DESIGNING A SEAMLESS PASSENGER JOURNEY

Picking-up luggage from Origin to Destination and back

Graduation thesis
Amandine Marie
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PICKING-UP LUGGAGE FROM ORIGIN TO DESTINATION AND BACK

Graduation Thesis
Strategic Product Design
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The first time I flew in an airplane was at the age of just 3 to Mallorca, Spain. And believing my mother, I liked it very much! Since that moment I flew several times and mostly with KLM. Especially this year since my graduation I have flown more times a year than I have done before. Every time when I fly, I feel excited and nervous as if I am on a rollercoaster. The moment the airplane is making speed to get off the ground and when it is landing, is the most fun and sensational moment during the flight. This is the feeling that I also had when I started this project and during the end.

A few months before this project, the family came across an old book of my grandmother. She captured all of her journeys from when she was a child in a big book. It captures stories, flyers and photos as a memory. One of those stories was about KLM. It was a flight from Indonesia to the Netherlands. However, because of a storm the final point was England that day. In that time it was already quite an experience to fly, so complaining about a delay was not of that time. Which is inconceivable today. Nowadays people want to reach a destination as quick as possible with a great experience.

When Myrthe Lemmen told me about this graduation opportunity at KLM, I thought back to the memory of my grandmother and to my own memories. It felt excited to enter the aviation industry, which I only knew from a passenger point of view. Getting the opportunity to see it from the other sight, made me feel enthusiastic to gain experience in this industry. The project gave me the opportunity to put in practice what I have learned during my Bachelor and Master. Bringing together the passenger and the company is a great challenge. I love to design what people need or want but also that it is matching with the company. My opinion is that when something is designed only from a company point of view, it might not be what is needed/wanted by their customers. There must be a balance between consumer and company. During this project I tried to bring this together.

This project gave me the opportunity to find out what my capabilities are when working alone, but with the help and support of many people. I am very grateful to Richard Ottens for his absolute support and vision and knowledge about the industry. He guided me through the difficult times I had during the project. A special thanks to the colleagues at KLM who helped me with all the needed information and making the time to help me. They gave me the critical feedback and the compliments when I showed results. From the faculty I would like to thank Katinka Bergema and Sicco Santema for their academic support. Katinka for her critical questions, enthusiasm for the project and the help she offered. Sicco for his critical view, his vision of how the future of airports and airlines will look like as an inspiration. I appreciate the help of those who gave feedback and asked questions. Although I could be very stubborn, I truly believe that with all of you this project turned out to be one to be proud of.
EXECUTIVE SUMMARY

Royal Dutch Airlines (KLM) and the Technical University Delft, faculty Industrial Design Engineering (IDE) are working together on the Personalised Airport System for Seamless Mobility and Experience (PASSME) project.

There are two problems derived from the PASSME project. First, airport processes are not seamless, because passengers spend relatively much unwanted time at the airport. PASSME’s objective is to reduce the time spent on handling luggage by 30 minutes. Secondly, the current state of luggage check-in for passengers is experienced as negative in 21% of the cases. It is experienced as heavy, a hassle and it creates stress. PASSME aims to improve the entire quality of experience of the door-to-door journey for at least 70% of the passengers.

During the internal research at KLM, different problems were found at the luggage check-in. Passengers spend on average 6 minutes and 11 seconds at the SSDOP and 9 minutes and 50 seconds at the CUDOP. When researching the current situation for passengers several things can be concluded. A quantitative research is performed (n=86) to research the experience passengers have during their passenger journey with check-in luggage. From the research it can be deduced that passengers travelling by public transport, experience the journey less positively (4.7 out of 7), than passengers who use other types of transportation (car 5.9 out of 7, taxi 6.2 out of 7). These passengers need to travel with their check-in luggage by train, bus, metro and other public transports to reach the airport. And this travelling on public transport with their check-in luggage, causes a more negative experience and emotions, because carrying the luggage from bus to train or storing the luggage, is experienced as not very positive.

After this research it became clear where improvement was possible for passenger and airline. The experience can be improved for passengers who travel by public transport. Unwanted airport time can be reduced at the luggage check-in (SSDOP/CUDOP) and at the reclaim belt.

The solution is a door-to-door luggage service. The luggage is picked-up by a logistic partner at the home address of the passenger. The luggage is transported by a logistic partner to the accommodation of the passenger. This means that the luggage is removed out of the passenger journey from home to airport. The door-to-door luggage service improves the passenger experience when travelling to the airport by public transport to a 4.7 to 6.3. Because of this service, the passenger does not have to handle the check-in luggage anymore from origin to airport. Since this service removes the check-in luggage from the airport, the passenger does not have to spend time at the luggage check-in area nor at the reclaim area. In total, the waiting time and processing time for passengers can be reduced from 29 minutes to 34 minutes, when the door-to-door service is used.
1. ASSIGNMENT

Royal Dutch Airlines (KLM) and the Technical University Delft, faculty Industrial Design Engineering (IDE) are working together on the Personalised Airport System for Seamless Mobility and Experience (PASSME) project, which is subsidised by the European Commission. The PASSME project comprises of a collaboration between several European (aviation) partners with the objective of creating a seamless and stress free journey for airline passengers. PASSME’s objective is to reduce the time spent on handling luggage by 30 minutes. In addition, PASSME aims to improve the entire quality of experience of the door-to-door journey for at least 70% of the passengers (DeLille, 2014). Taking the objectives from PASSME into account, this graduation project investigates how to optimise the flow of check-in luggage, while allowing the passenger to track and trace their luggage.

The department of KLM Baggage Turnaround Services (BTS) is responsible at Schiphol for handling all check-in luggage on KLM operated flights. On a yearly basis BTS handles around 33 million suitcases, originating from around 370 airplanes a day. The amount of check-in luggage will increase in the coming years because of the increased demand for commercial flights. Airports expect a continuous increase in demand for commercial flights in Europe from 9.4 million in 2011 to up to 25 million in 2050 (Commission, 2011). The problem is that airports cannot grow (at the same pace) to meet such an exponential rate of demand (Snowdon et al., 1998). This results in passengers and airlines suffering from congestion during peak travel periods (Zhang & Zhang, 2006). The long queues that arise before luggage check-in forms a stress point for passenger which prevents a seamless airport experience (SITA, 2015a). Due to these bottlenecks, and corresponding increases in waiting times, it can cause passengers to miss their flight, or can result in costly delays (Ottens, 2015).

As well as the PASSME project, KLM has its own ambition for the future. KLM wants to become the most customer centric, innovative and efficient
European network carrier (KLM.com, 2015). So the interests of KLM align with the objectives of PASSME. Both place the passenger first and strive for efficiency of the airport processes. Being part of this project shows that KLM is willing to invest and innovate to achieve its goals.

**Problem definition**
There are two problems derived from the PASSME project:

- First, airport processes are not seamless, because passengers spend relatively much unwanted time at the airport. This is also the case for luggage check-in. Since queuing causes delays in the passenger journey and a delay is noted as wasted time (DeLille, 2014), passengers experience checking luggage as wasted time when they need to wait in line for the drop-off.
- Secondly, the current state of luggage check-in for passengers is experienced as negative in 21% of the cases (SITA, 2015b). It is experienced as heavy, a hassle and it creates stress (DeLille, 2015). Besides these feelings there is little known about the experience passengers have at a certain point in time when travelling with their luggage. This is a problem since some points may cause a more negative feeling than others. So to improve the experience of 70% of the passengers it is desirable to know where improvement is needed in the passenger journey.

**Research question**
To improve the current state of the luggage check-in process, one must know what to improve. Knowing what to improve is possible when the current state of the process is researched. The goal of this study is to research the experiences and the time spent on the process of check-in luggage. The following research questions contribute to the understanding of the current process:

1. What is the current situation for KLM passengers?
   a. What is their luggage journey?
   b. Where is the (unwanted) time spent in the different steps arising from the luggage process?
   c. What is their experience in (dis)comfort?

2. What is the current state of KLM’s process for handling check-in luggage?
   a. What is KLM’s check-in luggage journey?
   b. What are the (unwanted) process times of the individual process steps?

3. At which moments within the luggage journey at the airport and the passengers’ journey is improvement needed/possible to make it more seamless?
   a. Which unwanted time-consuming moments overlap?
   b. Which negative experiences and moments overlap?

The answer to these questions contribute to the following assignment for this graduation project:

*Designing a new seamless passenger journey from the perspective of the passenger experience, relating to ‘check-in luggage’ from the departure point to the destination point, to improve the experience and reduce unwanted airport time.*

&

*Writing an implementation plan for this new journey within KLM.*

**Results**
To deliver a service or product that can contribute to the goals of KLM and PASSME the outcome of this graduation project provides:

- A conceptual service/product that contributes to a seamless passenger journey, which improves the passenger experience and reduces the unwanted airport time, relating to check-in luggage.
- A plan for KLM to implement the new passenger journey.
This internal analysis explores KLM’s current situation with a focus on check-in luggage. A closer look at KLM is taken, what are its goals and vision and what KLM wants to be known for. The extracted information gives guidelines for the future design of a product and/or service.

