more time the cabin crew has to provide the service. The M+ and M is perceived better than the XS or S, this is clearly visible in the NPS per service schedule. You could also zoom in on flight level to see the different NPS scores. The 10 best NPS scores of KL are shown in figure 23 and the 10 least score in figure 24. The colors of the block with the name in it indicate what service schedule the destination has. Again, the longer flights are mostly represented in the list with best scoring and the shorter flights are represented in the least scoring list. However, the data received per flight is not on all flights consistent. Plus, the number of flights to a destination differ per season.

Average NPS	Service schedule
	XS
	S
	M
	M*
	M+

Figure 22. Average NPS per service schedule of Jan-Jul 2022

NPS	Highest scoring locations
	Wroclaw (PL)
	Linköping (SE)
	Belgrado (RS)
	Alesund (NO)
	Cork (IE)
	Alicante (ES)
	Belfast (UK)
	Bucharest (RO)
	Palma de Mallorca (ES)
	Napels (IT)

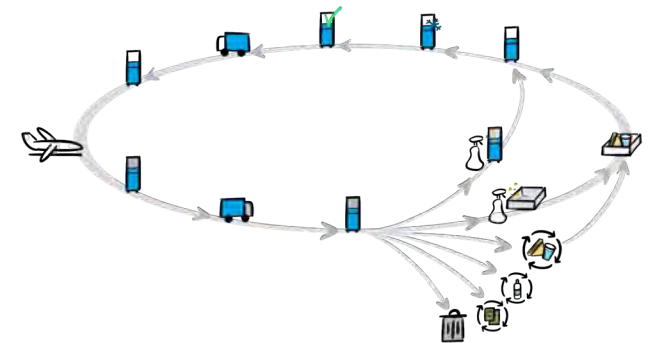
Figure 23 Top 10 locations with best NPS

NPS	Lowest scoring location
	Edinburgh (UK)
	Frankfurt (DE)
	Luxembourg (LU)
	Dublin (IE)
	Hannover (DE)
	London Heathrow (UK)
	Basel (DE)
	Glasgow (UK)
	Munchen (DE)
	Florence (IT)

Figure 24. Top 10 locations with worst NPS

## 2.3 The catering process behind the service

The catering of KL and KLC is mostly prepared by KL Catering Services (KCS). KCS is located next to Schiphol with the advantage of the short delivery time of the F&B trolleys to the airplanes. As explained in the previous chapter 2.2.1 The short haul service and 2.2.2 The long haul service, there is a difference of service type on the SH and the LH. The effect of this difference is also the amount of F&B in the trolleys. For the SH KCS can prepare the trolleys for both the outbound and the inbound flight to Schiphol, see figure 18. Thus, for one round trip to and back to a destination abroad, the plane gets a trolley delivery with F&B only once. In contrary to the LH flight where the F&B is refilled before the outbound and before the inbound flight to Schiphol Airport, see figure 19. Here you can see that KCS prepares all trolleys when the airplane is at Schiphol Airport. Then at the outstations, there is another supplier for the inbound flight to Schiphol. This chapter explains what KCS does after getting the trolleys of the airplanes up until they are put back on the airplane for a new round.



### 2.3.1 Used, dirty and waste trolleys

Onboard, the cabin crew will collect all the waste from the passengers and sorts it in the correct trolley. The divisions in waste are general waste, plastic cups, and drink containers/cans. The general waste is a mix of plastics with leftover snacks, napkins, stirring sticks etc. This mix is stored in the waste trolley, see figure 25. The plastic cups are stacked neatly together and put into an empty drawer of the regular trolley. In addition, the empty drink containers are put together in a drawer of a regular trolley. However, there is not always enough space, and sometimes the empty and dirty drink cans are stored with the untouched cans. KCS has no time to clean the untouched and full cans when they were put together with waste cans. These full cans get disposed of, creating even more general waste. Catering products are recycled when they are untouched, clean, with an acceptable shelf life and if they can be stored without cooling. In short, all drinks (cans and cartons) and snacks, such as cookies and chips, are acceptable to reuse after a round trip to a European destination. However, all sandwiches must be cooled below 7 degrees Celsius resulting in direct disposal as soon as they leave the plane.



Figure 25. Waste trolley



Figure 26. Trolley waste trays



### 2.3.2 Waste

Figure 27 shows the total numbers of waste of the past years. The year 2019 is the most representative and KCS is expecting to see these numbers again this year. Corona has influenced the years 2020 and 2021 making them not fully presentative for full use of the service. The total is the sum of waste produced on all European flights of KL and KLC and in-house at KCS. The categories measured are bread, drink, glass, headsets, cardboard/paper, ceramics, plastics, metals, tetra packaging, textiles, unknown and others. The bread waste is created onboard after KCS put it in the trolleys. KCS needs to put a little extra sandwiches on each flight. They call this supplying with a sliding scale. This makes sure that every passenger can receive a sandwich. However, the downside of this method is there will always be waste because there is more bread than passengers available. Next to that are the passengers that do not want to have any bread, creating even more waste sandwiches.

The focus of KCS is providing the right catering products for during the flight. They would like to optimize their process and minimize waste. But the waste production is not within their reach what makes it more difficult to reduce this waste. Additionally, they will always oversee this process of filling the trolleys since they are the subsidiary of KL. This creates less incentive to be on top of their game because there is almost no competition. KCS or the cabin crew can start with keeping track of the catering use only when KL sees an advantage that possible saves a lot of money or is easier in the operation. Until then, there will be no exact numbers or precise percentages of the amount of bread waste created during the process.







	2019	2020
 <b>Paper/cardboard</b>	000	000
 <b>Bread</b>	000	000
 <b>Glass</b>	000	000
 <b>Plastics</b>	000	000
 <b>Metals</b>	000	000
 <b>Non-recyclable</b>	000	000

Figure 27. Waste in kg per category



### 2.3.3 New and full trolleys

As mentioned earlier, each service type contains a different amount of F&B options. In addition, KLC flies with two types of airplanes thus with different amounts of economy passengers on board. However, the amount of passengers and type of aircraft have no influence on the contents per trolley because every trolley is always completely filled. The weights per service type is shown in figure 28. The only exception is the amount of the sandwiches on a M service flight because they are added to the trolley with a sliding scale. Resulting in always having too many of them on board, even if every passengers want to have a sandwich.

Service schedule	E175	E190/195
XS	203,45	203,45
S	378,15	472,95
M	378,15	472,95

Figure 28. Trolley weight per service and plane type in KG



### 2.3.4 Check-moment

Four hours before departure is the 'plus-min moment' or check-and-adjust moment. At this point, the trolleys are checked on their content compared to the passenger list with numbers of passengers onboard. Possibly adding or removing certain bread items to make sure there is just enough food for everybody on the plane. This is mostly necessary for the business passenger because they have different F&B options than the economy passenger.



Figure 29. Trolleys ready for the plane



### 2.3.5 Changing services

Lastly, changing the services on the plane whilst parked at the gate. During this period with a minimum of 40 minutes, the crew needs to get all the arriving passengers and used dirty trolleys with waste out of the plane and put the departing passengers and new trolleys back. From here, the cycle starts again.

## 2.3.6 Conclusions of the service and process

### General insights

- LH meals have a long list with allergies and religious meal options due to IATA rules.
- The sorting of waste on board is not always efficient causing KCS more work when emptying the trolleys.
- The contents of economy trolleys are not optimized for the complete in and outbound flights and amount of passenger travelling on these trips. They are optimized to work efficient for KCS and to have plenty onboard for the cabin crew.
- Only the cooled products are added or removed during the check-moment.

### Opportunities

- Business class meals are not in the same trolley as economy causing empty space what is not used. This space could be filled with other items.
- LH has a paid meal service on top of the basic product. Similar product could be added to the SH/MH.

### Risks

- SH/MH meal products do not have information about allergies on the packaging. The passengers are need to ask the cabin crew for this information and hope to receive the answers. Creating possible risks for the people with allergies that are not informed enough but still want to enjoy the onboard service.



## 2.4 The passengers of KL

In 2019, a total of 23 million passengers travelled with KL within Europe. Currently in 2022, around 17 thousand people travel with KL each day to an European destination. This chapter will explain what these passengers really look like in terms of what types of economy tickets are available to buy, the background of the passengers and the reason of travelling. All within the scope of the economy traveler in Europe with KLC.

### 2.4.1 The economy ticket

When buying a ticket for a KL flight, the customer can choose to be a business or an economy passenger for a specific flight at the start of the booking process. However, later it becomes clear that there are four different versions of the economy ticket. Each version has a different set

of benefits. These bundles are created to increase the revenue of KL. Figure 30 shows the benefits of each version. As seen in the overview, all economy ticket types will have a F&B service and there is no difference between these.

	Light	Standard	Standard plus	Flex
1 hand luggage and 1 personal item	✓	✓	✓	✓
Check-in luggage	✗	✓	✓	✓
Free seat selection	✗	✗	✓	✓
SkyPriority advantages	✗	✗	✗	✓
Ticket changes with charge for prices differences	✓	✓	✓	✓
Refund of costs	✗	✗	✗	✓
Onboard food & beverage service	✓	✓	✓	✓

Figure 30. Ticket types with benefits per type

### 2.4.2 Demographics

Looking at the past flight data it becomes clear that these passengers of KL and KLC are a very diverse group if only looking at the demographics. The nationalities change a lot per location, but most passengers are of Dutch nationality and the second biggest group are of the destination country. The passengers are in general evenly divided in all the age groups, but with a slightly bigger group in the category of 50-60 years old. The reasons of why passengers travel are either for leisure, visiting friends and family or work. The data shows that passengers are evenly spread over these reasons. Only 30% percent of the passengers on SH flight have no transfer to an other flight. The other 60% have a transfer to another SH, MH or LH flight. From this data it can be concluded that there is not really one typical KL passenger.

### 2.4.3 Characteristics

As seen in previous chapter, the passenger demographics are very diverse and impossible to combine into one persona. Similarly with how they behave because each person's behavior changes when faced with a new and different situation. However, there are six typologies where most people fit into, see figure 31 (AFKL Demand spaces, 2017). These typologies are focused if they have a membership program or if they are easygoing versus demanding during travel.

These typologies are mixed with possible occasions that can occur during travel, such as traveling within Europe for leisure or international for work etc. Resulting in 13 possible demand spaces of a SH to LH network (AFKL Demand spaces, 2017). When only looked at the short and medium haul network for economy and business travelers, you will end up with 7 interesting demand spaces, see figure 32. These give a better understanding of the behaviour of the passengers.

Demand space	Reason of traveling	Quote
A good start	Personal & Business	'I want to have an efficient trip with some extra's and I am willing to pay for it.'
Calm & reliance on staff	Personal	'I do not travel very often but whenever I go, I always rely on the guidance of the airline staff of my favorite airline.'
Reassure me	Personal	'I like to double-check everything and receive some reassurance by the airline staff because traveling by plane is overwhelming.'
Best deal for the basics	Personal	'I'm always searching for the basics for the best deal possible.'
Let me work	Business	'I'm travelling for work but I enjoy all possible benefits.'
Make sure it works	Business	'I'm traveling by plane if it is the only possible option, so my travel must be quick and smooth.'
Efficiency for a good price	Business	'I like my booking and traveling to be as efficient as possible with a good price.'

Figure 31. Description of demand spaces for short and medium-haul

Typology	Description
Busy and ambitious	Flying is just the next task in their busy schedule
Functional minded	Air-travel is not at all exciting, adventurous or fun
Travel lovers	The journey is part of the destination
Premium brand or service seekers	Flying is a routine
Cautious and insecure	Air-travel is exceptional
Online price hunters	Flying is just the transport

Figure 32. Typologies of airtravelers

#### 2.4.4 Communication channels

The communication of KL to their customers goes through different channels. The most important is their website, because they sell most of their tickets via this platform. The customer can take its time to roam around to find and purchase tickets but also find extra information about their service.

After booking a flight the customer will receive several e-mails. Some of these are mandatory because they include the flight information and boarding pass. But some are only sent if the customer has opted in to receive e-mails with deals or a newsletter. There is also a KL app where the customer can book a ticket or view their boarding pass. The customer can turn their notifications on for the app to receive information during the trip, for example if there are gate changes or delays. If a flight is delayed or cancelled the customer will receive an e-mail, KL app notification but also an SMS.

KL has several social media accounts like Twitter, Facebook, Instagram, WhatsApp and many others. These are mostly used to inform or seduce customers to purchase another ticket to travel. During travel, WhatsApp and Facebook Messenger are used as push notifications for gate changes or to sell last-minute paid upgrades. However, it is also a way for the customer to get help if something goes wrong.

The Holland Herald is the inflight magazine of

KL. It is put on the seats so passengers all over the world can be informed of the latest KL news, Dutch culture, interviews and commerce. The first edition was published in 1966 and is still in black and white. Currently, the magazine is published monthly online and printed to enjoy during the flight, of course in colors. In April 2022 the magazine got an update on content and style, see figure 34 for examples of the magazine.

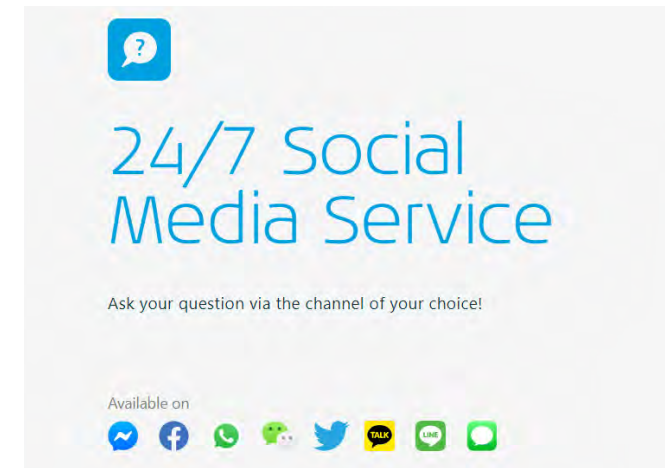


Figure 33. KL on social media

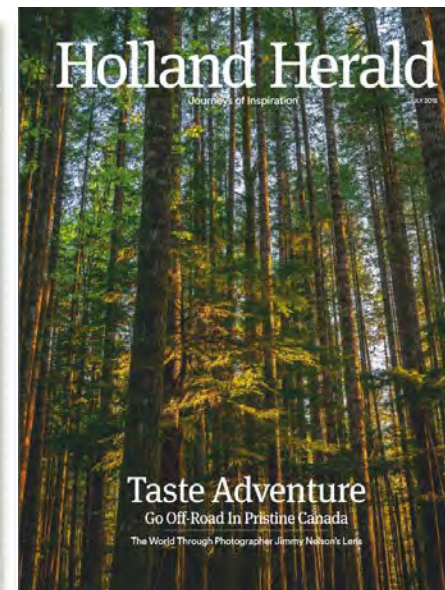


Figure 34. Holland Herald from 1966, 2015 and 2022



## 2.5 The passengers flight journey

Every person who is using air travel as transport will go through the same phases of *Searching*, *Booking*, *Pre-flight*, *Flight* and *Final travel*. This chapter will go deeper into what happens during each of these phases in terms of actions by the customer but also what KL communicates online and via e-mail. Ending with interview results to get insight how the different passengers prepare and respond to the same situation.