The current touchpoints of check-in luggage are reviewed. The stakeholders that are involved in the process are mapped and described from KLM’s point of view. Finally, the current way of handling check-in luggage from the passengers’ point of view is analysed to create a better understanding of the process. The internal analysis will conclude with the strengths and weaknesses of KLM. These insights provide the input for facilitating the ideation phase.
2.1 KLM

The Royal Dutch Airlines (KLM) was established on the seventh of October 1919. Although KLM was not the first airline established, KLM is the oldest airline still operating under its own name. In 2004 KLM merged with Air France to create a stronger market positioning. The airlines collaborate on passenger transport, cargo transport and aircraft maintenance (SkyTeam, 2014). The KLM group has several companies under its wing, KLM itself, and other companies like KLM Cityhopper, Transavia.com and Martinair (KLM.com, 2015). In 2014 KLM transported 27.7 million passengers. Around 70% of the passengers that fly with KLM transferred at Amsterdam Airport Schiphol (KLM, 2015).

2.1.1 MISSION STATEMENT

The mission statement describes the business goals of the company and the business it is in. KLM’s stated mission is:

"With Air France, KLM is at the forefront of the European airline industry. Offering reliability and a healthy dose of Dutch pragmatism, 32,000 KLM employees work to provide innovative products for our customers and a safe, efficient, service-oriented operation with a proactive focus on sustainability. KLM strives to achieve profitable growth that contributes to both her own corporate aims and to economic and social development ... ." (KLM.com, 2015)

KLM wishes to be(come) the market leader in the airline industry. To become the market leader KLM needs to grow as a company and be an example in offered products and services. When providing outstanding service and innovative products, KLM needs to dare to reach out, initiate and explorer new ways to attract and maintain customers. Ultimately, KLM needs to be passengers’ airline of choice in order to lead the airline industry.

However, this mission statement is very broad and is not specifically for check-in luggage. What can be taken from this mission for a new product or
service is that KLM wants to provide innovative products for the customers and that it should be efficient, safe and service oriented. A potential mission for KLM related to check-in luggage is to reduce the irregularity rate (IRR) to 24 pieces of mishandled bags (MHB) per 1000 passengers that check-in luggage. The reasons to improve this rate are to reduce the costs of MHB and to improve passengers’ experience.

2.1.2 VISION
The vision of KLM is again very broad and about the entire company. However, it can be used as a guideline for designing a product or service so that it will fit the vision of KLM. KLM states its vision as:

‘KLM wants to become the most customer centric, innovative and efficient European network carrier ... KLM wants to be the customers’ first choice, ... With smart partnerships and pioneering new destinations, KLM offers global access through its extensive network. By responding to market opportunities and technological developments, KLM offers customers a contemporary product.’ (KLM.com, 2015)

As already mentioned, from the mission statement, the products or services should be innovative. KLM wants to be perceived as customer centric. Therefore the passenger is and should be important and be considered in every decision that needs to be taken that might affect the passenger. The only innovative ‘product for check-in luggage’ was introduced in 2008, the self-service bag drop. This machine is always available, the passenger is in control and is able to check-in luggage in a shorter time (Ghee, 2011; Schiphol, 2011b). This product is also beneficial for KLM itself, since less employees are needed for luggage check-in as the process is automated.

2.1.3 VALUES
KLM has four values that represent the important priorities and drivers of the company. The values describe the desired culture:

- Dutch: KLM uses its heritage to surprise and delight its passengers
- Inspirational: KLM enriches the passenger’s journey
- Open: KLM is always welcoming passengers in a warm and transparent way
- Reliable: Always safety first. KLM does what it says it will do, and says what it really does.

When checking the values on check-in luggage, only reliability is visible. KLM wants to reduce the mishandled bags and the irregularity rate. This means that it wants to be reliable in the sense that KLM will deliver check-in luggage when the passenger is waiting at the reclaim belt.

2.1.4 CONCLUSION
The company strategy does not say anything specifically about check-in luggage. This is because there is not a specific strategy that covers the different parts of KLM that engages check-in luggage and the passengers’ experience. There is at least one goal: to reduce the amount of mishandled bags per 1000 passengers. But a real strategy, about the manner in which KLM transports check-in luggage of passengers, and about how KLM wants to be perceived in the field of check-in luggage and what it wants to offer the passenger, is missing.

The company strategy provides certain guidelines that a product or service has to meet in order to fit within the company. A product or service should be:

- Innovative
- Customer centric
- Service oriented
- Efficient
- Safe
- And contain the four values: Dutch, inspirational, open and reliable.
2.2 MARKETING MIX

The marketing mix provides insights in how KLM utilises the attributes Product, Place, Price and Promotion to position the product in the market. It is assumed for the project that the current marketing mix is putting the right product, in the right place, at the right time.

2.2.1 PRODUCTS & SERVICES

KLM promises the consumer a ‘journey of inspiration’. However, what KLM simply offers is a travel service from point A to point B. The journey of inspiration is offered to make people enthusiastic about a destination and keep them up to date about what they can do there once booked. This A to B service is offered to passengers, which is about B2C (business to consumer), and to other businesses (B2B).

Companies can send their cargo with KLM and other airlines can make use of the maintenance KLM offers for its airplanes. B2B is not the focus for this project, since this project is focused on the passenger.

Luggage used to be included in the purchase price of the passenger’s ticket. Since the 22nd of April 2013, check-in luggage is a paid option on European flights. Because it is a paid option, it can be said that transporting luggage is a product and should be included in the list of what KLM offers. Nonetheless, it is only possible to book this option when the passenger takes the same flight. It is not possible to only book luggage to check-in. This has to do with the aviation law, article 37g (Overheid, 2014). However, it is possible to book luggage as cargo.

2.2.2 PLACE & PROMOTION

The option to take check-in luggage with the flight can be bought online at KLM.com and other online travel agencies like vliegwinkel.nl, or at the airport, or at physical travel agencies.

The only promotion KLM offers regarding the check-in luggage is a discount when the customer arranges it online. This discount is 20-50%. So prices vary when arranged online at KLM.com compared to when booking this option at other sale venues.
2.2.3 PRICE

Consumers use a high price as a quality signal (Huang & Sarigöllü, 2012). Passengers often experience the ticket prices of KLM as high in comparison to the ‘price fighters’ on the market. This creates an expected quality that KLM needs to deliver to stay credible. KLM will not win on low price, but it can win on the quality and the experience that it delivers. So the pricing strategy is based on a wider range of factors than price (Vos, 2012).

The main focus for this project is check-in luggage, and that is what this section will describe in more detail. There are price differences between economy class, Business class and the destination, whether it is Europe or Intercontinental. See “Table 1: Prices of check-in luggage for economy class” on page 15, “Table 2: Prices of check-in luggage for business class” on page 16 and “Table 3: Prices of check-in luggage for economy class with Flying blue Ivory” on page 17, for the price lists. The current prices are retrieved from KLM.com in May 2016. When booking at other agencies

the price can be higher in comparison to KLM.com.

Business class passengers and Silver members and higher up to Platinum of Flying Blue receive more advantages. They can always take two pieces of check-in luggage for free, if it is the approved size and weight. Additionally, the Flying Blue Ivory members that fly economy, benefit from extra benefits. These members can bring check-in luggage for a lower price than normal economy passengers. Thus, taking luggage with you as a passenger is only a paid service when travelling economy class and within Europe. When flying Intercontinental, at least one piece of check-in luggage is included for free for all booking classes.

So there are price differences between booking classes and dependent on if passengers are a Flying Blue member or not. This shows that business class passengers and platinum members and up take two suitcases for free. While an economy class passenger without benefits pays at least 25 Euro’s, when travelling in Europe.

<table>
<thead>
<tr>
<th>Booking class</th>
<th>Type of luggage</th>
<th>Price (€)</th>
<th>Type of luggage</th>
<th>Price (€)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Online</td>
<td>Airport</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Economy</td>
<td>Suitcase</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>1 suitcase</td>
<td>25</td>
<td>35</td>
<td>25</td>
</tr>
<tr>
<td></td>
<td>Extra suitcases</td>
<td>45</td>
<td>70</td>
<td>45</td>
</tr>
<tr>
<td></td>
<td>Heavy suitcase</td>
<td>105</td>
<td></td>
<td>105</td>
</tr>
<tr>
<td></td>
<td>Each extra heavy suitcase</td>
<td>140</td>
<td></td>
<td>140</td>
</tr>
<tr>
<td>Sport equipment</td>
<td>Dive equipment</td>
<td>25</td>
<td>35</td>
<td>25</td>
</tr>
<tr>
<td></td>
<td>Golf equipment</td>
<td>25</td>
<td>35</td>
<td>25</td>
</tr>
<tr>
<td></td>
<td>Fishing equipment</td>
<td>25</td>
<td>35</td>
<td>25</td>
</tr>
<tr>
<td></td>
<td>Ski or snowboard equipment</td>
<td>25</td>
<td>35</td>
<td>25</td>
</tr>
<tr>
<td></td>
<td>Weapons</td>
<td>25</td>
<td>35</td>
<td>25</td>
</tr>
<tr>
<td></td>
<td>Surf equipment</td>
<td>25</td>
<td>35</td>
<td>25</td>
</tr>
<tr>
<td></td>
<td>Bicycle or tandem</td>
<td>55</td>
<td></td>
<td>55</td>
</tr>
<tr>
<td>Pet</td>
<td>Pet</td>
<td>55</td>
<td></td>
<td>55</td>
</tr>
<tr>
<td>Oversized baggage</td>
<td>Up to 23 kg</td>
<td>110</td>
<td></td>
<td>110</td>
</tr>
<tr>
<td></td>
<td>23-32kg</td>
<td>180</td>
<td></td>
<td>180</td>
</tr>
<tr>
<td>Oversized baggage</td>
<td>Up to 23 kg</td>
<td></td>
<td></td>
<td>300</td>
</tr>
<tr>
<td></td>
<td>23-32kg</td>
<td>300</td>
<td></td>
<td>300</td>
</tr>
</tbody>
</table>

Table 1: Prices of check-in luggage for economy class
**Table 2: Prices of check-in luggage for business class**

<table>
<thead>
<tr>
<th>Booking class</th>
<th>Type of luggage</th>
<th>Price (€)</th>
<th>Type of luggage</th>
<th>Price (€)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Online</td>
<td>Airport</td>
<td></td>
<td>Online</td>
<td>Airport</td>
</tr>
<tr>
<td>Business</td>
<td>Suitcase</td>
<td>2 free</td>
<td>2 free</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td></td>
<td>extra suitcases</td>
<td>45</td>
<td>70</td>
</tr>
<tr>
<td></td>
<td></td>
<td>heavy suitcase</td>
<td>140</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>each extra heavy suitcase</td>
<td>140</td>
<td></td>
</tr>
<tr>
<td>Sport equipment</td>
<td>Dive equipment</td>
<td>45</td>
<td>70</td>
<td>Dive equipment</td>
</tr>
<tr>
<td></td>
<td>Golf equipment</td>
<td>45</td>
<td>70</td>
<td>Golf equipment</td>
</tr>
<tr>
<td></td>
<td>Fishing equipment</td>
<td>45</td>
<td>70</td>
<td>Fishing equipment</td>
</tr>
<tr>
<td></td>
<td>Ski or snowboard equipment</td>
<td>45</td>
<td>70</td>
<td>Ski or snowboard equipment</td>
</tr>
<tr>
<td></td>
<td>Weapons</td>
<td>45</td>
<td>70</td>
<td>Weapons</td>
</tr>
<tr>
<td></td>
<td>Surf equipment</td>
<td>45</td>
<td>70</td>
<td>Surf equipment</td>
</tr>
<tr>
<td></td>
<td>Bicycle or tandem</td>
<td>55</td>
<td></td>
<td>Bicycle or tandem</td>
</tr>
<tr>
<td>Pet</td>
<td>55</td>
<td>Pet</td>
<td>55</td>
<td>Pet</td>
</tr>
<tr>
<td>Oversized baggage</td>
<td>up to 23 kg</td>
<td>75</td>
<td>Oversized baggage</td>
<td>up to 23 kg</td>
</tr>
<tr>
<td></td>
<td>23-32 kg</td>
<td>145</td>
<td>23-32 kg</td>
<td>400</td>
</tr>
</tbody>
</table>

**Table 3: Prices of check-in luggage for economy class with Flying blue Ivory**

<table>
<thead>
<tr>
<th>Booking class</th>
<th>Type of luggage</th>
<th>Price (€)</th>
<th>Type of luggage</th>
<th>Price (€)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Online</td>
<td>Airport</td>
<td></td>
<td>Online</td>
<td>Airport</td>
</tr>
<tr>
<td>Economy Flying Blue Ivory</td>
<td>Suitcase</td>
<td>No suitcase</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1 suitcase</td>
<td>15</td>
<td>17,5</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Extra suitcases</td>
<td>45</td>
<td>70</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Heavy suitcase</td>
<td>87,5</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Each extra heavy suitcase</td>
<td>140</td>
<td></td>
</tr>
<tr>
<td>Sport equipment</td>
<td>Dive equipment</td>
<td>15</td>
<td>17,5</td>
<td>Sport equipment</td>
</tr>
<tr>
<td></td>
<td>Golf equipment</td>
<td>15</td>
<td>17,5</td>
<td>Golf equipment</td>
</tr>
<tr>
<td></td>
<td>Fishing equipment</td>
<td>15</td>
<td>17,5</td>
<td>Fishing equipment</td>
</tr>
<tr>
<td></td>
<td>Ski or snowboard equipment</td>
<td>15</td>
<td>17,5</td>
<td>Ski or snowboard equipment</td>
</tr>
<tr>
<td></td>
<td>Weapons</td>
<td>15</td>
<td>17,5</td>
<td>Weapons</td>
</tr>
<tr>
<td></td>
<td>Surf equipment</td>
<td>10</td>
<td>15</td>
<td>Surf equipment</td>
</tr>
<tr>
<td></td>
<td>Bicycle or tandem</td>
<td>55</td>
<td></td>
<td>Bicycle or tandem</td>
</tr>
<tr>
<td>Pet</td>
<td>55</td>
<td>Pet</td>
<td>55</td>
<td>Pet</td>
</tr>
<tr>
<td>Oversized baggage</td>
<td>Up to 23 kg</td>
<td>92,5</td>
<td>Oversized baggage</td>
<td>Up to 23 kg</td>
</tr>
<tr>
<td></td>
<td>23-32 kg</td>
<td>162,5</td>
<td>23-32 kg</td>
<td>400</td>
</tr>
</tbody>
</table>

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KLM Royal Dutch Airlines
Designing a Seamless Passenger Journey for KLM
Delft University of Technology
2.3 STAKEHOLDERS

To create a better understanding of who are involved in the process, this analysis now turns to considering the handling of check-in luggage and providing an overview of KLM’s stakeholders. The main stakeholder that is involved in the entire process, and who experiences the process, is the passenger. The other stakeholders that have an influence in the process of the passenger are Amsterdam Airport Schiphol (AAS), SkyTeam and those responsible for security and safety, of check-in luggage.

2.3.1 PASSENGERS

As already mentioned, the passenger is the one who experiences the largest part of the process at the airport from the moment he books a ticket until the moment the passenger has retrieved the check-in luggage from the reclaim belt. From the moment the passenger books a ticket he experiences the interaction with KLM. From the moment the passenger enters the airport area he is engaging with the other stakeholders. At the airport the passengers make use of the facilities that AAS is offering. The passenger also sees the security personnel at Schiphol and when crossing the ‘border’, the staff of KLM and other airlines. These facilitating stakeholders contribute to how the passenger experiences the process of being at the airport.

The passengers at AAS can be allocated into five groups. The reason for passengers to travel can be divided into: business, congress/study, leisure, and visiting friends/relatives (Schiphol, 2015). As described by KLM in the annual report of 2014: “Customers are becoming more and more demanding, digitalization is continuing and competition is extremely fierce.” So taking into account the needs and wishes of your passengers, is important to deliver the service that is expected, and beyond what is expected. Since the internet has become ubiquitous, it is easy for customers to find more information about products and services. This makes it easy to compare the different airlines based on price of the ticket, price of luggage and service and whatever is preferred by the customer. With the gathered information, passengers can make a choice based on their demands.
2.3.2 AMSTERDAM AIRPORT SCHIPHOL

AAS is one of the most important stakeholders of KLM. AAS generates revenue by renting areas, shops, offices, and gates. KLM is paying per passenger to make use of the facilities and the infrastructure that AAS offers.

AAS is the biggest airport in the Netherlands. This airport is an important touchpoint for passengers as it is one of the first physical touchpoints that influences the travel experience. In 2014, 55 million passengers travelled through AAS (Schiphol, 2015). From AAS it is possible to fly to 319 destinations, this is offered by the 103 airlines that are flying from this airport. This makes AAS one of busiest airports in the world (Airports Council International, 2015). One of the reasons that AAS processes that many passengers is that it is the home carrier of KLM. 51% of the processed passengers travelled with KLM in 2014 (KLM, 2015). Next to that AAS is also a hub, which means that passengers transfer at this airport. The amount of passengers transferred in 2014 AAS handled was in total 40.5% of the 55 million.