Figure 35. Passenger flight journey

### 2.5.1 The journey step by step

#### Searching & booking

During the searching phase, the customer will try to find the best travel option for them. They will compare different airlines to find the right option. 62% of KL customers buy their tickets online via the KL website (AFKL Who are our customers, 2021). When necessary the customer will search for extra information about inflight services during this phase and compare them with competitors. After selecting the right flight with KL, the booking process started. At this point, they can select what type of seat (economy or business class) is preferred. Then it is possible to pick a seat location, add extra baggage, lounge access or contribute to the CO<sub>2</sub>ZERO program. The first communication by KL to the customer will be a Booking Confirmation e-mail that the booking was successful (AFKL Push communication, 2022). If payment is completed, they will receive the E-Ticket e-mail and all necessary information about traveling.





## Pre-Flight

The pre-flight phase is not a set time, because customers buy their tickets sometimes months or sometimes days before departure. During this phase, the customer prepares for the upcoming trip. They can check again what they can bring during the flight and when they need to be at the airport. KL will send a *Post-booking* e-mail trying to convince the customer to buy more ancillaries, like buy more luggage space for your trip or pay for extra legroom. If the customer buys something, they will get a confirmation about that purchase. Otherwise, the next e-mail is the *Pre-Travel* mail, send with a checklist for travel and extra opportunities to buy ancillaries. The last e-mail is the *Internet Check-In*, this is the trigger when the online check-in is available. The customer can arrange their online check-in 30 hours before departure. 51% of the customers will check-in with the KL website and 23% will use the KL app (AFKL Who are our customers, 2021). Then the only thing that the customer needs to do is to arrive at the airport on time.



## Flight: at the departing airport

On European flights, the customer is expected to arrive at least 2 hours before the departure of the flight at the airport. Once arrived, they have the option to drop off their baggage first. Thereafter, they are mandatory to go through security. One of the main rules with flying is that the customer cannot bring more than 1 liter of liquid (divided over 100ml bottles) in their baggage. It is allowed to bring your own food when going through security but all drink containers need to be empty. After all the checks, the passenger can roam around the lounge areas of the airport to do some shopping or relax with a fresh beverage. Some go straight to their gate of departure. In this case, Schiphol has dedicated Piers C and D where most KL and KLC flights depart and arrive. KL business class passengers can access the KL lounge is close to this area if they do not want to stay in the general lounges.

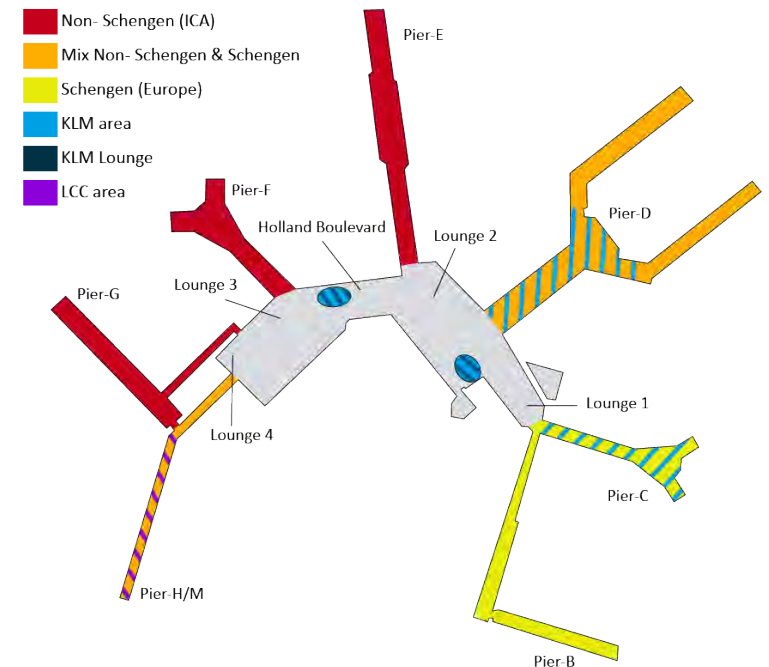


Figure 36. Map of Schiphol Airport



### Flight: on the plane

Boarding the aircraft starts 60 to 25 minutes before departure. The zone boarding starts with Business and Sky Priority first, followed by the other passengers depending on the travel class and frequent flyer status. When all passengers are seated and have put their hand-baggage away, the crew initiates the take-off. The passengers can relax by enjoying their readings or other entertainment. As soon as the take-off is complete, the cabin crew starts with the F&B service in the Business class. The economy class follows thereafter. On a XS flight, the cabin crew needs to split up halfway during the economy F&B service to start with the waste collection at the Business class area. On a longer flight (MH), they can finish the economy F&B service before they start with the waste collection. Just before arriving at the destination, the cabin crew will check if everybody is seated upright. Then the touchdown is initiated.



### After the Flight

After touchdown and connecting to the gate of the destination airport, everybody will gather their belongings and leave the airplane. Some passengers need to retrieve their checked baggage before they leave the airport. In all cases, everybody is happy that they arrived safely at the destination and want to go their next location as quick as possible.

## 2.5.2 Results of interviews

In the research phase, it is important to understand the user of the service. An interview with six people about their general flight journey was executed. Besides that, a short questionnaire was used to understand how much preparation people would do before going on a SH flight. The results of both interview and questionnaire will follow below.

### Survey about preparations

The survey was sent to 31 people and gave an insight into how much they prepare before going on a 1h30 hour flight. For all results, see the appendix 6. The most important insights are; The results for reason of flying is different in this survey than KL's result, same as the age distribution. Due to the younger respondents. These people do not travel yet for work with planes. Roughly a quarter of the survey takers has a membership at an airline, of which 84% has the airline app installed on the phone. This makes the airline app important to include because it can give last minute updates about the service. Half of the respondents answered that they bring their own food for the journey to the airport and for waiting at the airport. However, the second largest part of the survey takers response is that they buy something when they need it. Three-quarter of the survey takers brings their own bottle to fill with water during their travel journey. Five out of the 31 expect the airline to provide them with some type of food during the flight. Seven out of 31, expect the airline to provide some kind of drink during the flight. However, the biggest part

(17 of 31) brings their own food for the time on the flight. A little less than three-quarters of the survey takers do not care what is available on the flight in terms of food and beverages and are also not looking for that information online. However, a quarter will look in the future what is available on their flights. More than half of the people (18/31) is interested in changing or opting out of their F&B option. Their reasons are linked to their typology. Some quotes are shown in figure 37.

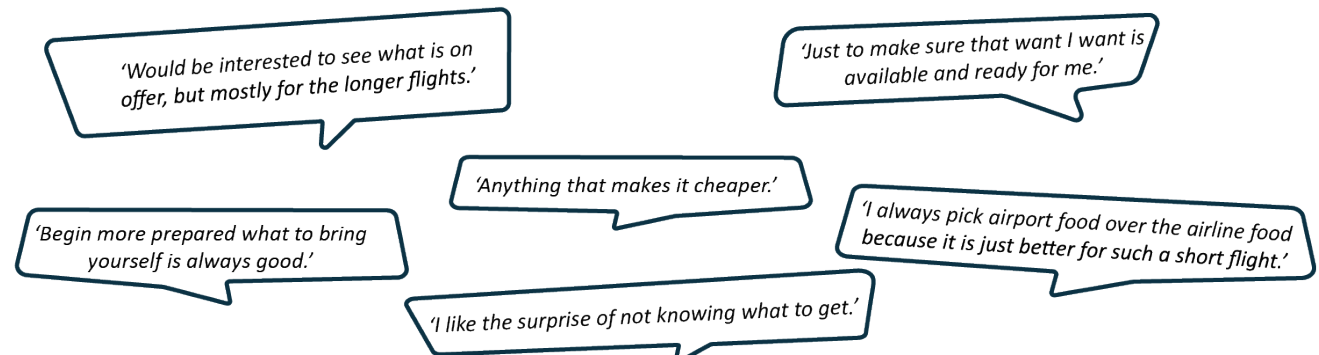


Figure 37. Insights survey preparation for flying

### Results interview

During the same flight journey, each passenger goes through different emotions. In figure 38, the complete journey is visualized with each phase. Below the phases, the emotions, thoughts and experiences of the interviewees are displayed. They all explained what they do and expect when going on 1h30 flight. The red squares are quotes about the preparation before flying that include food. The yellow squares are all F&B related comments when at the airport and the blue squares are the expectations of food during the flight. It becomes clear that most men interviewed are the functional minded travelers who just need to travel with some comfort. Further, the younger interviewees are clearly price hunters and they would like to do anything as cheap as possible. Lastly, the mother can be categorized as the cautious and insecure traveler but with some bits of the travel lover.



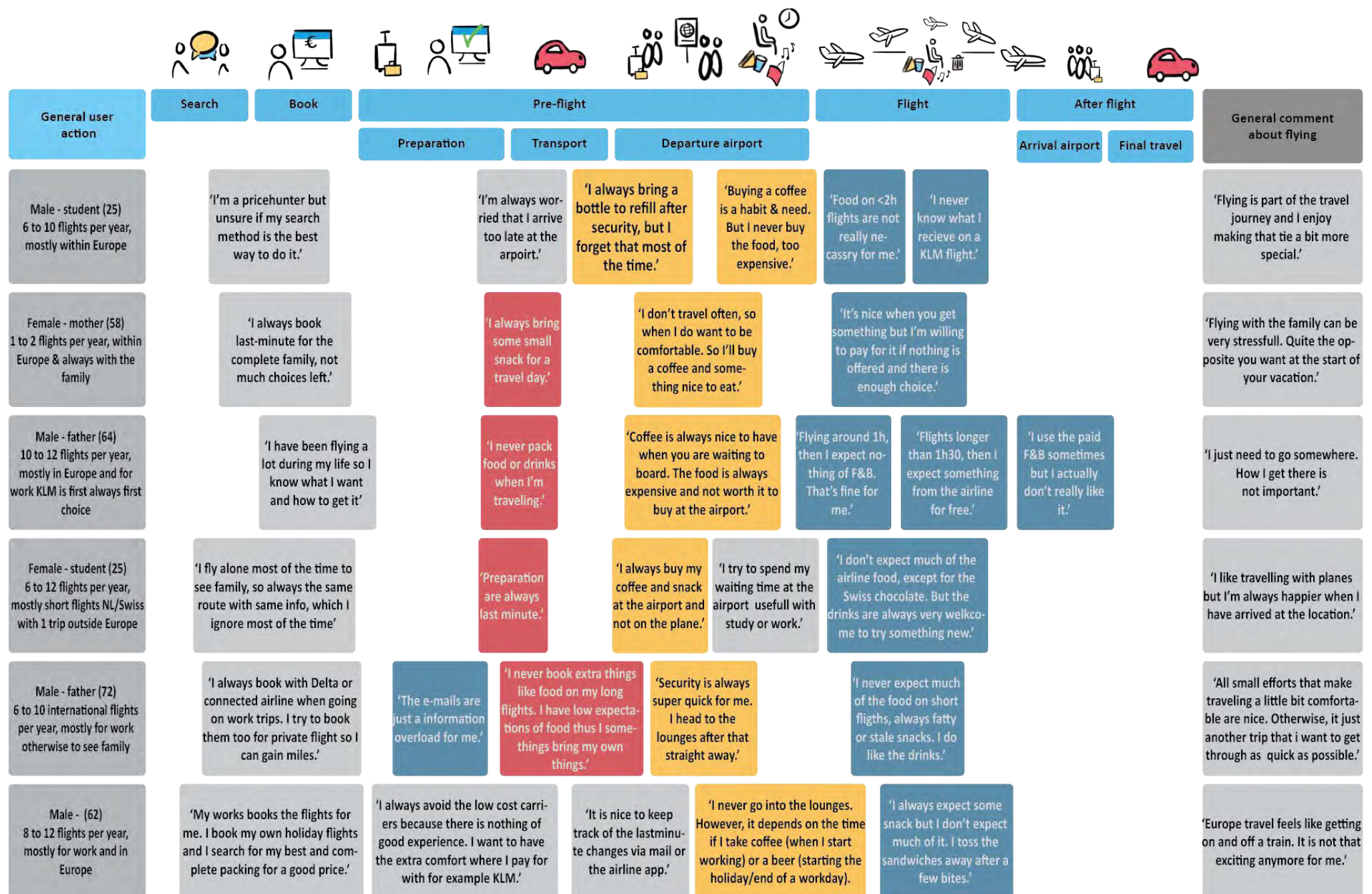


Figure 38. Interview results about the flight journey and eating habits

## 2.6 Conclusions of the combined journey

### 2.6.1 The shared food journey

Figure 39 and 40 are made to conclude previous chapters, it is a combination of the passenger journey and the F&B journey for the outbound and inbound flights at Schiphol Airport. The passenger actions are in yellow, and the current KCS actions are in blue. If this scenario is used as base for a new service it would have phases that are not ideal to continue with. These 3 phases on the outbound and 2 on the inbound are marked with squares around them.

#### The red square

Starting the departing flight from Schiphol with the red square. This indicates the phase where the trolleys are assembled for 2 flights (one departing SPL and one arriving at SPL). The trolleys are all filled with all necessary products. Even if there are less people on the flight, the trolleys are filled with the same amount of products per service schedule. Approximately 8 to 4h before departure, the passengers will be busy with packing their last-minute items and are going to the airport. Therefore, it is not the right time to ask about what they want to eat or drink during the flight.

#### The purple square

Next is the purple area, the passengers are busy checking in at the airport, going through security and later finding the gate. Many take a drink or a snack with them or buy something to eat and drink at the airport. They choose to consume something because they are hungry and/or need to pass some time. This is the same on the way to and on the way back of trip.

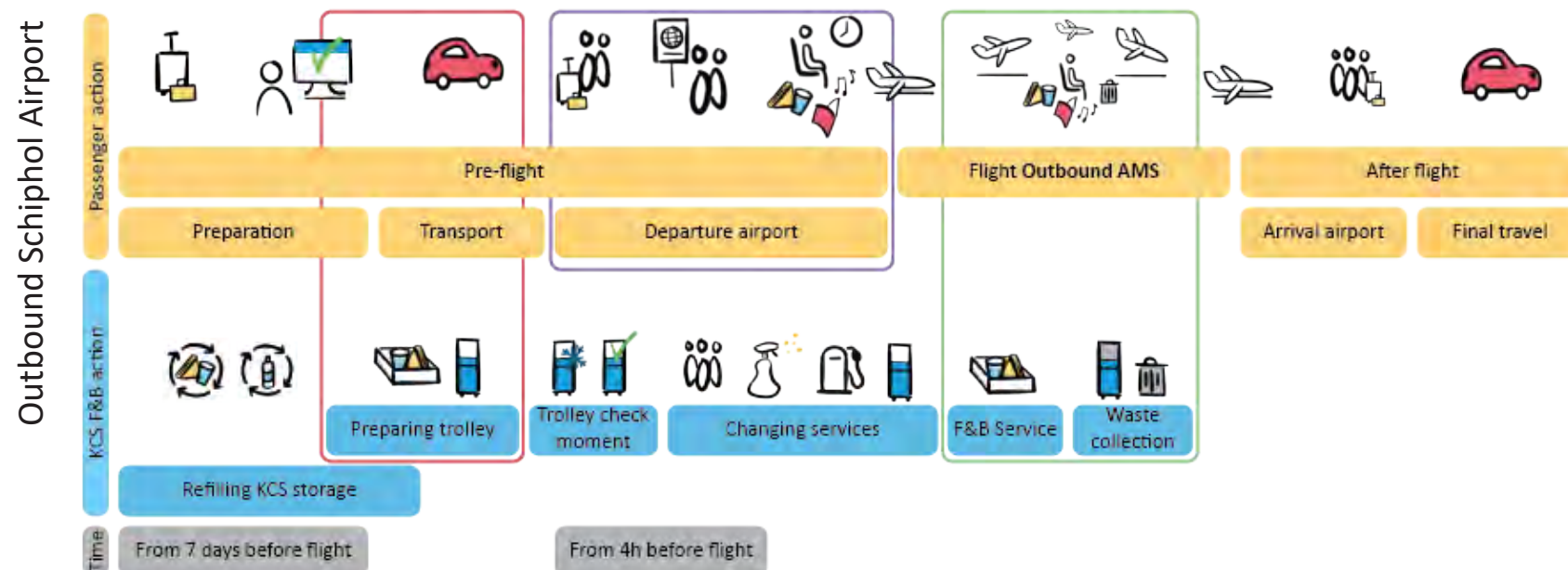


Figure 39. The passenger and F&B journey side-by-side, outbound Schiphol Airport

## The green square

The next square happens on the plane, which is the location where the current F&B is handed out. The cabin crew has no way of keeping track or make a record of how many passengers actually take the sandwich or drink. The sandwiches are not counted afterwards because all leftovers end up directly in the waste bin. Furthermore, some of the passengers are very hungry and eat the whole sandwich but some accept the service while they are not hungry. This second group of passengers are consuming out of boredom and participate in possible double consumption (at the airport and in the plane) what might not even be necessary.