To compete with other hubs AAS does not focus on being the largest and most modern airport, AAS aspires to be the most preferred airport by passengers and airlines. Although AAS wants to differentiate itself by offering an efficient transfer service and extensive network of destinations it is not yet contributing to be the most preferred airport (Skytrax, 2015). This means that AAS needs to keep innovating and investing to be the most preferred airport. An example are the improvements for passenger comfort. AAS already fully implemented, since June 2015, five central security filters. Another example is the backbone that connects the different luggage areas. It makes the luggage sorting system more flexible and reliable. The capacity is now that 70 million pieces of check-in luggage can be processed at AAS a year, which was 50 million (Schiphol, 2009).

So KLM is depending on AAS when it comes to handling the check-in luggage. KLM depends on the space for passengers to drop-off the luggage. And KLM is dependent of the system they are able to use to handle the check-in luggage. So it is important to be on good terms with AAS in order to get things done, since AAS sets the rules.

Figure 8: Facts and figures Amsterdam Airport Schiphol 2015
2.3.3 SKYTEAM
KLM joined SkyTeam in 2004 (Skyteam, 2015). SkyTeam is one of the three major airline alliances. By joining the alliance KLM is connected to a global network. Joining SkyTeam enables KLM to offer their passengers “more destinations, better deals and easy connections.” Within SkyTeam 20 airlines are working together to get passengers to 1052 destinations in 177 countries. It is possible that passengers book a flight with KLM and eventually will make use of the alliance airline or transfer to the alliance airline at another airport in the world. KLM handles ground handling for most of its members. Next to handling the check-in luggage, SkyTeam has a vision and a strategy and therefore the partners of SkyTeam are given guidelines. These guidelines make sure that the allied airlines follow the same rules, in order to treat the passengers the same way. An example is that Flying Blue members are allowed to enter the lounge of partner Delta.

2.3.4 SECURITY & SAFETY
Security and safety at AAS is extremely important, for passengers and people working at AAS. Since the terrorist attacks on the 11th of September in New York, there is more attention to security and safety at airports. The security and safety involves multiple companies and organisations.

The Koninklijke Marechaussee is a governmental organization, which operates as police at AAS. They are responsible for guaranteeing the security and guarding the borders. Since 2003 certain jobs are outsourced to private companies (Schiphol, 2008). The companies that are hired by AAS are I-SEC, SDBV, Securitas and G4S. The responsibilities are controlling the luggage, checking the travel documents and screening preventively.

- SDBV is responsible for the luggage, luggage carts, luggage depot, lost and found and security at landside.
- G4S is responsible for ensuring the safety of the airport, the flight and the passengers. Inspection of passengers, crew, airport staff and luggage that enters airside. The next task is to screen check-in luggage. This can be cargo, catering, luggage of crew and passengers.
- I-SEC also screens passengers and their hand and check-in luggage.
- Securitas screens staff and cargo in the periphery and has surveillance tasks at airside.

2.3.5 OTHER AIRLINES
KLM has multiple competitors in flying all over the world and transporting consumers (B2C). These other airlines account for 49% of the passengers at AAS. The competitors will be discussed in section “3.2 Competitors” on page 46. KLM also has airlines as customer that make use of the B2B services. For these airlines KLM deals with the services needed for the airplane on the ground. These services can include, reservation and ticketing, check-in, luggage handling, boarding...
and aircraft ramp handling (Vervoort, 2015). Most SkyTeam partners make use of KLM as handler at AAS. In turn, KLM makes use of the handlers at the destinations where the SkyTeam partner has its home base. Thus, besides serving customers, KLM also serves passengers of other airlines.

When another airline is involved KLM is dependent on this other airline. An example is when an airplane is landing at AAS and the passenger has a connection to KLM. The passenger can make the transfer just in time, but the luggage might not be on time in the hold. In such cases it is important to work together to provide as much customer satisfaction as is possible in the circumstances.

2.3.6 OTHER HANDLERS
As mentioned, KLM does the work on the ground for its own airplanes and for those of other airlines. However, when an airplane of KLM arrives at another airport than AAS another handler is handling the airplane. This handler can be a competitor at AAS but at another outstation they are collaborating together with KLM. At these outstations the competition will handle the airplane and luggage of KLM.

The employees of KLM who work on the ground are called ground agents. The agent that is involved during the check-in process is the landside agent. This agent has insights regarding the check-in of luggage. Therefore, most information in this chapter was obtained by listening to such agents, to understand the problems that they identified (encountered) and the comments they received from passengers. This chapter is divided into the normal check-in desk (CUDOP) where passengers are being served by ground agents and the self-service drop-off point (SSDOP). It has been separated in this way because each has its own ‘problems’.

When passengers arrive at departure hall, they can see on the screens at which drop-off point they are able to check-in their luggage. The number of agents that are deployed and the number of SSDOP’s that are being used, depends on the number of expected passengers that will enter the area. When passengers arrive at the entry point for luggage drop-off they are welcomed by hosts. The host(s) check if the passenger needs to be at this point and if the passenger has a boarding pass. If the passengers has no boarding pass he or she is guided to the check-in kiosks.

The floorplan of the departure can be found in “Appendix B: Floorplan departure hall AAS”.

2.4 HANDLING CHECK-IN LUGGAGE AT DEPARTURES

2.4.1 SELF SERVICE DROP-OFF POINT
When passengers are flying economy class it is preferred that they make use of the Self Service Drop-Off Point (SSDOP). The reasoning behind this is that it only requires a maximum of two landside agents for six machines and one or two agents who are verifying the documents (Gonsalves, 2016). Formerly, the position where the SSDOP’s are now installed, there were five regular drop-off points for luggage, and each needed to be staffed. Extra points for luggage drop-off and the fewer agents that are required now, creates a cost reduction in the long run and a higher passenger capacity.
Every process has a maximum waiting time for passengers. When the maximum waiting time is exceeded, the capacity needs to be adapted to stay within the norms which can be seen in Table 4. KLM has measured the waiting times and service times for the year 2015 (Vogelpoel, 2016). Depending per point, 1000 passengers are measured or even more than 10,000. The minimum waiting time was 0 since passengers can just walk to the machine. The maximum waiting time was 31 minutes and 53 seconds. The average waiting time was 3 minutes and 1 second for drop-off points row 7 and 12/13. However, the measured maximum waiting time indicates that long lines do occur and this directs to unwanted time spent on waiting.

The agents who are helping the passengers to check-in, help with all kind of problems that are experienced by the passengers. Most problems that occur are because the SSDOP is unclear in what a passenger should do and how to do it. The effect is that passengers need to spend more time at the machine. This has a snowball effect on the people waiting to drop-off their check-in luggage. They need to wait longer before it is their turn. The problems that occur at the SSDOP are listed in Appendix D on page 202.

<table>
<thead>
<tr>
<th>Drop-off point</th>
<th>Explanation</th>
<th>% that needs to be achieved</th>
<th>Maximum waiting time (minutes)</th>
<th>Measured Maximum waiting time (minutes)</th>
<th>Average waiting time</th>
<th>Average service time (minutes)</th>
<th>Measured Average service time (minutes)</th>
</tr>
</thead>
<tbody>
<tr>
<td>SSDOP</td>
<td>Self Service Drop-Off Point</td>
<td>90 %</td>
<td>8</td>
<td>31.53</td>
<td>4.12</td>
<td>1.59</td>
<td>No information</td>
</tr>
<tr>
<td>SSDOP / Service</td>
<td>The staffed drop-off points when it is crowded or when check-in at the SSDOP did not succeeded</td>
<td>85 %</td>
<td>5</td>
<td>No information</td>
<td>3.53</td>
<td>No information</td>
<td>No information</td>
</tr>
</tbody>
</table>

Table 4: Norms and Waiting times of the SSDOP rows 7 and 12/13

2.4.2 COMMON DROP-OFF POINT

The Common Drop-Off Point (CUDOP) is only used when it involves a business class passenger, when a passenger has trouble to check-in or when it is crowded and long lines emerge at the SSDOP’s. The agents at these check-in counters do not experience many problems with the handling of the check-in luggage, since they are experienced in performing the same tasks, which is asking certain security questions, connecting the passenger to the check-in luggage and labelling the luggage and sending it away.

Also the CUDOP has a maximum waiting time for passengers. When the maximum waiting time is exceeded, the capacity needs to be adapted to stay within the norms (Table 5 on page 28). For the CUDOP’s KLM has measured the waiting time and the service time. The maximum waiting time is 1 hour 6 minutes and 49 seconds for economy passengers. The average service time is 4 minutes.
and 26 seconds. When a passenger goes to row 8 or 16 there is probably something going wrong e.g. a problem with the person checking-in or the weight of the check-in luggage is above 23 kilograms. That might explain why it takes longer than the required standard, because the agent then needs to solve a problem.

Passengers who are part of a frequent flyer program and those who are flying business class are allowed to drop-off their check-in luggage at the special sky priority area. The Business class drop-off point has an average waiting time of 1 minute and 26 seconds and a service time of 2 minutes and 52 seconds. As can be seen in the table below, the maximum waiting time and average service time is exceeded. Most commonly this is because the agent and passenger are talking to each other. The agents feel that they should give more attention to these passengers.

Problems that occur at the CUDOP are mostly based on discussions with the passengers. The following problems are described by multiple agents. For instance about the excess luggage weight or that they are too late for the luggage check-in.

<table>
<thead>
<tr>
<th>Drop-off point</th>
<th>Explanation</th>
<th>% that needs to be achieved</th>
<th>Maximum waiting time (minutes)</th>
<th>Measured Maximum waiting time (minutes)</th>
<th>Average waiting time</th>
<th>Measured Average service time (minutes)</th>
</tr>
</thead>
<tbody>
<tr>
<td>CUDOP</td>
<td>Common Use drop-off point</td>
<td>83%</td>
<td>2</td>
<td>27.17</td>
<td>1.26</td>
<td>2.12</td>
</tr>
<tr>
<td>Business</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CUDOP</td>
<td>Common Use drop-off point</td>
<td>90%</td>
<td>2</td>
<td>66.49</td>
<td>7.44</td>
<td>2.14</td>
</tr>
<tr>
<td>Economy</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 5: Norms and Waiting times Common use drop-off point for business (row 10 and 11) and economy (row 8 and 16)

2.4.3 CONCLUSION

Different problems occur at the luggage check-in. The first problem is that the maximum waiting time is exceeded for the SSDOP and the CUDOP. The same applies for the average service time of the CUDOP, it is again exceeded. So passengers spend more time standing in line and dropping off their check-in luggage than what should be sufficient according to the norms of KLM. Thus the passengers experience unwanted time at the airport. A further identified problem is that some passengers do not know how the SSDOP works or they do not know the rules in general regarding check-in luggage. Not knowing the rules not only influences the SSDOP, it influences also the CUDOP. It creates discussions with agents, which could have been avoided if the rules were clearly communicated in advance.
2.5 HANDLING CHECK-IN LUGGAGE AFTER DROP-OFF

Once passengers have checked in their check-in luggage, it is under the control of the airport and the airline. This chapter reveals the journey of check-in luggage from the point that it is checked in. The journey of check-in luggage can be divided into three steps: departure, transfer and arrival.

2.5.1 DEPARTURE
The start of the check-in luggage is at the staffed check-in desk or at the Self Service Drop-Off Point (SSDOP). At these points the luggage gets a LPC (License Plate Code) Tag. This LPC is an index number linking a piece of luggage to a BSM (Baggage Source Message) which communicates the flight details and passenger information. This BSM communicates the information to Schiphol’s BHS (Baggage Handling System) and to the application ‘Bag Manager’ of KLM (Lemmen, 2016). Bag Manager has the functionalities for managing luggage with the help of the LPC. Examples of Bag Manager are: providing information for loading, tracking, tracing, reconciling and sorting of luggage.

When the luggage has its tag it is ready to be forwarded to the BHS. Here the luggage is sorted and registered at checkpoints. The checkpoints are saved with a BPM (Baggage Processing Message). During the journey the luggage is also screened for security reasons. Luggage needs to be cleared before it can continue to the airplane. When it is not cleared it needs to get scanned and, if needed, it is opened for a check. When the luggage is cleared it can continue its journey.

When the luggage arrives at the loading quay, it is at the point where it will be loaded onto trolleys or into a Unit Loading Device (ULD). When the luggage is loaded into a ULD it is scanned, to link the pieces of luggage with this container. When the luggage is packed in the airplane’s compartment a Hold Loading Device (HLD) is scanned to link the luggage to the flight. This luggage is placed onto trolleys. Both devices only show how many pieces are on board the airplane or container. When the passenger is not on board of the airplane, the luggage needs to be unloaded from the airplane (baggage reconciliation). When the luggage is loaded and the airplane is ready for take-off a BMM (Baggage Manifest Message) is send to the outstation (Lemmen, 2016). A BMM contains information on how many pieces of luggage and passengers are on board the flight.

2.5.2 TRANSFER
There are two types of transfer luggage, TTT (Tail To Tail) and T (Transfer). “Appendix E: Luggage incoming flights” gives an overview of which transfer is applicable. The type of transfer is already determined when the check-in luggage is getting its label at the drop-off point. Transfer passengers have the largest impact in the process since 70% of KLM’s passengers are transferring at AAS and for AAS this is 40.5% of the 55 million passengers a year.

TTT luggage must directly be taken to the next airplane within ten minutes, so this type of luggage has a short connection (SHOCON). T luggage has a long transfer time, depending on the airline it can be more than 65 minutes. A CPM (Container Pallet Message) was created at the beginning of the flight to guide the unloading of the luggage. T luggage will be brought to the unloading quay of the BHS. There it will be determined if the luggage goes into the buffer or directly through the BHS to the next flight. The process now is again the same as at departure. “Figure 16: Process of handling check-in luggage during transfer” on page 33, shows how this process is like.
2.5.3 ARRIVAL

When the luggage is at its final destination, the driver receives a message about where he needs to drive to (DTO), with potential subtasks where (containers of) luggage need to go to. This message comes from the CPM from the departure airport. The incoming luggage that goes to the reclaim belt is not scanned. If it is scanned it communicates ‘Terminating BSM’, because it has reached the final destination. When the driver arrives at the point where the luggage can be send to the reclaim belt, the driver presses the button “First Bag” when the first bag is placed on the lateral and when the last bag is placed on the lateral, “Last Bag” is pressed. It takes 20 to 30 minutes after the airplane has arrived at the airport before the first piece of luggage arrives onto the reclaim belt (Schiphol, 2011a). The process is visualised in Figure 17 on page 33.

2.5.4 MISHANDLED BAGS

The current IRR is 24.6 MHB per 1000 passengers at AAS (Aarts, 2016a). In comparison to the average of airlines the IRR is 7.3 (SITA, 2015a). For KLM the IRR means that 373009 bags are mishandled in 2015 at AAS. 97% of the MHB can be assigned to transfer passengers. The biggest reason is that the connecting time for transfer was too short for the check-in luggage when the airplane has landed. This happened in 51% of the cases (Aarts, 2016b).

KLM wants to reduce the amount of MHB because of the costs that are related to the MHB, which is $100 per MHB (SITA, 2015a). Another reason

<table>
<thead>
<tr>
<th>RL</th>
<th># MHB</th>
<th>%</th>
<th>RL=Reason Loss</th>
</tr>
</thead>
<tbody>
<tr>
<td>10</td>
<td>11,144</td>
<td>3%</td>
<td>Tagging error</td>
</tr>
<tr>
<td>20</td>
<td>8,085</td>
<td>2%</td>
<td>Bags left off</td>
</tr>
<tr>
<td>30</td>
<td>2,648</td>
<td>1%</td>
<td>Loading error</td>
</tr>
<tr>
<td>40</td>
<td>3,071</td>
<td>1%</td>
<td>Arrival mishandling</td>
</tr>
<tr>
<td>50</td>
<td>270,559</td>
<td>73%</td>
<td>Transfer mishandling</td>
</tr>
<tr>
<td>60</td>
<td>38,035</td>
<td>10%</td>
<td>Airport - BHS</td>
</tr>
<tr>
<td>70</td>
<td>39,337</td>
<td>11%</td>
<td>Miscellaneous</td>
</tr>
<tr>
<td>TOTAL</td>
<td>373,009</td>
<td>100%</td>
<td></td>
</tr>
</tbody>
</table>

Table 6: Reasons for mishandled luggage

Figure 15: Process of handling check-in luggage at departures

Figure 16: Process of handling check-in luggage during transfer

Figure 17: Process of handling check-in luggage at arrivals
2.6 CONCLUSION

KLM has a clear vision about what it wants to achieve. To achieve the goals of being at the forefront of the European airline industry, KLM places its passengers first. As written in KLM’s vision statement, they want to be the most customer centric, innovative and efficient network carrier. When being customer centric, passengers are treated as an individual, not as a number. The four values of KLM (Dutch, Inspirational, Open and Reliable) can be a powerful tool when used consistently in the different products and services. These values steer the company and represent how KLM wishes to be perceived, while the vision is what it wants to achieve as a company.

2.6.1 STRENGTHS

Giving frequent flyers and business class passengers extra benefits e.g. two pieces of check-in luggage for free. This might look obvious to do, however it is also to show these passengers that they are appreciated for flying with KLM.

A strength of KLM is the collaboration with the joined airlines at SkyTeam. With this alliance, KLM provides its passengers more destinations to fly to. With this collaboration KLM can send their customers all over the world, anywhere and at anytime.