## The red square

Lastly, focusing on the flight that is arriving at Schiphol. The red square where the trolleys are filled has already happened before the previous flight, because each plane is stocked with trolleys that last 2 flights. If the inbound Schiphol passengers need to indicate what they want to eat during the flight with the assortment of KCS, it would result in an even earlier deadline for them passengers, compared to the outbound Schiphol passengers. The deadline would be at least 8h before their departure time, maybe even more depending on the flight duration.

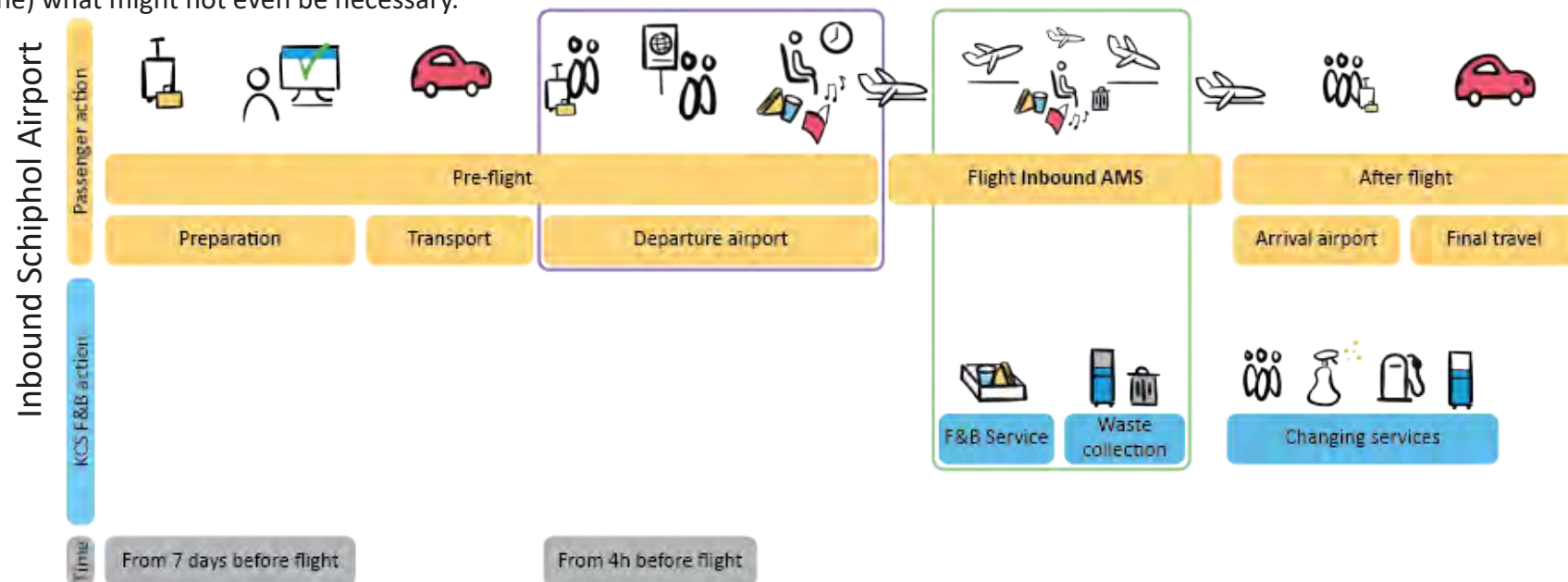


Figure 40. The passenger and F&B journey side-by-side, inbound Schiphol Airport



## 2.6.2 Insights

### General insights

- The customers flying with KL receive a minimum of five e-mails between booking and going on a flight (Booking confirmation, E-ticket, Post-booking, Pre-travel and Internet Check-in). They will receive more e-mails if purchased any extra ancillary.
- The cabin crew needs to adjust the service on every flight based on the flight time, sometimes the flights are shorter or longer resulting in less or more service time. The XS flight is mostly too short to really give every customer the attention they deserve.
- Passenger needs differ dependent on the typologies and there is not just one thing that everybody wants to have. Some come fully prepared to the airport and others pay for extra's when they need it.

### Opportunities

- Passengers make last-minute decisions about F&B when going on SH flights.
- Interviewees indicate only to be interested in pre-order F&B on the MH or LH flights and they indicate that they do not need much onboard of a SH flight.
- Receiving a free product onboard is a nice surprise for every passenger.
- Any method for keeping track of the use of service is needed, since this is non-existing at the moment. This would enable the company to discover areas where to improve the service. If they are already capable of doing this with the ALC meals on LH.

### Risks

- A new F&B service developed with more flexibility for the passenger than the current situation, can only be implemented with flexible systems surrounding the F&B service.



### 3. External analysis

The previous chapter explained everything that is directly connected to KL and KLC. This chapter will elaborate on the macro influences of the world play a role in how KL develops over time. These outside forces that cannot be controlled by the company or any individuals. Using the DESTEP method these positive and negative influences can be analysed. It consists of the following topics: Demographic, Economic, Social, Technological, Ecological and Political origin (DESTEP analysis,2017). Lastly, the competitors of KLC will be discussed.

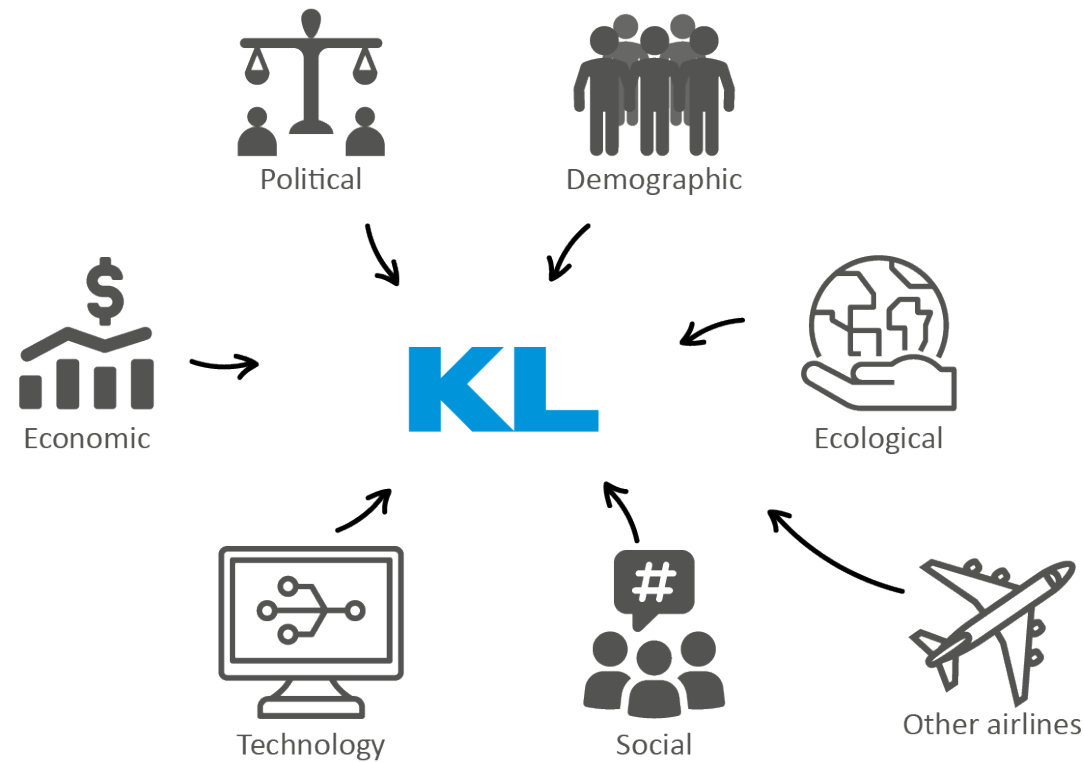


Figure 41. External influences of KL

### 3.1 DESTEP analysis

All relevant trends and influences on the operation of KL and KLC are mentioned per topic. Some of these are negative and some are positive.

#### Demographic

- KL sells the air transport from A to B, to whoever wants it. Within Europe with KL and KLC and intercontinental with KL. While doing so, they need to follow each country's rules.
- **KL is located in the Netherlands and is the biggest airline of the country. Schiphol is the home base for flying and the offices.**
- KL merged with Air France to grow the network in Europe. Air France & KL both joined the SkyTeam Airline alliance to increase revenue and reduce costs on international flights.

#### Economic

Airline industry

- The airline industry has evolved into a multiple segmented category. Majors are located on the upper segment and travelers have higher expectations and demands of them (AFKL Demand spaces, 2017). Low cost carriers have gained the trust of travelers in only providing the basics. Thus safe travel from A to B with an acceptable network for the lowest price (AFKL Demand spaces, 2017). They managed to make the unbundled approach profitable for them.
- Travelers are over-informed and tend to be more transactional focused/approach. They have a higher awareness and make informed decisions (AFKL Demand spaces, 2017).

Other industries

- **New market and companies emerged of fast grocery delivery at home. Not only ordering for just a meal (Dilveroo, Thuisbezorgd, Ubereats) but also complete meal preparation kits (HelloFresh) or a complete online supermarket (Picnic, Crisp) (Eisenberg, 2022).**
- World shortage in employees and bad working conditions. At airports it results in strikes by cleaning, baggage and security working. Followed by cancellations of flights.

Corona

- Travel restrictions all over the world causing a lot of flight cancellations and planes staying on the ground. Making it difficult to survive without incomes but growing costs from keeping the fleet and loans.
- **Dutch government stepped in to keep KL alive by supporting with 3,4 billion euro (2,4 billion from banks and 1 billion from the government). KL needs to pay back within 5,5 years among other demands from the government (Veelgestelde vragen over financiële steun aan KL, 2022).**
- People are getting more used to working from home. Resulting in less working trips to other countries, unsure how this will develop over time.
- Due to travel restrictions, people have gone on more vacation within their own country.
- **Restrictions about hygienic solutions during travel to prevent the spreading of the virus.**

## War

- **Inflation of 6,2% in the Netherlands in comparison with the same period a year earlier. Food, fuel and energy prices are increasing** (CPI inflatie Nederland 2022, 2022).
- Flight routes needs changes to prevent flying over dangerous areas such as warzones (Luchtvaartmaatschappijen vermijden luchtruim Oekraïne, 2022).

## Social

- Almost everybody uses airplanes. Thus the categorization of these people not based on demographics but on their needs during their travel, which can differ per situation (AFKL Demand spaces, 2017). [Price, comfort, feeling secure, flexibility.. ]
- **1-in-3 people in the world use social media** (Ospina, 2019). **It has become the place to share experiences and get information about companies. The good and bad are shared online and everybody can share their opinions.**
- **People are getting more and more impatient. They demand faster response time in every part of their lives** (3 Trends in human behaviour impacting the future of work, 2018). **They are also willing to pay for these services, see the rising of food delivery companies.**
- **Everyday people are getting overwhelmed with information on different aspects of their lives: advertisements, social media, news etc.**

- Personal contact is preferred over chatting with a bot when trouble emerges with a service.
- **Currently 17 million people within Europe have a food allergy. This number has doubled over the past 10 years** (Voedselallergie neemt flink toe, 2011).

## Technological

- **Customers must have control every step of the way, especially in the booking process the share of digital booking is expected to grow even more** (AFKL Demand spaces, 2017). **Even if it means less human-to-human contact.**
- Personal accounts generate a lot more insights about the use of services. They make it easier to adjust in advance to the preferred option. However, all these personal details should be stored and kept safe.
- Change from a gig/service economy where having everything available on demand is key. To a user experience economy where the user experience is the key factor and place to differentiate (Ahmed, 2018).
- Seamless transitions between different services.
- Airline websites are necessary for travelers' research protocol to compare prices in the best ways (AFKL Demand spaces, 2017).
- **Airplanes use mostly fossil kerosene to fly around the globe. KL is trying to become more sustainable by reducing the amount of fossil used and switching to sustainable aviation fuel (SAF). SAF is made from waste oils of biological origin combined with fossil kerosene** (AFKL SAF, 2022).

## Ecological

- The inflight service to customer creates waste, besides the aircraft and office waste. Different categories such as aluminum, food or plastic. All airplane waste have stricter rules.
- Short transit from Amsterdam Schiphol to Brussel is encouraged to do with trains instead of flying. Thalys and KL started a partnership, where KL buys tickets for the route and pushes them to the target audience (KL and Thalys make train travel more appealing to intercontinental and European transfer passengers, 2022)
- Airports and airlines need to follow strict rules for air and sound pollution to minimize the harm to the direct environment, eg. people and animals living close to the airport.
- Internal KL group called Boldmoves worked on the creating initiatives to make KL more sustainable, incorporating the Sustainable Development Goals. Not only focusing on less waste and better materials but also human work environment.
- Vegetarian and vegan eating habits are increasing, resulting in an increase of options.

## Political

- Strict rules about travelling between countries are mandatory to follow about transport, safety, waste, smuggling etc.
- The loan provided by the Dutch government and the banks, comes with some demands. Such as having 50% less CO<sub>2</sub> emissions per passenger/km in 2030 and 14% of the fuel is more sustainable from 2030.
- The Schiphol Airport and KL need to follow the municipality rules when they want to expand. There is very limited space left to grow due to the environment being already used for living and leisure space.
- **KL needs to do sufficient research before they can execute any new plans, besides having enough resources and backing. Otherwise people might think they are greenwashing.**

## 3.2 The competitors

KLC is an airline providing a F&B service while flying and this service has direct and indirect competitors. In this chapter the competitors will be evaluated. The competitors are found through looking at what the location of ordering the food is and what the location is of eating the food. If these are both the same as KLC it is a direct competitor, shown green in figure 42. If they are both different, the service is an indirect competitor, shown in red in the figure. The orange means that it is inbetween of a direct and indirect competitor. The direct competitors are the other airlines that give an F&B service during the flight, like Transavia, Finnair or Swiss. The airport where passengers go through before entering the plane is also a place with different types of F&B services. In this case, Schiphol Airport being the hub of KL is a direct competitor with all the F&B stands, stores and restaurants after security. Also, Transavia who did a pilot with food deliveries at Schiphol Airport cooperation with Thuisbezorgd is a direct competitor as well. Lastly, the less direct competitors of KLC, the delivery at the gate at some American airports and the pick-up service at train stations.