Having a close collaboration with AAS and being the biggest operating airline at AAS, can be beneficial when decisions are required pertaining to new products or services that KLM wants to introduce and vice versa. However, this can also work against KLM because, if they work together too close it can reference to abuse of power. Which means unfair competition towards other operating airlines at AAS.

2.6.2 WEAKNESSES

There is not a clear strategy for check-in luggage, other than that it is a source of income, it seems to be that KLM offers this service because it is the norm in the airline industry.

is trust from passengers. Every piece of check-in luggage that is missing or damaged is one too many. Because the passenger will remember that it went wrong and might doubt to fly again with KLM the next time. So it is important to have the best handling system with the smallest amount of mistakes to be sure that passengers will be reunited with their luggage after the flight. As a result, 97.5% of the passengers are reunited with their luggage at the belt.

2.5.5 CONCLUSION

The departure can be seen as the more complex process in comparison to the luggage handling at arrival. It needs to be labelled, checked for security reasons, possibly stored for a while and loaded onto a baggage tractor. These are all steps in the process before the luggage is loaded on board. And even when everything is in the airplane, it is possible that it needs to be unloaded when a passenger is a no-show. When luggage arrives at the airport it is likely that it is for transfer, then it is treated as departing luggage. As can be seen at the mishandled luggage section, the chances are the highest that luggage might be mishandled at transfer. However, when AAS is the final destination it is only a matter of driving to the belt and pressing the button “First Bag”. Ultimately, 97.5% of the passengers are reunited with their luggage at the belt.
The IRR rate of KLM is still higher than the average for the airlines that are connected to SITA. However, the IRR rate is decreasing, which will eventually pay dividends to both the airline and its passengers. Fewer passengers will have a bad recollection when they think of KLM. In 2015, 2.5% of KLM's passengers received their bags later than expected. In 97% of the cases it concerned a transfer passenger.

Although the average waiting time is below the maximum percentage that needs to be reached, it is still time that could be used for other purposes. The striking issue is that the self-service drop-off point gives a longer waiting time than the staffed drop-off point. While the point of self-service is that the process should be more efficient. So in the end, it might go faster, but it is not really customer friendly when a passenger needs to wait longer at a self-service drop-off point than when the passenger can drop-off check-in luggage at a staffed desk, while interacting with an agent.

The rules for check-in luggage are also not clear enough according to agents. Passengers want to combine weight together and they do not understand why a second suitcase is more expensive than the first one.

So there is room for improvement on several fronts. A clear strategy for the check-in luggage is one example. In this strategy the IRR rate can be included, since it is higher than the average airline. For passengers, the rules on check-in luggage should be clearer and easier to find. If this were to be improved, it would probably result in less uninformed passengers and so less discussions during the luggage check-in.
The external analysis explores the external surroundings of KLM and is in particular focussed on handling check-in luggage from different viewpoints. It shows where opportunities and potential threats are located. The external analysis shows how the passengers handle their check-in luggage and what they experience during that journey. To create an understanding of which decisions they need to make and of how passengers experience the journey, in-depth interviews were conducted. Surveys were conducted to pinpoint where possible 'problems' can arise that are relevant to a larger group, and to create a baseline of the current situation of handling check-in luggage from a passenger’s point of view. The insights from interviews and surveys leads to a view of the current passenger journey and the experience at several points of the journey. Besides the information about passengers, it is interesting to know what the threats are from competitors in the same market environment. With changes such as "Internet of Things", "big data", and other trends and developments related to the aviation industry, come opportunities for KLM and input for new products and services. With this analysis it is possible to anticipate what is to come.
3.1 TRENDS & DEVELOPMENTS

The trends and developments provide insights into what may happen in the coming years. Analysing the trends and developments reveals possible threats and opportunities that can influence the passenger journey of dropping off check-in luggage. Airline trends are analysed since there are few specific trends regarding handling of check-in luggage. Only the trends that might have an impact on the luggage will be described in some detail. Most trends that will happen that are luggage related are in the field of technology.

3.1.1 DEMOGRAPHIC

- No demographic ever remains static. In the future, an increasing number of elderly people will make up the global population. So how can this group be served and which products and services can be developed for them?
- The baby boomers are the ones that have most money to spend. However, by 2020 the millennial generation, born between 1980 and 2000, will be the group that will enter the peak of earning and spending. And with that, the possibility to go to a destination by airplane will be within reach for them.
- More people will travel alone in the future. As researched by Visa Global Travel Intensions the number of single travellers rose from 15% in 2013 to 24% in 2015 (Festa, 2016).
- Another shift in passengers that need to travel by airplane (to their destination) are those who work abroad.

3.1.2 ECONOMICAL

- Oil price will increase, which affects the costs for airlines (Vlasveld, 2015). When transporting luggage, more fuel is needed because the airplane is heavier. The costs for extra fuel are charged to the passenger. This will increase the price of the ticket, unless the airline can make up for some of the increase in costs in some other way.
- Budget airlines will win in popularity (Brasser, 2015). This
results in more competition of airlines that do not compete with pricing at this time, but will do in future. These airlines will offer tickets for lower prices, but the question is will the passenger receive lesser service? And what will happen in the organisation of the airline? The passenger will probably receive a lesser service, while the expectations might stay the same.

3.1.3 POLITICAL AND ECOLOGICAL
The following are three developments in the airline industry:
- Continued liberalisation and open skies policy
- Privatisation of state owned airlines
- Reduced government regulations

Global warming has been an important topic for several years, and will likely stay that way in the coming years. Global warming affects the weather and ecosystems. Global warming is a broad expression since there are various effects and causes. To handle the earth with more care, sustainability has become a necessity, also for the airline industry (Intuit, 2010). KLM for example, is already using biofuel on some flights to reduce CO2 emissions. And because fuel will become more expensive, it will be a logical step to switch to a fuel that is cheaper and which will at the same time reduce the CO2 emissions.

3.1.4 SOCIAL
People seek convenience in their lives. And when it comes to check-in luggage, they now have the ability to choose a delivery service that brings their luggage to the specified destination. A company called Airportr is active in London. When arriving at a London airport it is possible to drop-off your luggage at a desk of Airportr. This service will deliver your luggage at an address in the city of London. A similar service is active in The Netherlands called “leave your luggage”. However, this company brings the luggage from the hotel to the airport. In the United States passengers can make use of a service that picks-up the luggage from the reclaim belt and brings it to your destination address.

Another convenience is the offering of clothing in hotels. With this trend, people do not have to travel anymore with a lot of luggage. Many of the things they need for a trip, are already present at the hotel.

The development of the self-service drop-off point will increase in the sense that more airlines and airports will make this possible: the so called “assisted bag drop”. This makes the passenger more independent and responsible for what they will do. Passengers desire to be more in control of the process. The important word here is “control”. Being in control gives passengers the ability to take care of the things at the time when he or she wants.

3.1.5 TECHNOLOGY
When handling check-in luggage, there are currently numerous technological developments. Instead of just wanting to know everything about the passengers, airlines also want to let passengers know more about their trip. This trend comes from the more social trend that people want to have more control, empowered by way of knowledge. Check-in luggage is part of this trend. By using electronic bag tags or devices in luggage it is possible for the passenger to follow his or her luggage anytime, anywhere. Many technologies already exist regarding the tracking (Postscapes. com, 2013). RFID, NFC and WiFi are familiar ways of sending information from a short distance or long distance. Since the coming of IoT LoRaWAN (Low Powered Wide Area Network) is developed (lora-alliance.org, 2016). Using this network makes it possible to follow the luggage, even when it is several feet under the ground and the device is tracking it above the ground. The tracking of luggage is also something that already is offered by
some airlines, however it is expected more airlines will implement this in their service. The only question is: “how to track the luggage?”. The options are very broad because of the different tracking services, and which points need to be tracked (SITA, 2015a).

Rimowa is an example in the case of tracking luggage. Lufthansa collaborated with Rimowa to introduce a suitcase where the labelling and tracking is implemented in the case itself. The passenger is able to track where the suitcase is, and whether someone tried to open the suitcase. The automatic labelling makes it possible to just drop the luggage off at a drop-off point. There is no need for printing a label. The label is sent from the boarding pass, directly to the suitcase. Such electronic tags show all the mandatory IATA data. "Figure 22: E-tag Rimowa suitcase” shows the Rimowa suitcase.

Big data can be used to improve the transport and make predictions. During peak hours and at some seasons, the airport will suffer from congestion, when the maximum capacity is reached (Neumann, 2015). The industry is busy trying to capture the flow and to predict when they can expect the passengers to arrive at the airport or when and at which touchpoints passengers are expected.