	Location of order	Location of eating
KLC F&B	In plane	In plane
Other airlines	In plane	In plane
Schiphol airport	At store	At gate or in plane
Transavia x Thuisbezorgd	Online	In plane
Delivery at Airports	In application	At gate or in plane
Pick-up at trainstations	In application	At store or in train

Figure 42. Competitor overview



### 3.2.1 Other airlines

The airline business exists for more than 100 of years. During this time airlines came, went and developed over time to give the best service to customers or have big profits with a growing network. All airlines can be categorized in roughly six categories (Gottfredson, Defining the Six Fundamental Types of Airlines, 2016). Each of these categories has a different way of generating revenue and view on the best way of giving service, see figure 43 for the characteristics of each of the types.

Type	Characteristics	Example	Source
Legacy airline	They are old airlines with domestic and international traffic. They are often one of the largest airlines and a member of an airline alliances (Star, Oneworld, SkyTeam). Their offer of short, medium, long (ultra-long) flight network is done in a hub-spoke model, a network with one central point which is connected to all other locations. And they have large, established/sophisticated frequent flyer program for the passengers.	AirFrance, KLM, Finnair, Iberia, British Airways, Lufthansa,	(Gottfredson, The Legacy Carrier, 2016)
Regional airline	They operate at only one part of the world with no transoceanic routes. The service is mainly coach and they have limited first or business class seats. They are not connected to the big 3 alliances but do have arrangements with other airlines. Operation is done from of 1 or 2 main hubs and can have some point-to-point routes, thus one central location with most flights and other routes not directly connected to the central location. They have very few or one aircraft type in their fleet.	Alaska Airline, PenAir, Hawaiian Airlines	(Gottfredson, The Regional Carrier, 2016)
Low Cost Carrier	They are established after the airline deregulation in 1978. The customers are price-sensitive and mostly travel for leisure. The offer is short/medium-haul from point-to-point travel. Their airplanes have multiple runs during an operating day. Services are limited within the ticket price but can be added if charged and provided as individual basis. They are rarely part of the three major airlines alliances and they have very few route partners.	Spirit, WestJet, Volaris, AirAsia, EasyJet, Ryanair, Transavia	(Gottfredson, The Low Cost Carrier, 2016)
New Era Carrier	They are the newer airlines (started operation in last 20 years) mostly hub-spoke model but sometimes point-to-point flight. The offer is often only medium and long haul, the short-haul only if lucrative and operate in a single continent or country. They are not part of the big 3 airline alliances but have other partner airlines. Multiple classes on inflight cabins and higher end business travel for upper segment.	JetBlue, Virgin America	(Gottfredson, The New Era Carrier, 2016)
World Carrier	They are the newer airlines (started operation last 30 years). The offer is mostly medium, long and ultra-long haul with a focus on higher end travel services. The lounges included are also high end.	Emirates, Qatar, Cathay Pacific, Singapore Airlines	(Gottfredson, The World Carrier, 2016)

Figure 43. Types of airlines with description

## Benchmark food and beverage service

KL is a Legacy Airline so it is best to compare them with other Legacy Airlines in the same region. However, the biggest competitors in Europe for KLC are the Low Cost Carriers. A benchmark is executed where the available inflight service with KL is compared to other Legacy airlines (Air France, British Airways and Lufthansa), Low Cost Carriers (Easyjet and Transavia) and a New Era Carrier (JetBlue), see figure 44. Evidently, KL/KLC shows to be the only Legacy Airline in Europe that provides a full free service on all flights up to 3h. All the Low Cost Carriers have a paid inflight

service, with a lot more F&B options than KL/KLC. JetBlue has a combination of free and paid services. The paid service consists of all alcohol beverages and snackboxes on the longer flights. Lufthansa offers a slightly different free service because they always give a small chocolate. If the flight is up to 1h, the passenger will also receive a small bottle of water. Besides the free chocolate and water, the passenger can make use of the paid inflight services. British Airways has a completely different operating procedure because they make use of the pre-order system, thus the

passenger needs to order their F&B in advance. For the airlines and cabin crew it is cheapest and easiest to have the least amount of options onboard as stock. However, from the customers' perspective it is best to have a big amount of options. Which results in larger stock and weights during flights, and is less favorable from a sustainability perspective. The service of British Airways with the pre-order system is good for available options to the customer but more problems for the cabin crew, because they need to figure out who ordered what during the flight. Next to that, the customer does need to invest more time thinking before flying on what they want to eat or drink during the flight. As final thought, 'It would be interesting to see how long British Airways will keep up with the pre-order system. I have seen many pre-order/purchase systems come and definitely go with the different airlines in the past 10 years that I have worked for Transavia', Heijmann an Inflight Sales manager at Transavia.

Flight time	KL /KLC	Air France	Transavia	Easyjet	JetBlue	Lufthansa	British Airways
<b>Up to 1 h</b>	XS Service						
Total of options food	1	0	30 5	13	5	1	26
Total of options drinks	1	7	32	30	17	1	43
<b>1h to 1h15</b>	S service						
Total of options food	1	0	30 5	13	5	17	26
Total of options drinks	11	7	32	30	17	30	43
<b>1h15 to 1h40</b>	M service						
Total of options food	1	1	30 5	13	5	17	26
Total of options drinks	12	7	32	30	17	30	43
<b>1h40 to 2h15</b>	M+						
Total of options food	2	1	30 9	13	9	17	26
Total of options drinks	12	7	32	30	17	30	43
<b>2h15 to 3h</b>	M+ * service						
Total of options food	2	1	30 9	13	12	17	26
Total of options drinks	12	7	32	30	17	30	43

Figure 44. Benchmark of food and beverage service

Free onboard Paid onboard Paid pre-order



## Communication about the service

The Low Cost Carriers all have a paid catering product during the flight. They show what is on offer by putting folders at every seat and posting it online to find before the flight. By doing this they give the customer the opportunity to choose from their selection. Especially for people with allergies, it is preferred to pick from options with the information if they can have it or not. Each airline has its own kind of style. For example, Transavia has many combination deals between drinks and snacks. It is trying to get everybody's attention to sell as much of the food as possible. In contrary to Lufthansa, they want to have a more luxurious feeling and it is accomplished by explaining where it is coming from. Almost looking more like a magazine than a folder with the food deals of the day. This style of giving a story what is happening around the food is a good example for the KLC Fairline.

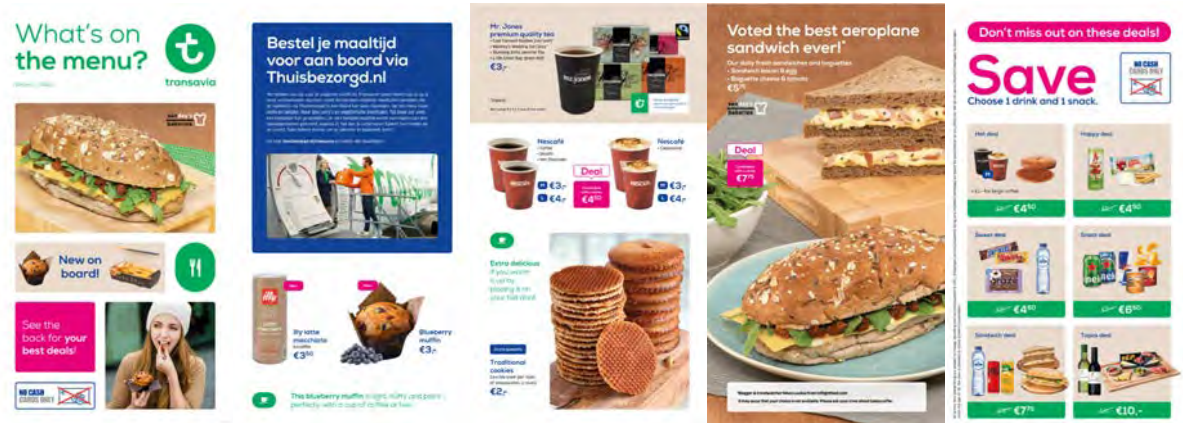


Figure 45. Transavia onboard menu

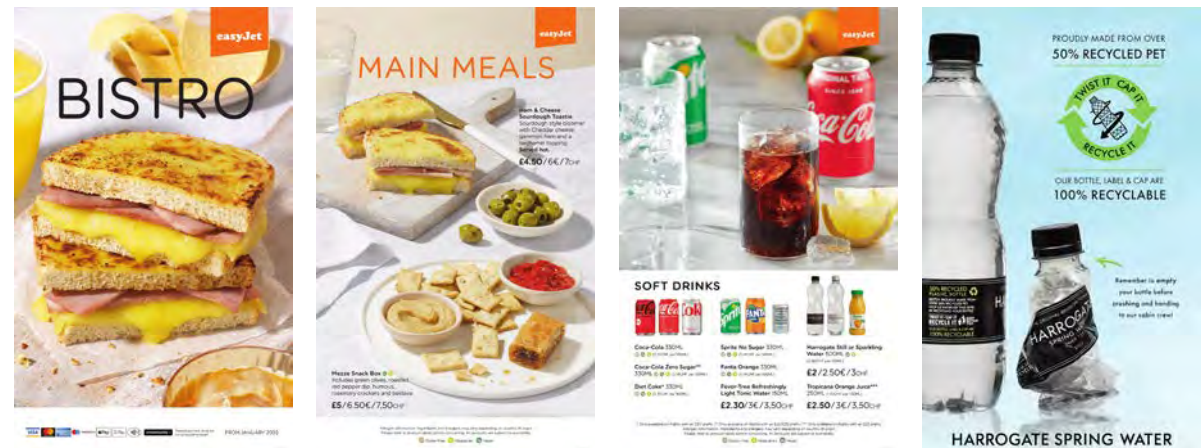


Figure 46. EasyJet onboard menu



Figure 47. Lufthansa onboard menu



### 3.2.2 Schiphol

Most customers that book a ticket with KL will depart or arrive at AMS Schiphol Airport since it is the hub of KL. The departing airport is of most interest to the passenger if it comes to spending something on food or beverages during travel since they spend the most time at this location before they fly.

Each airport around the world has a landside and an airside. The landside are all the area's before the security, thus parking lots, public transport and other access roads. Everybody can come here even without having a plane ticket. The airside is after the security and is for accessing the plane. Only passengers with a plane tickets, employees of the airlines, security and local shops employees can be here. The access from landside to airside is tightly controlled by security and it is dependent on the airport how much liquid can be brought. The land- and airside are connected with concourses. These concourses or terminals are the waiting areas for the passengers. Schiphol Airport has 121 stores and 71 types of restaurants and cafes over the entire airport. Not all of them are accessible for every passenger because some are on the landside at the arrival halls or only at a specific terminal on the airside.



Figure 48. Schiphol landside



Figure 49. Schiphol airside

## AMEX goodie bags

The lounges at Schiphol can be access for free when American Express (AMEX) cardholder with the platinum and gold card show their card. The other cardholder can only access them when paying. American Express has asked to hand out goody bags to the lower cardholders when they show up with their card at a HMS Host desk. This makes the gap between the higher and lower cardholder a little smaller. HMS Host has a deal with AMEX that the goody bags are ready at specific desk. At the end of each month, HMS host will make a payment receipt for AMEX for the exact amount of cardholders that came by. Roughly 100 goody bags are given to the AMEX cardholder each month (Boks, 2022). This number is very small in comparison with the passengers that travel each day with KLC.

## Research by Schiphol

Schiphol has does research into the use of the catering possibility at the airport. They ask several questions about four F&B related topics; healthy vs unhealthy food, ordering with self-service vs table service, going to a familiar international chain vs local & Dutch place and buying familiar vs a new thing/surprise food. There is not clear result what people prefer to buy between healthy and something unhealthy. There is a slight preference to order with a self-service over sitting down at a table to let a waiter come. Reasons for the self-service could be because it gives passengers more the feeling of 'being in control' in combinations with time constraints. The biggest drivers why customer do not use the catering possibilities at Schiphol are lack of time, not hungry and too expensive (Boks, 2022).

	Total over entire airport	Total on landside	Total on airside
Stores	121	29	92
F&B stores	31	9	22
Restaurants/café's	71	24	47

Figure 50. Number of stores & restaurants at Schiphol

	Stores	F&B stores	Restaurants /cafe
<b>Landside</b>			
Arrival 1	0	0	3
Arrival 2	0	0	1
Arrival 3	0	0	1
Arrival 4	1	0	1
Departure 3	0	0	2
Plaza	27	6	16
Traverse	1	1	0
<b>Airside</b>			
B-Pier	6	2	3
C-Pier	2	2	3
D-Pier	4	2	6
E-Pier	2	2	1
F-Pier	4	3	1
G-Pier	3	1	1
Lounge 1	14	2	12
Lounge 2	23	2	8
Lounge 3	16	3	7
Lounge 4	5	1	2
Holland Boulevard	13	2	3

Figure 51. Number of stores & restaurants per location at Schiphol



### 3.2.3 Transavia

Transavia Nederland is a Dutch airline that is completely owned by KL. They can be categorized as a Low-Cost Carriers. Their business model is to have a single cabin type with a focus on buy on board, meaning that they have a large selection in F&B. Besides that, they have fees for hold luggage and seat selection. Transavia departs from three airport in the Netherlands, Amsterdam, Rotterdam/Den Haag and Eindhoven. Their shortest trips have flight time around 1h20 to for example Paris and one of their longest have a flight time of 5h00 to for example Dubai.

#### Buy On Board

On each Transavia flight, there is a moment that the cabin crew will come by with the F&B trolley. The passenger can pick in the moment what type of F&B they want and pay for it. A folder is placed at each seat with the available F&B and non-food selection so the passengers can browse through it, see figure 45. The product price is derived from the purchase cost plus margins. Some of the margins are the handling costs of their catering service and a percentage of the profits to the cabin crew that gives the service (Heijmann, 2022). If there is a moment for any extra round to sell products during the flights, the cabin crew will take it to get some extra sells. The catering service fills the F&B trolley to cater for three round trips. If there is a need for a restock, for example fresh products,

than the trolley can be filled up in between flights at their starting airport (Amsterdam, Rotterdam/Den Haag, Eindhoven). The first cost of filling a F&B trolley is €XXX. Each extra thing added later will cost some extra amount per change. In 2018 the average spending of passengers was €X,XX, this number increased in 2019. This could have been higher but was not the case due to delivery issues at the catering service and temporary hired staff who are not qualified to give the service (Heijmann, 2022). However, it does not only depend on the passenger but also the location and from where in the Netherlands the flight is departing. As mentioned earlier there are a lot of costs to make the service happen and there are food and non-food items sold during the service. This results in different profits per location.

#### Thuisbezorgd onboard

In November 2020 Transavia has a done a pilot with Thuisbezorgd at Schiphol. In this pilot, they gave the passengers the opportunity to order food from the Thuisbezorgd-Transavia website if they were departing from Schiphol airport. The food was delivered at the gate of the departing plane. The passenger had a choice between nine different dishes and needed to order and pay for it at least 2h before departure of the flight. This pilot created many insights for Transavia and Schiphol. In October 2021, Transavia made the decision to continue with the Thuisbezorgd service but with some adjustments (Hoogzaad, 2022). One of them is that instead of the delivery of the food



Figure 52. Transavia onboard menue

via the gate, the F&B is delivered with the same supply chain as their regular F&B trolleys. A lot more efficient and saving money to combine the regular and the Thuisbezorgd service. This change of delivery route was mandatory from Schiphol to limit movement around the gates. What Transavia kept from the pilot, is that the service is only possible when departing from Schiphol Airport and the types of dishes. They have five cold dishes of the flight is shorter than 2h and four hot dishes if the flight is longer than 2h, see figure 54 for a part of the menu. The cabin crew will warm these hot dishes onboard. The passenger can order the food up to 2h before departure. However, the logistical people behind it would prefer to have a slightly bigger window to arrange everything. Not every passenger can use this service because there are 24 spots for

meals on each flight. Some small things to improve on are the way of providing the information about the service to the passengers. Currently, not all the passengers are reached because not everyone opts in for receiving information e-mails with deals like the Thuisbezorgd service. This information cannot be put in the mandatory send e-mails to the customers since these are already packed with important information.

The Transavia-Thuisbezorgd service is ranked 4 out of 5 stars by 131 reviews (Thuisbezorgd, 2022). The main feedback given are about delivery and type of food. The order does changes flights when the passenger changes flights. However, the passengers are not notified of this. Further, the size of the meals are still perceived as little with a relative high price, just like all other F&B prices.



Figure 53. Transavia and Thuisbezorgd working together



Figure 54. Transavia-Thuisbezorgd pre-order menu



Figure 55. Transavia-Thuisbezorgd Rijsttafel and sushibowl

### 3.2.4 Delivery service in Airports

AtYourGate is a mobile ordering and delivery service intended for travelers, flight crews and airport employees on American airports. The service is made to make shopping and dining easier, more relaxed and safer for the customers at airports (Airports, 2022). The app is connected to 17 airports in America. Per airport are different numbers of restaurants and shops available to order with. Most of the airports have only stores with delivery in place with the AtYourGate app. However, some places have a second one of the

same brand where the pick-up yourself option is also available. The customer must have an account to place an order.

The ordering process starts with selecting the airport by picking it from a list or it is recognized with location tracking. The customer can select the location where they are in the airport. This results in a list of available stores to order with. After picking the preferred meal, it can be paid online. Then a notification is sent that the order is processed.

The AtYourGate app has a 3.7 rating on the Google Play store with most reviews either a 5 or a 1 (Google Play: AtYourGate, 2022). The top reviews are telling it was very smooth from ordering to getting the meal delivered. However, others complained that the app is the last in line when fulfilling orders and that they needed to wait on it when the app said it was ready for pick up.

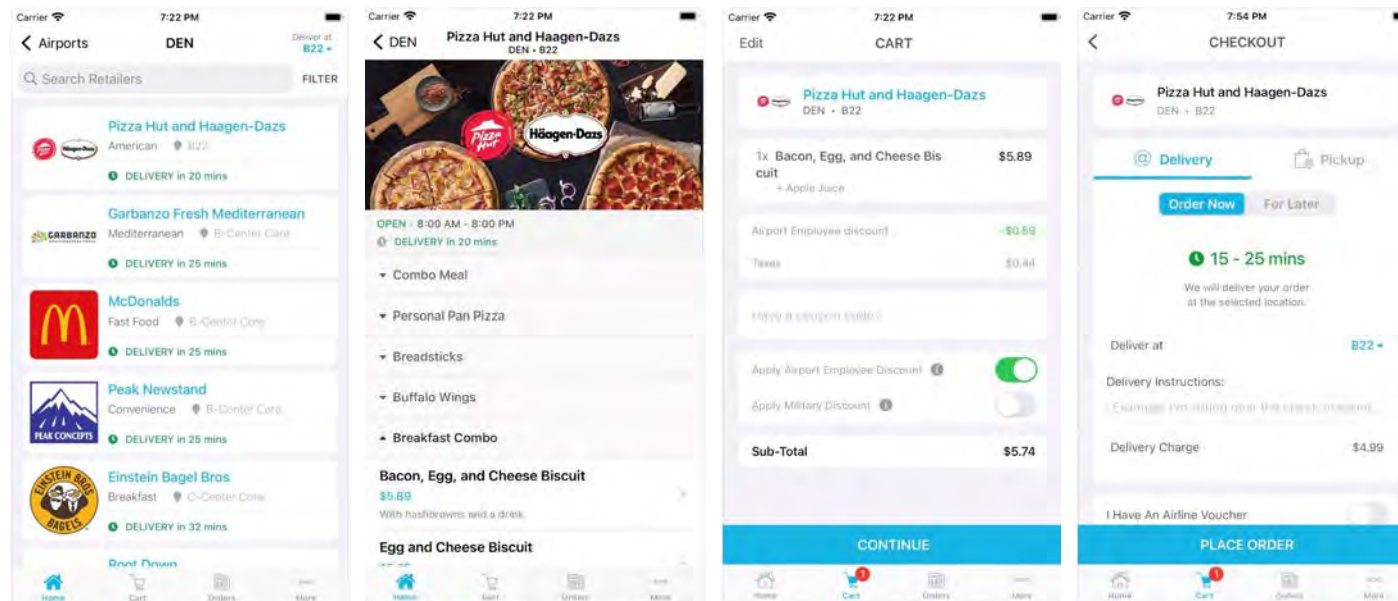


Figure 56. @YourGate app screens



### 3.2.5 Pick-up at train stations

Transfers while travelling a short distance between cities happen not only when going by plane, but also when using trains. Thus any F&B location at train stations can give inspiration. All train traveling customers in the Netherlands can order a meal while being on the go with the Foodsy app (Foodsy, 2022). They can choose the pick-up location and time when they want to have it ready, as soon as possible or already planned ahead. The Foodsy app is connected to different restaurants located at Dutch train stations. At these locations, there are different types of fast-food restaurants that can prepare their food within 10 minutes. It is possible to sign-up with an account or just

leave your e-mail and phone number to receive the order. With this app the train customer can receive their food and drink order without missing their transfer to the next train with skipping the line. The ordering flow starts with picking the train station where you want to pick it up. Then it shows the customer which restaurants are available. After picking a restaurant and the dish, the order can be placed and paid online. The customer can pick up their order after all steps are completed. Using Foodsy to order food can be done in 31 cities and 95 restaurants are connected to them. However, not all places are opened at the same time thus not everything is always available. This

only becomes clear when selecting the locations. Also some locations are mentioned without any connected restaurants.

The Foodsy app has a 3.8 rating on the Google Play store but the written reviews are varying with positives and negatives (Google Play: Foodsy, 2022). Mostly that there is too little choice and in some places, the orders do not get accepted by the restaurant. Other people are very happy to use it during rush hour and find the order process intuitive to use.

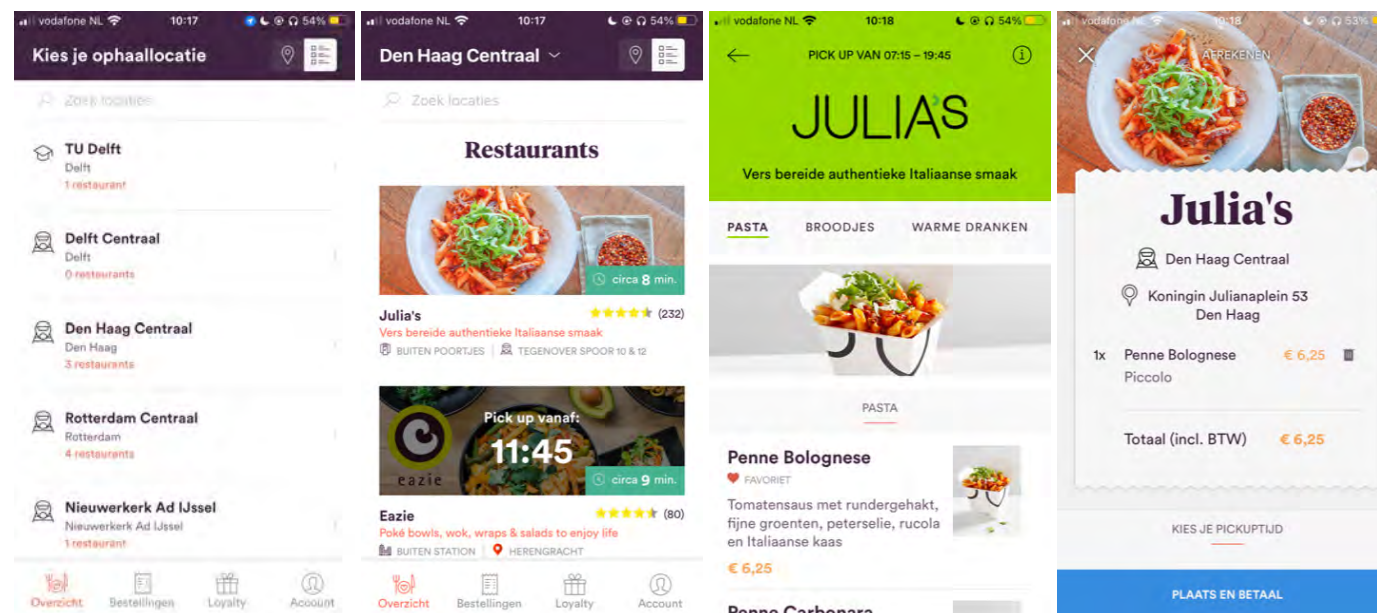


Figure 57. Foodsy app screens

## 3.3 Conclusions of external analysis

### General insights

- KL/KLC has the largest free drink selection in Europe, including alcoholic beverages.
- KL/KLC is the only legacy carrier in Europe to give a completely free F&B service on all Europe flights.
- Schiphol research shows that there is a need for typical Dutch food and a possibility to try something new. Also, there is a need for healthy and unhealthy food.
- Foodsy app is connected to many places and can be ordered well in advance.

### Opportunities

- 1-in-3 people in the world use social media to share experiences and get information.
- KL has very little information about their F&B product on the website. KL/KLC has little to no allergy information on the product. Both places should give the customer more information about the product.
- AtYourGate is a delivery service at airports that works, not only for food products.
- KL has room to grow with the communications about the service compared to the other airlines, in online and real magazines.

### Risks

- 17 million people within Europe have a food allergy.
- The AtYourGate service is third way for a customer to order at a specific dining location, after ordering in person and online order system of the store. Creating a big chance of fulfilling that order because it is last in line. Additionally, the opening times are not consequent.
- The Foodsy app is unclear with available services at a specific time. At some locations, there is only 1 option to chose from.



# 4. The Design brief

The first part of the double diamond is doing research and it ends with defining the design brief. All insights in previous chapters were focused on being broad to understand the situation. The design brief will define the solution space, which is the starting point of the second part of the double diamond. This design brief entails several things, what is the vision for the KLC Fairline for the catering, which passengers are taken into account for the service and what type of feeling sound the interaction give them. Lastly, the requirements so the decision on the right concept can be made.

## 4.1. Vision

The vision for the new service is *'KLC Fairline wants to be the leader in sustainable (aviation) catering, by bringing more choice in the catering service and control during the travel of the passenger, resulting in a memorable and comfortable experience even before stepping on board of the KLC plane'*. This new service is for all the economy passengers flying within Europe with KLC.

## 4.2 Persona

Many passengers with each different demographics and characteristics will use the new service. Therefore, three personas are made to get a better understanding of their basic needs and where these might differ, see figure 58. They are based on the interviewees.




			
<b>Person description</b>	Rick (50) needs to be abroad for a few days each month	Lisa (24) is a student, likes to go on city trips	Anna (30) husband and children, only goes on a flight once a year for vacation
<b>Demand space</b>	Efficiency for a good price	Best deal for the basics	Make sure it works
<b>Reason of travel</b>	Work	Leisure	Leisure
<b>Flying experience</b>	8-10 trips per year	4 trips per year	1 trip per year
<b>FB membership</b>	Yes	Yes	No
<b>Check-in channel most used</b>	KLM app	KLM Website	KLM Kiosk at airport
<b>Typical flight</b>	Direct or with transfer, morning and afternoon flights	Early morning or late evening flights	Midday flights

Figure 58. Three personas to guide the design proces

### 4.3 Interaction vision

KLC offers many travel opportunities within Europe to their passengers and KL creates even more options outside of Europe. The next F&B service should give a similar effect to the passengers, creating rich choices in the food selection. The interaction vision of the future service consists of several parts. First-time users should understand the service easily as if they have used it many times before. In addition, longtime users feel that it is easy to get the options they want to have. In other words, the service should feel like they are at home and know where to go for their favorite snacks, to their snack drawer. However, the service should also give some surprising feeling to the customer. The possibility that they can discover new products when they come back besides their favorite products or even better, find a new favorite like you do when somebody else fills up the snacks drawer.

**"Surprising and enriching the moment"**

**"Easy to understand"**

**"Familiar, like being at home"**



Figure 59. Child searching for their favorites and new snacks

## 4.4 Requirements

The new service has several requirements to fulfill to make it a success. The main topics are the experience, sustainability, operation and cost. The experience is about giving the passenger the best service and this is measured in the NPS score. The sustainability includes the CO<sub>2</sub> and food waste, which both can be calculated to compare the current and the new service. The operation is focused on the ease of the operation and the cost is based efforts to make the service happen and if any extra sales besides the basic F&B product.

However, the KLC Fairline and the KL OFMA have different views on what is most important to them. For the KLC Fairline, the experience and sustainability are the most important factors. While providing a free service, so the costs must be as low as possible. The OFMA team is looking for a solution where the experience is the best and where they can have the highest revenue. For the sustainability is not the most important factor. From this point on, the passenger perspective will be most important to base the decision on.

### Functional

- Must be for all passengers travelling with KLC in Europe.
- The basic food and beverage must be given outside the airplane.
- The extended food and beverage could be on board on longer flights.
- The passenger must receive some kind of free food and beverage service on outbound Schiphol.
- The passenger must receive some kind of free food and beverage service on inbound Schiphol.

### The basic F&B service experience

- Must give a memorable experience to the passenger.
- Must give the passenger choice between different options of the product and if they want to receive it.
- Must meet the expectations of passengers that pick and pay for the KL/KLC full service.
- Must result in a higher NPS score compared to the current service.
- Should inform the passenger before flying what the service is.
- Should have an option to extend to a bigger paid service.
- Should give the cabin crew more time to interact with the passenger on board.

### Operational

- Should not interfere with food and beverage store at airports.
- Could be possible with the help of KCS.

### Waste

- Must have less (food) waste in comparison with the current service.
- Must have a lower impact on CO<sub>2</sub> emission in comparison with the current service.
- Should not take the waste of airside airport into the plane.

# PART 2

## Solving the problem right



## Solution finding

This phase is all about finding a solution with the boundaries that have been defined in chapter 4. The first step is to widen the solution space and map the current service and locations where it can be changed. With brainstorming concepts can be made that differ from each other in what the passenger needs to do to receive the F&B and location where they get it. The stakeholders are involved in a co-evaluation session to assess the concepts based on their requirements and image what the best service would look like. The previously defined requirements will guide in the decision when narrowing down the number of concepts. Thereafter, the passengers of KL gave feedback on the final three concepts. Ending with the roadmap towards more sustainable way of providing the F&B service.