3.1.6 CONCLUSION

Many interesting trends and developments are occurring, and more are waiting to happen. Ultimately, the trends should be used as inspiration to create products and services. These products and services are developed because the airline has a certain need, reducing costs and provide a better service. The passenger’s needs are to be more in control and to have a more comfortable trip which should be as convenient as possible. Knowing where their luggage is, gives passengers peace of mind. Empowering passengers to do more on their own, in their own time, gives them a feeling of control. The passenger can ‘control’ the process more than ever before.
3.2 COMPETITORS

The objective of this section is to answer the questions: with whom is KLM competing regarding handling check-in luggage? What are other companies and airlines doing with check-in luggage and how do they handle the luggage? To assess and analyse these competitors the framework of Bergen and Peteraf (2002) is used. With this framework the competition can be identified and classified. The competitors are categorised on basis of market commonality and resource similarity. As an outcome the following groups are derived from it:

- Direct competitors are the competitors that have similar market commonality and resource similarity. In this category one can think of the other handlers at AAS.
- Indirect competitors serve the same market only with other resources. An example can be companies that pick up your luggage and bring it to your destination.
- Potential competitors are those that do not currently serve the same market but have similar resources. A competitor in this can be the cargo or the mail. Both are sorting the packages and letters and are delivering those somewhere. There are also competitors that have not yet entered the market at AAS.

### 3.2.1 DIRECT COMPETITORS

As mentioned, KLM does the handling for their own airplanes and also those of others. However, KLM is not the only handler at AAS. Handling luggage when it is checked in at AAS is also done by Aviapartner, Menzies or Swissport. These companies are based at AAS and at various other airports all over the world. An advantage of these handlers is that they have the same rules and guidelines all over the world, so there is a consistency in how luggage is handled. (AirlineUpdate, 2016; Burghouwt, Poort, & Ritsema, 2014).

The difference between the handling companies might be found in what they offer the airlines in the handling of check-in luggage. This might lower fares or a promised rate of less mishandled pieces of luggage. However, this is only speculation since this information is not shared. The direct competition is not very interesting since they are also dependent on the system that is offered by the airport. For the passenger this is not of interest, since the system of luggage handling is not visible.

Other direct competitors are other airlines that also offer to carry check-in luggage. However, it is not possible to book check-in luggage at one airline and your ticket at another airline. So this competition is not taken into account because it is assumed that the price of a ticket is more important than the price of taking check-in luggage. In any event, the prices of bringing check-in luggage do not differ very much among the different airlines that fly from AAS (Bagagekosten.nl, 2016).

### 3.2.2 INDIRECT COMPETITORS

Only a few companies are highlighted that offer the service of door-to-door delivery. The companies are established in different countries.

- Travel Light is a Dutch company that collaborates with TNT express (Travellight, 2015). A customer can choose what to send with them. Sports equipment, bicycles and of course luggage. Luggage can be send to countries within the European Union and back. This company has a big ambition: “Because of Travel Light, Boeing will build a different type of airplane.” This suggests that they hope to change the current way of travelling and that this will become
the new standard of travelling with luggage. However, they are in their start-up phase and probably in the innovator phase or early adopter phase from the Roger product/innovation curve (Laafl, 2016).

- Another company is Luggage free; it is based in the United States (US) and sends luggage to Europe and the US. However, prices are rising to more than 100 euros per item and the luggage should be sent 5–7 days in advance to the destination address, for it to be there when the traveller arrives (LuggageFree, 2016). Which requires the passenger to be organised.

- A US company is Luggage Forward. The prices are a little lower, but shipping from US to Amsterdam should be 5 business days in advance of the traveller and within Europe it is 3 business days (Luggage Forward, 2015). Luggage Forward is offering discounts for passengers that travel with selected airlines for example British Airways and Lufthansa.

- The UK established Send My Bag offers a similar service as described at the other competitors section (SendMyBag, 2016).

The only differences between the companies are the pricing and the time when it arrives at destination. Table 7 shows the prices from The Netherlands to Spain.

These door-to-door companies offer customers hassle-free travelling, because they take care of the check-in luggage. The only downside is that consumers likely do not want to pack their luggage several days in advance of travelling themselves. The luggage is, in all cases, treated as cargo. This means that luggage also can be seen as cargo, which implicates that there are possibilities for KLM to send luggage with a different flight than the passengers to the destination. And if the consumer wants to save money, this is probably not an option since it is (most of the time) more expensive than dropping-off the check-in luggage at the airport.

Air France makes use of the quiet times at the airport. It provides passenger with the opportunity to check-in their luggage a day before departure between certain times. At these times, the queue for passengers is mostly very short. However, this service is only provided during peak periods such as Summer vacation when the airline needs to handle many passengers and check-in luggage (AirFrance, 2015). The passenger can go to the drop-off point of Air France with his check-in luggage. Before the drop-off the boarding pass, ID and required visas that are used for the trip. A family member may represent the family, as long he is on the same flight. Further, he must present all the travel documents for all family members.

### 3.2.3 POTENTIAL COMPETITORS

Potential competitors are shipping services such as TNT, FedEx, UPS and

<table>
<thead>
<tr>
<th>Company</th>
<th>Price (Netherlands - Spain)</th>
<th>Sending upfront (days)</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Travel Light</td>
<td>€ 78,99</td>
<td>Return</td>
<td>20 kg</td>
</tr>
<tr>
<td>Luggage free</td>
<td>€ 8.66</td>
<td>One way</td>
<td>1 kg</td>
</tr>
<tr>
<td>Luggage forward</td>
<td>€ 155</td>
<td>Return</td>
<td>22 kg</td>
</tr>
<tr>
<td>Send my bag</td>
<td>€ 188</td>
<td>Return</td>
<td>20 kg</td>
</tr>
<tr>
<td>KLM</td>
<td>€ 30 - 70</td>
<td>Return</td>
<td>23 kg</td>
</tr>
</tbody>
</table>

Table 7: Prices of transporting luggage from The Netherlands to Spain of indirect competitors

<table>
<thead>
<tr>
<th>Company</th>
<th>Price (Netherlands - Spain)</th>
<th>Sending upfront (days)</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>TNT</td>
<td>€ 161,58</td>
<td>One-way</td>
<td>25 kg / 77x53x29 cm</td>
</tr>
<tr>
<td>FedEx</td>
<td>€ 153,23</td>
<td>One-way</td>
<td>25 kg / 77x53x29 cm</td>
</tr>
<tr>
<td>UPS</td>
<td>€ 146,90</td>
<td>One-way</td>
<td>25 kg / 77x53x29 cm</td>
</tr>
<tr>
<td>DHL</td>
<td>€ 295,92</td>
<td>One-way</td>
<td>25 kg</td>
</tr>
<tr>
<td>KLM</td>
<td>€ 30 - 70</td>
<td>Return</td>
<td>23 kg</td>
</tr>
</tbody>
</table>

Table 8: Prices of transporting luggage from The Netherlands to Spain with potential competitors
DHL. In comparison to the services offered by the indirect competitors the middle man is cut out which results in lower cost. Table 8 on page 49 shows the prices from The Netherlands to Spain. When something goes wrong, it can take days before they come with a solution. The airline and the door-to-door company always provide compensation when something goes wrong.

A totally different company but related to luggage is DUFL. DUFL is a premium luggage handling service. The customer is provided with a suitcase from DUFL. In this suitcase he or she can add the items that are needed on the trip. DUFL will clean, press and fold the clothes and from there they will ship your luggage to anywhere. The advantage is that the passenger can easily walk directly to security and with this avoid long lines at luggage drop-off and no waiting at the reclaim belt. This is “hassle free” and there is no unwanted time at the airport. Next to clothing DUFL has added sport equipment to their service (DUFL, 2015).

### 3.2.4 Conclusion

As can be seen from the competitors there are more traditional ones such as the direct competition, and the new companies such as DUFL and Sendmybag. And so there are a variety of options to check-in luggage as a passenger. The options are:

- It can be done the classical way of going to a staffed desk to check-in yourself and the luggage.
- Door-to-door companies can pick up your luggage from home and send it to your destination address.
- Items are stored somewhere and needed you pick them out and the company makes sure it will be packed and delivered to your destination.

To conclude: For the passenger life is made easier, by removing the “hassle” and reducing unwanted time at the airport, related to transportation to the airport and standing in line for check-in. The new services might be a threat, if people want to pay more so that they can travel “hassle free”.

![Figure 24: Framework altered to handling check-in luggage](image-url)
3.3 PASSENGERS

KLM created several personas based on the segmentation of Air France – KLM. However, these personas all look a bit alike. Notably, three of the seven are business-like, and the other four are average travellers. The personas differentiate further on the frequency that they fly. This information was the first input for research on how passengers handle their luggage at several points of the journey (“Appendix F: Persona’s KLM”). These passengers are also asked on how they experienced the several points in terms of positive and negative emotions that are applicable to situations (“Negative Emotion Typology,” 2015). The understanding of people and the context is important when a product is designed (P. M. Desmet, 2012; P. M. A. Desmet & Hekkert, 2007). It is important because the interaction between the product and the user influences the user experience. Eventually, the goal of the project is to design a product or service that improves the current situation.