# 5. Concept development

This chapter starts with a new phase, coming up with a solution. Starting with mapping the current service where it is given in the journey of the passenger and new combinations are explored with changing the location of ordering and receiving the F&B. Figure 60 shows that all these things happen on the flight at the current service and that the new directions are completely or partially outside the plane. The new directions have different ways of providing the same product.



Figure 60. Concept directions and where in the flight journey they happen

The different concept directions are explored further and shown in figure 61. The resulting concepts in the figure are placed together to get the overview in where they differ from each other. Not all requirements are taken into account up to this point making the range more diverse, such as providing no service at all and giving only a paid service. Each concept is explained, starting with the no service and all options that are given at the airport and at last the options given in the plane.

Concept name	Time of order	Way of ordering	Location of receiving order	Amount of F&B options
No service	-	-	-	-
Self-service wall	On the spot	Self-service with machine	In terminal or at gate	More than current
Store	On the spot	Talking with store crew	In terminal	More than current F&B
Voucher	On the spot	Talking with store crew	In terminal or at gate	More than current F&B
Pick-up at gate	On the spot	Talking with gate crew	At gate	Food: 1 Drink: 1
Current F&B	On the spot	Talking with cabin crew	In plane	Food: 1 Drinks: 1-12
Beverage service	On the spot	Talking with cabin crew	In plane	Drinks: 8
Basic product + Paid catering	On the spot	Talking with cabin crew	In plane	More than current F&B
Paid pre-order	In advance	Online at KLM website	In plane	More than current F&B

Figure 61. Overview of concepts

## 5.1 The concepts

This chapter explains the concepts of figure 61 in more detail. Starting with the *No service* in the grey block, followed by the other services in blue that are on the airport or in the plane.

### Self-service wall

The self-service wall is located at the air-side of the airport, close to the piers where the KLC Fairline gates are. There is one wall per pier where the passengers can go to receive the F&B. After scanning their boarding pass, the passenger can select their preferred F&B. The passenger can enjoy the F&B at the airport or take it with them on the plane. The passenger is informed before flying that the F&B service can be chosen at the self-service wall at the beginning of their departing gate. It will also communicate that there is no service during the flight.



### Voucher

The voucher is linked to the passengers boarding pass and can be used at different stores on the air-side of the airport. The passenger can pick their favorite restaurant or store to get their F&B while they need to wait for departure. The voucher could be for a specific amount of euro's or discount. The F&B can be enjoyed while being on the airport or it can be taken on the plane.



### No service

The first concept is giving no service at all. Currently, all the F&B is brought up in the air with a lot of extra's. Resulting in throwing away so much in the end. A solution could be to just to remove the entire service so that there is less consumption during the flight and thus preventing a lot of food waste. The passenger gets communication before flying that this is the most sustainable way of flying, which explains that there is no F&B service. This means that all economy passengers of KLC Fairline need to bring their own F&B for their trip.



### Store

The KLC Fairline store is just like any other food store. The F&B assortment ranges from fresh made sandwiches and fruits to cooled juices and coffees. Each economy passenger of KLC can come by and pick out what they want. One drink and one food option is free per flight. If they want more than that, they need to pay for it themselves. The store is located at the terminal or at the beginning of each KLC Fairline pier so all passengers will walk by the store before going to their gate.



### Pick-up at gate

The F&B pick-up service at the gate consists of one type of drink and one type of snack. Both these options do not need to be stored in a cooling system, making them last a lot longer. Each passenger receives their F&B service just before boarding the plane while waiting at the gate. At that point, it will be communicated that the passenger can take the F&B on the plane after they have scanned their boarding pass.



## Current service

The current service is already fully explained in chapter 2.2. In short, it is a free onboard service where the passenger can choose between 1 to 12 different types of drinks and receive one snack. The amount of drinks and type of snack change depending on the flight time and time of day.



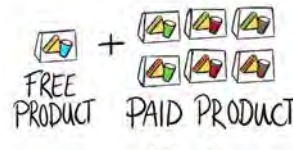
## Beverage service

The beverage service is an onboard service. The passenger is encouraged to bring their own water bottle or reusable coffee cup. After takeoff, the cabin crew will come by with the beverage trolley to either fill the bottle/cup of the passenger or give the drink in a plastic cup. The trolley contains a postmix machine which gives two different types of water and 6 different syrups to make juices or soda's like a Coca Cola (KL Inflight, 2022).



## Basic catering + paid onboard

The basic product onboard is similar to the current product. However, instead of giving a sandwich, the passenger receives a free stroopwafel and the free drink selection is limited to only a water. The passenger can buy more F&B if they want to have more during the flight. The cabin crew will come buy with a trolley with all paid F&B options.



## Paid pre-order

The passenger can order their F&B up to 4h before flying with the paid pre-order service. Only the pre-ordered products are put on the plane. The communication before flying to the passenger must inform them that the pre-order service is the only way to receive any kind of F&B service on their flight.



# 6. Co-evaluation

The previous chapter showed all concepts that emerged from the brainstorming sessions and how they are used. All new concepts comply with the requirements given by KLC and OFMA, but some perform better than others from a passenger perspective. Not one performs best on all levels, e.g. only following the customer's needs results in a negative impact on operations or sustainability. These contradictions make it complicated to choose just the right concept without doing any further testing. In addition, several departments within KL are involved with the onboard KLC service with each a different goals and targets. All these views are valuable since they slightly differ from each other. By letting each department participate in a session where they assess all concepts, it can become clear where they differ in knowledge and goals.

## 6.1 Set-up session

The set-up of the co-evaluation session consisted of a one-hour long session with each department individually. During the session, all the concepts were evaluated on three different topics by looking through the lens of the customer, the sustainability and the operation. The customer lens is all about how much control they have and the amount of choice available. The sustainability lens includes how much weight goes up in the air, thus the CO<sub>2</sub> emission, and the waste production.

The operation lens is about how much effort is needed to make the service work by the ground services and the cabin crew onboard. Using these lenses, the teams needed to rank what they perceived as the best and the worst concept. After ranking all concepts per topic, the groups were asked what their ideal service would be. Any comments or questions about a concept were added to the overview they made, for the overall results see appendix 8.



Figure 62. Co-evaluation with OFMA



## 6.2 Overall session results

### Understanding the figures

Nine people out of the divisions of KLC, KCS, Inflight, OFMA and the Sustainability Office have participated in the co-evaluation session to rank all concepts. Their results are summarized in the figures 64 to 69. The results are displayed with the team name on top, in the dark grey square. All concepts are in the left column in a light grey color and the best-perceived option for a 1h flight is colored in purple. The three colored columns are for the different lenses used during the session, with blue for the customer lens, green for the sustainability lens and yellow for the operational lens, see figure 63 with the legend. The concept received a number corresponding to the ranking per lens (column). All concepts are scored on a scale of 1 (bad) to 5 (good) with steps of 0.5. Several received the same number because they were ranked on the same level. The highest numbers in each column have a fully colored background.

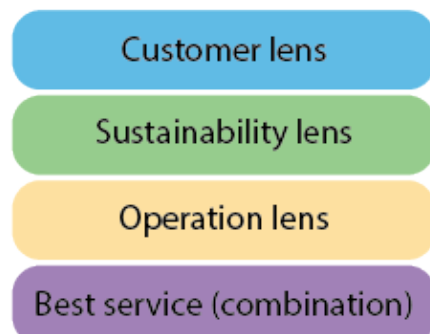


Figure 63. Legend of result overviews

### Different results per team

All teams work together in the same company to create the best travel experience possible for their passenger. However, all the teams have their own expertise and thus a special view on how to achieve this. In addition, the knowledge differs on how much work is needed to implement something in the operation or how sustainable an option really is. Therefore, the results per team cannot be compared one-on-one, even if they are in the same format. However, the results offer valuable insights.

Ranked by KLC			
No service	1	5	5
Self-service wall	3,5	4	4,5
Store	4	3,5	4,5
Voucher	1,5	4,5	5
Pick-up at gate	2,5	4,5	4,5
Current F&B	5	1	2,5
Beverage service	5	4	2,5
Basic product + paid catering	3,5	1	1,5
Paid pre-order	2,5	3,5	1

Figure 64. Session result of KLC

Ranked by OFMA			
No service	1	5	5
Self-service wall	3	3	3,5
Store	2,5	3	3,5
Voucher	1,5	4	4,5
Pick-up at gate	3	3,5	3
Current F&B	5	1	3
Beverage service	4,5	2	3,5
Basic product + paid catering	4	1	1,5
Paid pre-order	3	4,5	1

Figure 65. Session result of OFMA

### What is waste?

Looking at the comments mentioned during the session, a difference in the perception of 'what waste is our waste' and 'which waste should we take into account becomes clear'. KLC said 'if we do not give any service onboard, there is no waste for us to collect so this is definitely the best sustainability-wise'. However, KCS said 'even if we do not give any service onboard, some kind of waste will be made by the passenger. We do not know where it comes from, thus we must see it as general waste. It is less favorable to let the passenger bring their own products than for us to

Ranked by Inflight			
No service	1	5	5
Self-service wall	1,5	2,5	4
Store	2,5	2,5	3,5
Voucher	3	4	4,5
Pick-up at gate	3,5	1,5	2,5
Current F&B	4,5	1	2
Beverage service	2	4,5	3
Basic product + paid catering	4	1	1,5
Paid pre-order	5	3	1,5

Figure 66. Session result of Inflight

give one type of product because with the latter we can adjust our systems to collecting that waste easier and return it better.' From the sustainability perspective, it is best to keep KCS as the main supplier so that any new F&B products can be optimized together with waste management. While going for this direction, it is important not to let only KCS do the catering but to be open to use local suppliers too. Sourcing products locally instead of shipping it all over the world is more sustainable and it gives options to increase the total offer of products.

Ranked by Sustainability office			
No service	1	5	5
Self-service wall	3	3	3,5
Store	2,5	2,5	3,5
Voucher	2	4	5
Pick-up at gate	3	3,5	3,5
Current F&B	5	1	2
Beverage service	4,5	1	1
Basic product + paid catering	3	4,5	1
Paid pre-order	4	2	1

Figure 67. Session result of Sustainability

Ranked by KCS	
No service	2
Self-service wall	4
Store	4
Voucher	3
Pick-up at gate	4
Current F&B	2
Beverage service	5
Basic product + paid catering	2
Paid pre-order	4

Figure 68. Session result of KCS

## Operational issues

KLC and OFMA both noticed the same issue within the operation, the concepts that are moved to the airport instead of onboard help with reducing the work pressure of the cabin crew on the short haul. At the same time, these concepts are more difficult for the ground services. The Self-service wall, Store and Pick-up point are not in the plane thus out of the work area of the cabin crew. However, KCS needs to supply the catering to all these locations, which will be a new type of work for them.

Overall score			
No service	5	25	27
Self-service wall	14	20	20
Store	15	19	19
Voucher	13	24	24
Pick-up at gate	14	17	20
Current F&B	22	12	7
Beverage service	21	15	22
Basic product + paid catering	20	7	7
Paid pre-order	18	6	22

Figure 69. Overall results of sessions

## Communications

All teams mentioned that if the F&B service would change to out of the plane, a new and different behavior of the passenger is needed. In addition, a new communication method to the passengers should be very clear and easy to understand. This communication should not be only a small message via an e-mail but also a reminder via the KL-app or SMS. Depending on the concept, posters or signs could also help with marking the location where the passengers could go to in the airports.

## Overall score

All rankings per team are added into a combined score to make figure 69. The concept of No service is highest scoring on sustainability and operation, a logical consequence of removing a part of the service. However, it is not fitting with the interaction vision created in chapter 4.3 since it is a legacy airline. The Voucher is the second best scoring on sustainability and operation. The operation of the cabin crew and of KCS is significantly lower when using the Voucher but more effort is needed to make the voucher work on every airport. Additionally, an acceptable price is needed because having only €3,- is too little for buying F&B at an airport and this is double the price KCS uses now to spend per passenger. Next to that, a change of behavior is necessary with the passengers. Lastly, all options with the service onboard are the highest scoring for the passenger. Mainly because there is little difference in result for the passenger.

## 6.3 Concept selection

A selection needs to be made to narrow down the number of concepts. The selection is based on the results of the co-evaluation sessions and all divisions that participated. In addition, the requirements set before are used and they have the same weight in determining which concepts can continue. The requirements have the same weight because the goal is to get to the overall best performing concept. The knowledge, opinions and insights of the KL staff are taken into account. However, the real passenger opinions are not yet taken into account since there are still a lot of options. So the remaining concepts will be evaluated with the customer using a questionnaire.

### 6.3.1 Discontinued concepts

**No service** – From the lens of sustainability it would be best to give no service at all. With this concept, you do not simulate double consumption before and during flying. Mostly the people that had a coffee before flying and who take another coffee during the flight with the sandwich, might be in the end not really hungry so they take only one bite. Even though this option looks promising from the sustainability lens it is not at all what KLC wants to provide. Since KLC want to provide an F&B service to the customer that fits the image of a Legacy Airline. Lastly, providing no service at all would be the least favourable option for the customer since there is just nothing for them. The passengers would be forced to provide for themselves on their trip.

**Pick-up at the gate** – The downside to the Pick-up at the gate concept is that the gate flexibility is important. Creating this pick-up point just at the gate will cause a lot of extra work to get all supplies to this location. Combine this with the demand of Schiphol security wanting the least

amount of movement around the gates. It creates a difficult system to manage this. Lastly, this concept is quite similar to the self-service wall concept, which is up until now better in terms of location.

**Basic + paid F&B** – This concept is not an improvement on sustainability compared to the current situation because it will bring even more products on board for each flight. Next to that, limiting the free offer and adding a paid service onboard is extensive service that is time-wise not possible on flights of 1h.

**Paid pre-order** – From the interviews about flying preparation for a 2h flight, in chapter 2.6.2, it became clear that most prefer to decide last minute what they are going to do with their F&B choices before and during travel. They want to be on time at the airport and then decide if they are going to treat themselves. The pre-order service has a deadline of ordering at least 3h before flying which is too early for the passengers to give their choice

for F&B. All mentioned that for a short flight, they are not interested in ordering something in advance. However, pre-ordering F&B would become more interesting when the flight is longer than 3h. One of the issues Transavia has with the pre-order services is that not every passenger is reached by e-mail. Or the e-mail is delivered but the information is just a little too much, so people do not even read it missing out on the opportunity. This makes the communication to the passengers a challenge to do right.

**Current product** – Further assessment will be done by the customer and this concept is only used as a comparison.

### 6.3.2 Continued concepts

There are three concepts that continued to be developed and presented to the customer, which are the following. These are slightly adjusted to fit the wishes and requirements of KLC.

#### Store with self-service wall

The KL store is located after the security and next to the other shops at the airport. Each passenger of KL can come by the store and receive their free drink and snack. There is a self-service wall for passengers that are in a hurry. The passengers that have more time can roam around the store and buy any other special KL product. For passengers like the persona Rick, who travel often for work, it is efficient to use. They can get their favorite F&B and help themselves quickly without waiting in any long queues. Passengers like student Lisa are happy that they can save some money by using the KL F&B service instead of buying something at another food location.



Figure 70. Concept of store with self-service wall

#### Voucher

The food & beverage voucher is connected to the passengers boarding pass. This voucher can be used at any food/drink store, like cafe's or restaurants at the airport. The passenger is free to pick the location where they want to use it. The voucher discount is only possible to use on the day of traveling. The passengers like Rick can surprise themselves every time when they fly by going to a new location to use the voucher. Passengers like the persona Anna can fulfill the needs of their children by going to a location where they really have the F&B they want. Plus they could possibly go to a location that the parents like better. A real advantage is that this family does not have to wait on receiving the service from KL.



Figure 71. Concept of voucher

#### Onboard service

The onboard service is just like the current onboard food & beverage service. However, the passengers get a Dutch stroopwafel instead of the sandwich. The number of drink options is the same but they all come from the same drink dispenser to limit the waste of drink containers. The passenger can bring their own bottle or reusable cup, then the cabin crew will use that as the drink container instead of a plastic cup. For all personas and thus all passengers, this service does not really differ in result for them. All they need to do is make themselves comfortable in their seat and wait for the cabin crew to come by and give the F&B.



Figure 72. Concept of onboard service



# 7. Customer feedback

The concepts of chapter 6.3.2 are presented to passengers in a online questionnaire. This chapter explains the results of this questionnaire.

## 7.1 Overall results

An online questionnaire was made to get feedback from possible KL passengers. It reached 41 participants of which 44% are students and 20% is working. The main reason for flying was going on vacation for 71% of the participants; follow by 20% who visits family and friends. This is again a differentiation in data compared to the KL passenger overview. This is due to the smaller sample size and more students who helped fill out the questionnaire.

Most participants of the survey are not interested in sustainability efforts by airlines, 78% answered to not look up information about sustainability at airline companies at all. The participants that are interested use the CO<sub>2</sub> compensation the most if it is not too expensive or just by limiting the use of short haul flights. Or they are happy to see that plastic packaging is limited on board and that there are more vegetarian options.

More than half of the participants use KL often for flying and just a little less know what the service is of KL. The people not familiar with the KL service where explained what could be expected of it during the flight. This was necessary to know so the participants could compare the three

concepts of the previous chapter with the current KL service. The Each concept was presented with a small explanation and an image to show what the assortment is. Thereafter, questions were asked about the use of the service and if they feel it is an improvement based on the current service. Ending with how likely they are to use it and if they would

recommend it to family/friends. The onboard service was the best-rated concept when only looking at the rating of 'how likely are you to use this service' and 'how likely are you to recommend the service'. The results of these questions are shown in figures 73 and 74. The specific quotes per concept can be found in appendix 9.2.

Service type	# Promotors	# Passives	# Detractors	NPS
Store with self-service wall	2	23	16	-32
Voucher	12	14	15	-32
Onboard service	15	10	16	-2

Figure 73. How likely are you to use the service

Service type	# Promotors	# Passives	# Detractors	NPS
Store with self-service wall	1	17	23	-54
Voucher	7	11	23	-39
Onboard service	8	14	19	-26

Figure 74. How likely are you to recommend the service



## 7.2 The favorite concept

As the final question, the participants needed to respond with their favorite service. The result is not an obvious winner. All concepts are rated almost evenly (concept 1 with 27%, concept 2 with 32 % and concept 3 with 29%) as the best service for a 2h flight. However, the current service is picked definitely less as best with only 12%. The reasons why the participants picked a concept are shown below.

### The store

- 'I think because if I have the time, it's the most understandable and recognizable form of transaction. I don't feel like my boarding pass is at risk of being lost, and if the flight is expected to be 2 hours, I can afford to be hungry/thirsty for that long. I am confident I could find good shortly after landing anyway'
- 'Self-service, quicker and hopefully the quality is better than onboard.'
- 'Freedom to choose whatever, you feel special as it is only for KL flights, less food waste I assume'
- 'Always looking for decent on-the-go food options at the airport. KL name on store labels their name with convenience.'
- 'Because the others don't work, at all, because of my diet.'
- 'You can probably choose what you like, it's easy and still personal because you're interacting with KL and you might also be able

to snack before your flight and sleep on the plane for example.'

### The voucher

- 'If close to the departure gate one can choose what to drink and/or eat. If passengers don't use this service the airline can invest in nature and/or innovative sustainability.'
- 'Freedom to choose between a lot of options + clarity about what the offer is exactly.'
- 'There is more of an incentive to stop somewhere to buy food or drinks with the voucher.'
- 'Easy, neurodivergent friendly, good for use in long tiring lines before the flight.'
- 'Freedom to choose what you want with potentially shorter waiting times.'
- 'I guess because I always grab food at the airport anyway, this would be therefore most relevant to use.'
- 'I like the freedom of choosing something I would really want to eat at that moment and have a little treat yourself moment to relax before boarding.'

### The onboard service

- 'Most convenient for me with less waste.'
- 'I think it's a good idea to get rid of disposables. I'm not sure about the Stroopwafel, maybe provide something more nutritious? Also make use of cups on board and wash them after? :)'

- 'It is almost the same as the current service but people can use their own cup and I think other people would like that.'
- 'You don't have to think about getting something beforehand, especially when you're in a hurry'
- 'It is more convenient for my traveling since I don't need to know and worry about getting food before the flight and I don't have to carry my own food before the flight.'
- 'I like to bring my own cup, it makes it personal.'

### The current service

- 'This has the highest level of service.'
- 'I traveled with KL 3 weeks ago and had a good experience. I only thought the plastic cups were unnecessary, as they are single use so I declined the drink. Another option for a cup would be good, although I would not bring my own cup when traveling with limited space.'
- 'I like the sandwich and to be presented with food options on the plane.'
- 'It gives me the most for the money.'

# 8. Roadmap

Up to this point, a lot of research, brainstorming towards concepts and evaluations have been done with stakeholders within KL and customers. All resulted in different concepts being preferred by different people. A final conclusion is needed and will be discussed in this chapter with a roadmap. This roadmap will give the company guidance toward a more sustainable catering product on all their flights. First, the service of the future is explained and why this is better than the current situation. Followed by the roadmap to get to this goal scenario, with at each step the necessary contributions of the different teams. But also the reason why they want to take part in this development.

## 8.1 The service of the future

The future service for the KLC Fairline should be a brand store at Schiphol Airport. Next to that, it should have branded pick-up point at the outstations. This brand store at the airport will give passengers more time to enjoy the experience of the airline, being cared for and made comfortable even before their air travel experience. Instead of waiting for the service to arrive, the passengers can pick it up themselves and eat it whenever they want to. As seen in figure 75, the store can also be used for picking up food and drinks when flying MH. Best to only provide a drink on these flights because people can pick up their snacks beforehand. Or the passengers should have pre-ordered their snacks in advance so it can be serviced onboard. On the LH flight, the store can also be used for picking up a snack and drink. However, these flights are so long that the hot meal still needs to be provided by the cabin crew to limit the hassle of warming up the meals. The

store is not just good for the customer but also good for the brand image. It is visual for even more passengers what the service is that KL provides.

The vision		Short haul 1-3h flights	Medium haul 3-6h flights	Long haul +6h flights
On airport	Free basic product	Snack & drink	Snack & drink	Snack & drink
	Paid extra product	Snack & drink	Snack & drink	Snack & drink
On board	Free basic product		Drink	Hot meal & drink
	Paid extra product		A La Carte: Snacks & drinks	A La Carte: Snack & drink

Figure 75. Service overview of Brand store

The brand store matches the style of the current Crown Lounge at Schiphol Airport, see figure 76. This store will be a place that is easy to go by for all economy passengers, who do not use the Crown lounge. The details include wood textures for the flooring and the walls, in combination with the blues and whites of the logo. The Delfts Blue houses that are received on the LH flights have a central display in the store. The F&B assortment includes fresh local products but also typical Dutch foods, like stroopwafels. All flights of KLC will use the same store, making it easy to stock up. It will also reduce the weight of F&B that goes up into the air because there will be no food on the SH flights. The passenger can take the F&B with them after scanning their boarding pass.

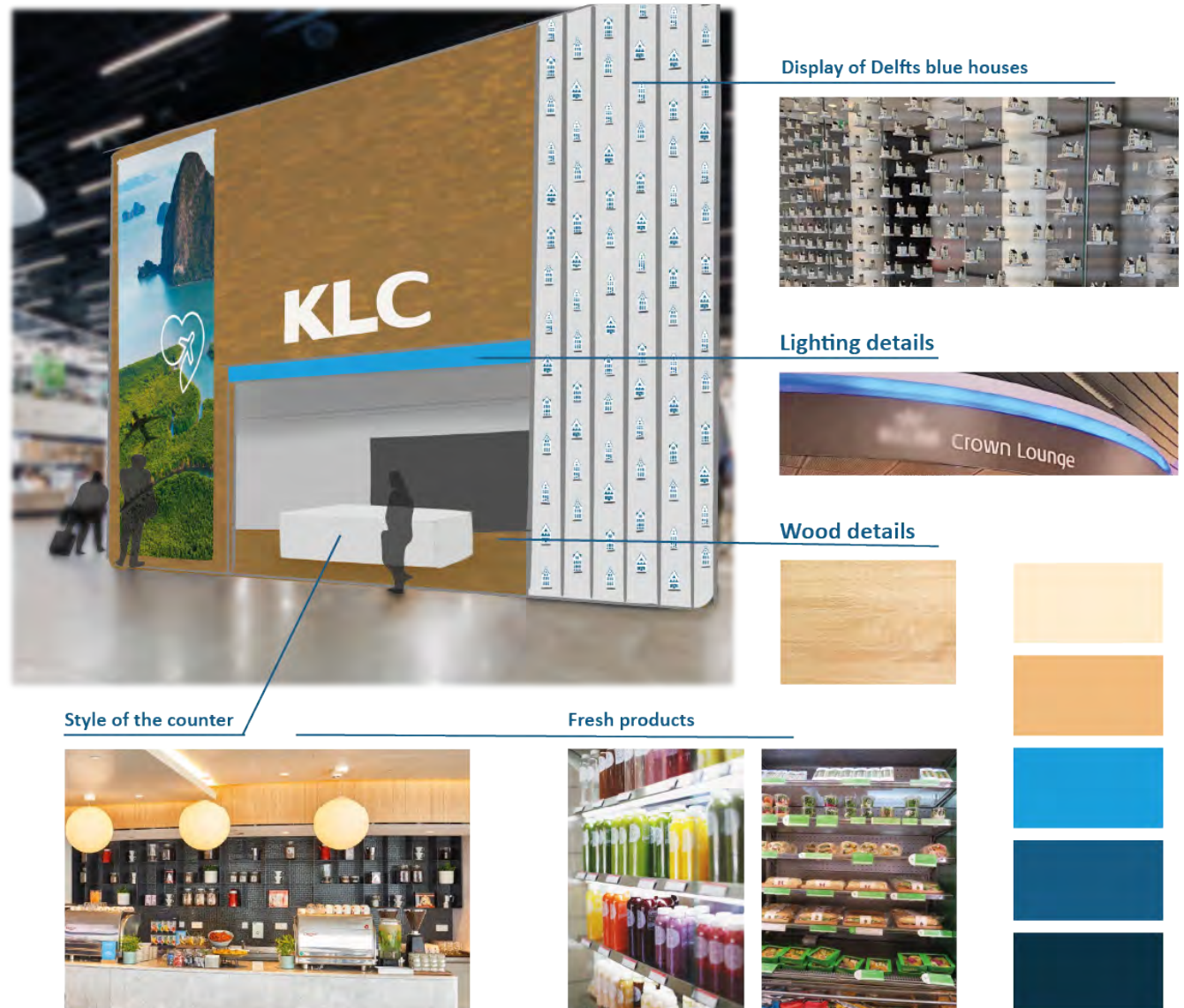


Figure 76. Brandstore design details

## 8.2 The roadmap

The roadmap toward the goal scenario can be divided into 7 steps, see figure 77 for the overview. These steps help with reducing waste in the short term. However, they prepare for a more personalized service in the future too. This roadmap takes all flights of KL into account since the SH is part of the bigger picture. A service overview per step is created to get a better overview of the entire service of KL. Figure 78 is the service overview of the current situation on all flights. In the reoadmap, step 0 is colored orange to indicate where we are now. Other steps have the colors of the type of product improvement, blues for the onboard products and green for the on airport products. Lastly, the red lines at the bottom are the current steps of CX and Inflight to improve the current ALC product.

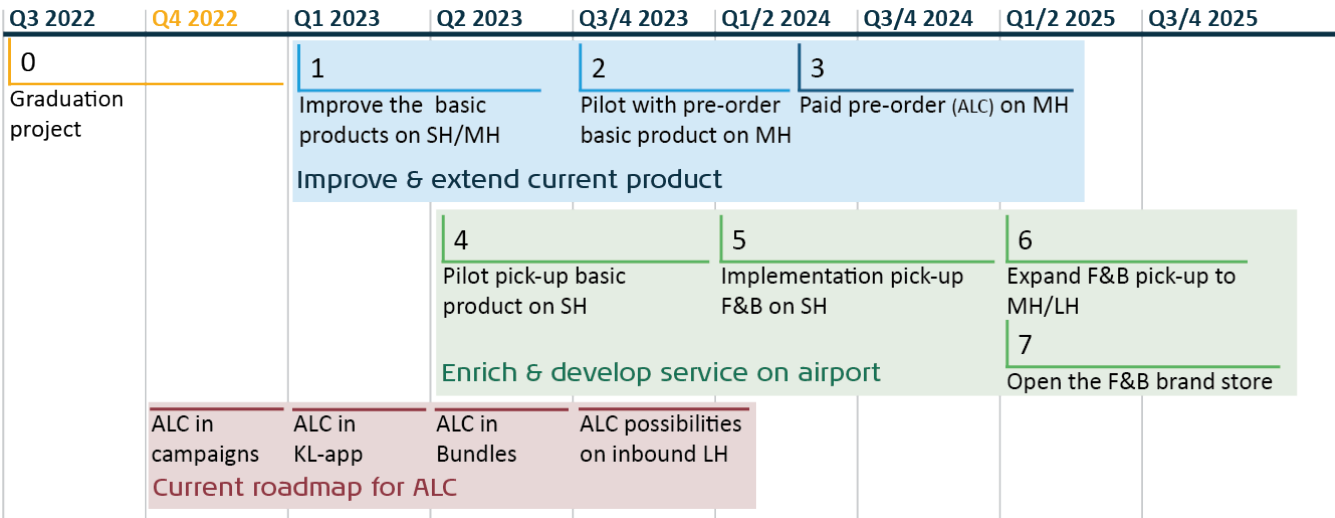


Figure 77. Roadmap

The current situation		Short haul 1-3h flights	Medium haul 3-6h flights	Long haul +6h flights
On airport	Free basic product			
	Paid extra product			
On board	Free basic product	Snack & drink	Multiple snacks & drinks	Hot meal, snack & drinks
	Paid extra product			A La Carte: Hot meal & drink

Figure 78. Service overview of current scenario

8.2.1 Step 1: Improve the basic product SH/MH

The first step in the roadmap is improving the current product so that there is less waste produced. The current bread options are necessary to be cooled which makes them impossible to reuse. Looking at a product that is not cooled will help with reducing the waste of unused products. Additionally, the packaging of the new food product should include information about the contents. The passenger needs to be in control, meaning they can read it themselves if any products contain their allergies. The service overview is show in figure 79.

Teams involved

Inflight will lead the improvements on product level, thus what type of new food needs to be introduced. They will have the challenge to come up a new typical Dutch snack that is not cooled. Combined with a design to fit the brand and have allergie information included. The process of KCS remains the same except for the product they put in the trolley. However, they still need to continue with the research into the Postmix trolley and implement it as soon as possible. Since this trolley would reduce a lot of packaging waste on all the flights. Lastly, the Customer Experience team should start a social media campaign that shows that KL is proud to provide a free F&B product during the flights. This will inform their passengers about the services. Possibly getting more passengers due to this positive attention

about the brand.

The passenger perspective

The passenger will feel cared for and knows what to expend when flying with KL. A new typical Dutch experience is presented to them what will be remembered.

Step 1		Short haul 1-3h flights	Medium haul 3-6h flights	Long haul +6h flights
On airport	Free basic product			
	Paid extra product			
On board	Free basic product	Ambient snack & drink	Multiple snacks & drinks	Hot meal, snack & drinks
	Paid extra product			A La Carte: Hot meal & drink

Figure 79. Service overview of step 1



8.2.2 Step 2: Pilot with pre-order basic product on MH

A pilot should be done with pre-order snacks on the MH flights, for possible flights see appendix 10. These pre-order snacks are the same as onboard but with one extra option. The passenger is presented with this pre-order choice during the online check-in phase. They can pick which food item they want to receive or that they do not need any food at all during their flight. Above this choice, information should be presented that this is part of a pilot to get a better insight into the use of the F&B product to make the catering product more sustainable by throwing away less food. The pilot will also give insight into the willingness to pre-order of passengers.

Teams involved and why

Inflight needs to find a way that the cabin crew can keep track of the given away products. This is necessary to see the difference between pre-ordered products and products ordered onboard. The cabin crew also needs to perform extra work because they need to look up what the passenger pre-ordered and give that away and keep track of any differences. The consequence for KCS is that they need to put on an extra type of product on the trolley. Lastly, Customer Experience needs to develop a page where the passenger can fill out their order, for online and in app check-ins.

The passenger perspective

This pilot should give the passengers more information about what to expect during the flight and give more control in what they need in terms of food. They will receive a personalized food experience with the pilot flights.

Step 2		Short haul 1-3h flights	Medium haul 3-6h flights	Long haul +6h flights
On airport	Free basic product			
	Paid extra product			
On board	Free basic product	Ambient snack & drink	Multiple snacks & drinks	Hot meal, snack & drinks
	Paid extra product		Pilot with pre-order	A La Carte: Hot meal & drink

Figure 80. Service overview of step 2

8.2.3 Step 3: Paid pre-order on MH

If the pilot of step 2 proved to be successful, it can be developed further in to a full pre-order service on the MH. All snack need to be pre-ordered and some paid options are added too. The snacks included in the ticket price will be ambient snacks so they can be put on a new trolley when not used. The paid snacks could be cooled since they are specially put in the trolley and are always used. This pre-order on the MH can not be extended to the SH because there is just too little time to give this service.

Teams involved

A new assortment of ALC snacks needs to be made by Inflight. Also, the pre-order menu needs to be put online in the check-in phase online and in app by Customer experience. The cabin crew on the MH flights will need to perform more work because they have to give the ALC snacks next to the regular free product. The OFMA teams could come up with deals or bundle options with other ancillaries after some time. Lastly, KCS will need more time in preparing the trolleys to add the extra ALC snacks.

The passenger perspective

The passengers will experience the same level of enriching their travel with ALC food on the MH as on the LH because they are presented with a choice during the check-in phase. Even if they do not want this ALC snack, they could still receive the typical service of KL.

Step 3		Short haul 1-3h flights	Medium haul 3-6h flights	Long haul +6h flights
On airport	Free basic product			
	Paid extra product			
On board	Free basic product	Ambient snack & drink	Multiple snacks & drinks	Hot meal, snack & drinks
	Paid extra product		A La Carte: Snack	A La Carte: Hot meal & drink

Figure 81. Service overview of step 3

8.2.4 Step 4: Pilot with pick-up basic product on SH

The second step in making the SH more sustainable is doing a pilot on 3 different SH flights departing from Schiphol Airport. These flights will be selected based on the service schedule so they all differ in flight time but do depart around the same time, see possible pilot flights in appendix 10. In this pilot, the passenger is informed that there will no F&B during the flight to reduce the weight of the plane and food waste. However, they can pick up their F&B at the airport after showing their boarding pass at a specific location. This location or dummy store needs to be located at the beginning of the pier where the pilot flights depart. The F&B they receive is the same as what they would receive onboard. The information should be presented in the e-mail but also during check-in. For all passengers that receive updates via SMS/app notifications, it would be nice to receive a reminder just before boarding that they need to pick up their F&B.

Teams involved

The packaging of the products onboard and in the pick-up version is slightly different. Inflight should mention these differences to KCS. Another consequence for KCS is that they would only need to provide the trolleys for the MH and LH. Further, the cabin crew on the SH flights would only need to give the F&B service to the business class and do a waste collection service on the entire plane. OFMA and Inflight would need to

search for partnerships with the food stores at Schiphol, so the pick-up service at real stores can be implemented in the future.

The passenger perspective

The passengers on the SH pilot flights would receive at an earlier moment in their journey the service of KLC. They can enjoy their F&B before stepping on the plane. Plus, they would know that using this type of service is more sustainable than before, less food is going to waste when deciding earlier what to eat.

Step 4		Short haul 1-3h flights	Medium haul 3-6h flights	Long haul +6h flights
On airport	Free basic product	Pilot with pick-up snack & drink		
	Paid extra product			
On board	Free basic product		Multiple snacks & drinks	Hot meal, snack & drinks
	Paid extra product		A La Carte: Snack	A La Carte: Hot meal & drink

Figure 82. Service overview of step 4

8.2.5 Step 5: Implementation of pick-up F&B on SH

After the pilot, the results need to be evaluated and improved where possible. The service should be set up for all SH flights departing and arriving at Schiphol to create consistency across the entire journey. New partnerships need to be created with stores at Schiphol Airport to provide the service at different pick-up locations, which will expand the options in food. The passengers should be able to recognize the stores by the KLC poster. Further, KLC should have at least one store connected to them at every outstation, so passengers can pick up the KLC F&B. There will be a difference in food offers between Schiphol and the outstations. Schiphol will be the place with all local Dutch food. The outstations will have local food of that country and are thus very different. This fits the vision of enriching the travel of the passenger but keeping the way of providing the service the same so it is easy to understand.

Teams involved

Inflight and Customer Experience need to create clear instructions on the use of the service, online and in the stores. OFMA will need to create partnerships and make it possible to offer the food as cheaply as possible with these locations. The cabin crew will have the same workload as the pilot and KCS is not responsible for the trolley for the SH.

The passenger perspective

The passengers will experience the same type of service on the SH but with different food options in every country they go to. They are made comfortable by the airline before entering the plane and they are in control when they want to eat.

Step 5		Short haul 1-3h flights	Medium haul 3-6h flights	Long haul +6h flights
On airport	Free basic product	Pick-up snack & drink		
	Paid extra product	Pick-up snack & drink		
On board	Free basic product		Multiple snacks & drinks	Hot meal, snack & drinks
	Paid extra product		A La Carte: Snack	A La Carte: Hot meal & drink

Figure 83. Service overview of step 5

### 8.2.6 Step 6: Expand pick-up to MH/LH

When the habit is created that all the passengers pick up their F&B at the airport for the SH, it can be extended to the MH and LH. For the MH it would include the main snack of the flight and the drink. Onboard a second round of drinks is available. The LH pick-up option would only be the snack and not the main hot meal, since this needs to be warm at the moment of service. Also, the drink service will still exist on these LH flights.

#### *Teams involved*

Inflight would need to remove the free snacks from the onboard trolley at MH and LH, because they will be picked up at the airport. KCS will only prepare the drink trolley and the ALC snacks (MH) and meals (LH). Further, OFMA needs to continue making deals with the stores about what is on offer and make deals/bundles for the passengers to buy possibly extra products at the stores. Lastly, Customer experience

#### *The passenger perspective*

The passengers will have the same type of control on all flights because they pick up the service themselves. Plus there is a possibility to enrich their onboard experience with the ALC options on the MH and LH. They have different stores to choose from at Schiphol Airport and at other big airports. All while being a little more sustainable because there is less food waste that travels around the world.

Step 6		Short haul 1-3h flights	Medium haul 3-6h flights	Long haul +6h flights
On airport	Free basic product	Snack & drink	Ambient snack	Ambient snack
	Paid extra product	Snack & drink	Ambient snack & drink	Ambient snack
On board	Free basic product		Drinks	Hot meal & drinks
	Paid extra product		A La Carte: Snack & drink	A La Carte: Hot meal & drink

Figure 84. Service overview of step 6



### 8.2.7 Step 7: Open the brandstore

After all the previous steps, the passengers are used to what to expect from the company. However, KL can provide for even more comfort and give more of their service before flying. By opening a brand store at the airport. All details about this store can be found in chapter 8.1.

#### *Teams involved*

Customer Experience would need to start a new team who can design the store. Inflight and Customer Experience can develop the available F&B items in the store. KCS would need to supply the catering products for the store and not in the trolleys for the SH and MH, unless it is the ALC options. Catering on the LH at the service on outstations will remain the same.



Figure 85. Service overview of current scenario

# 9. Conclusions

## 9.1 Discussion and limitations

This chapter examines previous work to get better insight into why certain topics are (not) researched.

### Assignment

The initial assignment was set by KLC to look into ways how catering on the SH could become more sustainable. This only included how the basic product was offered to the passengers. Their basic offering would include a snack plus a cooled drink, and they would still give offer a hot drink onboard during the flight. This decision was to keep the boarding process safe without any passengers carrying (dangerous) hot liquids. The focus was on the SH because KLC is responsible for at least 80% of this operation. In addition, these shorter flights are thought to be easier to experience with only a service beforehand. The service on the longer flights is too important to remove completely because this F&B service is a highlight for the passengers during their flights and a source of revenue from the ALC.

### Research

The analysis phases was completed using internal documents of the company combined with interviews with employees and users because not much literary research was found. From the start, all relevant divisions in the company were included in the project. However, getting a meeting with Inflight and Customer Experience proved to

be a bit more difficult. Only after the midterm, a first meeting took place with them. Further, the respondents to the questionnaire were mostly students. This does not fully reflect the customers of KLC and the rest of the company, more detailed research could be done with their own target group. In the co-evaluation session with the KL teams, they were asked to imagine to be the customer and rank the concepts. The current situation presented to be the highest scoring by these teams, possibly because no change in behaviour is needed. This is contradicting with the face that the entire research was set-up to change the current situation. Lastly, there was not done any research or testing done at Schiphol Airport due to unforeseen events, which created big crowds and long waiting times. Both staff at Schiphol and at KL where too busy to keep the operation running.

### Design

The roadmap shows what KLC could do to improve its service to be more sustainable. Next to what the rest of the company could do, even though not the same level of research is done into what and how they give the service on the longer hauls. The focus was only to include the passengers that

have transfers of SH to SH or SH to MH/LH or none at all. A sustainable way of traveling the last miles is also going by train, instead of a flight. The passengers that have a plane to train transfer at Schiphol Airport are not included. It was also not looked into what the different demands or wishes are of people that have plane-train transfers.

### Implementation

Besides the proposed roadmap, more items surfaced during the project that could be improved within the company. It comes down to that the current base is not up to standard. Thus start with a solid base that works all the time and where almost everybody is content with. If that is accomplished, you can start adding extra services. These extra services should work the same on all possible travel lengths to limit confusion from the passengers. Currently, almost half of the passengers experience some kind of service failure. More reason to make the current service work always and in every situation to create consistency on every trip. This includes finding more catering suppliers for the LH ALC products since this only works for departing Schiphol Airport flights.

## 9.2 Recommendations

The new proposal will bring KLC closer to more sustainable catering and personalization possibilities for the customer. However, there are still directions than can be further explored.

KLC should start with pilot testing as soon as possible since this has not happened yet. It will be important to have communication on multiple channels with the specifics of what to expect of the service. The pilot results will influence if more information is needed to explain the service. Further, a better understanding of passenger behavior is created with these pilots. It will give guidance to develop the service at the airport further. In addition, if any other changes are needed to keep the passengers comfortable after the changed onboard experience.

This research was focused on creating a new way of proving the basic and paid products of KLC and KL. However, during the sessions with stakeholders and passengers, the topic of the specific offer given came up multiple times. The catering service is not more sustainable when changing where or how you give it. The focus should be the overall operation from where you

get the food to what the passenger gets and how it is disposed after use. The topics to study further are what the basic product is and how changing a food option decreases food waste. Moreover, how can unnecessary transport be limited in every step of the operation. Possibly sourcing products locally instead of shipping items all over the world.

Lastly, further research into the transfers between planes and trains is needed. There is an increase of train-plane passengers and these passengers were not included in this research. It is necessary to make sure they will have the same ease of use and receive the same level of service from KLC as the plane-plane transfer passengers.

## 9.3 Reflection

I want to conclude how this project was for me personally with this last chapter.

At the beginning of the project, I was getting comfortable with the topic and the company, while searching for the right direction. Since my knowledge was limited about the subject. I could not find a lot of literature and this pushed my research to explore the internal documents and to speak with many people within the company. It felt good to surround myself with the different stakeholders who could inform me of relevant information and show me different locations and processes in the company. Although this gave me another feeling too, I was pushed in many different directions and I thought I had not spent enough time reading things. In addition, I was too ambitious and focused on understanding all the catering on all flight lengths. Resulting in an unclear design vision. Even though, my project was clearly defined about only the shortest flights.

Halfway, I noticed that my focus should shift to really understanding the passengers and their experiences. This was challenging for me because I have only done an elective that touched on some method about service design briefly. The preparations for the interviews and concluding everything took more time than I expected. Every design project is different in terms of subject and focus and thus every customer journey

map is different. I did not notice immediately the combination of the previous research and the insight gained from the customer. Only later on when I received the feedback to better define what the goal and vision should be of the project, I started to see why it was not clear yet. I thought that I had already defined what I was going for and why. However, I had difficulty writing down all the knowledge that I learned. Additionally, finding the right words and images to portray the vision was something that took some time and discussion with others. While finishing the report and the project, all the puzzle pieces fell into their places and it all makes sense now why I took certain steps.

I enjoyed working on this project individually, working on my own pace and being responsible for everything. I have grown a lot compared to my bachelor's end project, which is clearly visible to me now looking back. However, I missed working in a group sometimes too because coming up with new ideas together is a lot of fun and you can make so much more happen in the same amount of time. I compensated for some of this need for confirmation and progress by connecting to the stakeholders and doing the co-evaluations session. I did not know what to expect during the first session. Soon enough I realized that it was so much fun to discuss their feelings and insight about the concept directions, which gave me new energy to continue.

At the end of the project, I needed to remind myself of my role as an external consultant. The goal was for me to give a new view on the issue and not repeat what others have told me. Thus, letting go of all the possible limitations and give my personal advice on the matter. It challenged me to not keep on thinking with my analytical mind, but instead let me dream a bit about what the experience could be. I am proud that I have challenged myself in learning new skills until the end of the project. The animation for the showcase was something I had never done before but I believe it shows what the new catering service should feel and could look like in the future.

In conclusion, doing a project of this length on your own is challenging and not possible to compare to anyone. Nevertheless, it showed me that I am capable of working hard and figuring it out as I go while enjoying every step of the way.







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# Appendix

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