Figure 25 on page 53, represents the current passenger journey. This journey was the input for the researches that are done in this chapter. The dark blue dots represent the points where the passengers’ experience and emotions are measured. The light blue dot represents how the passenger feels when their luggage is out of their sight.

3.3.1 QUALITATIVE RESEARCH

The research on passengers and how they experience several steps of the check-in process regarding check-in luggage, was the start for qualitative research. Several passengers are interviewed based on a semi-structured interview. The interview guide and the English interview questions can be found in “Appendix G: Interview guide” and “Appendix H: Interview questions (English)”. The goal of these interviews is to discover valuable insights on why people feel a particular emotion and how this can be caused. The goal of these interviews was to find points in the journey that are experienced as negative or positive and why these moments are
experienced that way. The “why?” is most important in this research, because it can specify the reason of the experience at a specific point.

The two passengers that flew business class both took public transport to the airport.

- They preferred public transport because during travelling they are able to continue working. As they both say: “It is otherwise a waste of time”.
- However, they prefer to travel during off-peak hours. If they need to travel with check-in luggage during peak hours, they have difficulties finding a place to sit, or they block the way with their suitcase.
- Because the passengers both work during travelling they have the feeling that time is going fast.
- Both experience the trip to the airport as relaxed because they are familiar with the road and confident because they know how it works.

When the check-in counter is reached in the priority area (both Flying Blue Platinum) the experience is relaxed since there are no long lines and an agent helps you.

- The term successful is named when the luggage is send away to the airplane.
- However, there are some worries about the weight and size of the luggage. The passenger may wonder whether his suitcase is too big or too heavy.
- Although he has a feeling of “success” when the luggage is gone, he still “hopes” that the luggage will arrive at the reclaim belt at the destination airport, which can be very important to him in case of e.g. valuable company products.

When they arrive, they directly think of the things they need to do at their destination, such as getting the luggage from the reclaim belt, going outside to arrange transport, and then to a meeting or hotel.

The six economy passengers vary a little more in how they experience the process of leaving their departure address and checking-in their luggage at the Self-Service Drop-off point.

- Three of the six went with public transport. They all indicate that they prepare the trip in advance, so that they know which options they have when they miss a connection or when the public transport schedule is cancelled. If they travel with public transport they are relaxed, when they can find a place to sit.
- The people with their own transportation, and those who are brought by friends or relatives, also feel relaxed. Nevertheless, this changes to stress if they take a wrong turn or when they see the desired parking spot is full and they need to drive to another place. They are stressed because they worry and are anxious whether they make it on time for their flight.
- When the passenger needs to check-in luggage, they are mostly satisfied afterwards, when the luggage is sent away.
- When the passengers are new to the Self-Service Drop-off point they feel confused. Questions pop into their mind, on what to do next. What passengers named an advantage of self-service is that as a passenger you are in control of the process.
- When asked what they will do first at their destination, most passengers answered that they were going to the hotel or another accommodation. They prefer to think about the fun things they are going to do. Reclaiming their luggage from the belt is seen as a necessity, and not as something fun. Only the holiday itself, is seen as fun.

Because the variety within this group is large it is not possible to make one general view. However, it helps to understand which emotions can play a role and why they experience these emotions. It is now clear that passengers experience stress when they think they will be late. A situation is successful when it has the desired result. Something is relaxed when the passenger can easily pass the different touchpoints without problems. When people go with public transport
to the airport it can be stressed or relaxed. Relaxed when the trip goes as prepared, and stressed when it goes not as expected. Most striking is that passengers going on a holiday are all with their mind at their destination and the fun things they will do when they arrive. During these interviews, more positive emotions are chosen from the word list, than negative emotions. The reason probably is that the questions are asked after they went through the process. The passenger was able to check-in the luggage and has the reclaim receipt if something were to go wrong. Some do think of possible failures of the process e.g. luggage is left behind or at the wrong airplane, but most are confident it will work out fine.

“The worst thing in trains is like that they do not have a place where you can keep your luggage inside the train.” & “I was happy my husband took the luggage from bus to train. When you are older, carrying heavy things like suitcases is not for fun and not as fluent as it used be.” - About handling luggage when travelling to the airport

“It would be great if you can do it at home so you do not have to lug around and peddle it.” & “If you could drop-off or tag your luggage at home it would be perfect.” - About the experience of checking-in the luggage at the airport.

Figure 26: How passengers handle their check-in luggage
3.3.2 QUANTITATIVE RESEARCH

A survey was completed by 86 passengers for whom the (connecting) flight was departing at AAS. This research was done to set a baseline for the current situation of how handling check-in luggage is experienced during the passenger journey. The English survey questions can be found in “Appendix I: Survey (English)”. The results are processed with SPSS and can be found in “Appendix J: Output SPSS frequencies” and “Appendix K: Output SPSS significant differences”. The experienced emotions can be found in “Appendix L: Output SPSS chosen emotions”. The passengers can be differentiated by several groups. Some details of the respondents can be seen in Table 10 on page 59.

Experience of taking check-in luggage to the airport

The rating of the experience of taking luggage to the airport is significantly different when passengers take public transport or their own transportation.

The difference between the groups is where passengers arrive at AAS. Thereby, with own transportation or taxi one is not dependent on scheduled departing times. The passenger can leave when they want. The passengers who take the public transportation rate the experience significantly lower than the passengers who came with their own transportation or by taxi. “Table 10: Rated experience” represent the rating that is significantly different in the experience of taking check-in luggage to the airport.

Figure 27 on page 59, Figure 28 on page 60, Figure 28 on page 60 and Figure 30 on page 61 represent the emotions that are given as a reason why the respondent rated that experience as they did. However, the respondents gave multiple answers on the questions: Please specify which positive/negative emotion(s) you might have experienced, if applicable.

<table>
<thead>
<tr>
<th>Type of ticket</th>
<th>Gender</th>
</tr>
</thead>
<tbody>
<tr>
<td>Economy</td>
<td>93%</td>
</tr>
<tr>
<td>Business</td>
<td>7%</td>
</tr>
<tr>
<td>Relation NL</td>
<td>Transport</td>
</tr>
<tr>
<td>Dutch</td>
<td>48.8%</td>
</tr>
<tr>
<td>Tourist</td>
<td>12.8%</td>
</tr>
<tr>
<td>Transfer</td>
<td>38.4%</td>
</tr>
</tbody>
</table>

Table 9: General detaild of the passengers who participated

<table>
<thead>
<tr>
<th>Transportation</th>
<th>Mean (1 negative -7 positive)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Public transport</td>
<td>4.7</td>
</tr>
<tr>
<td>Car</td>
<td>5.9</td>
</tr>
<tr>
<td>Taxi</td>
<td>6.2</td>
</tr>
<tr>
<td>Average</td>
<td>5.5</td>
</tr>
</tbody>
</table>

Table 10: Rated experience

Figure 27: Overview of the % given answers about the experienced emotions by 86 passengers.
Experience of handling check-in luggage at drop-off

The next step with the passenger’s luggage is to drop it off at check-in. There is no difference between groups as to how the experience of handling luggage at check-in is rated. The average experience is rated 5.8 out of 7. Figure 31 on page 62, represents the chosen emotions passengers felt at this point.

Experience when check-in luggage is in hands of the airline

When the luggage is in hands of the airline, there is no significant difference, which indicates that there is no difference that matters between groups. The average experience is rated 5.6 out of 7 point. Figure 31 on page 62, represents the chosen emotions passengers felt during this experience.
**Conclusion**

From the quantitative research it indicates that passengers already rate the experiences of handling their luggage at several steps as positive. However, the passengers did not rate the experience as a 7, which would mean it is perfect. So improvement is possible. Stress is not often mentioned, nonetheless there are negative comments regarding time and worries on whether the luggage will reach the final destination. From the quantitative research a baseline is set of the current situation. This makes it possible to measure how much a new product or service would improve the passenger journey. Next to that, the results show a general view of the current situation and how this is experienced.

**Means of the rated experiences on a scale of 1 (negative) - 7 (positive)**

<table>
<thead>
<tr>
<th>Experience</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>Taking luggage to the airport</td>
<td>5.5</td>
</tr>
<tr>
<td>Car</td>
<td>5.9</td>
</tr>
<tr>
<td>Taxi</td>
<td>6.2</td>
</tr>
<tr>
<td>Handling luggage at the check-in</td>
<td>4.7</td>
</tr>
<tr>
<td>When luggage is in hands of the airline</td>
<td>5.8</td>
</tr>
<tr>
<td>Presenting at last airline</td>
<td>5.0</td>
</tr>
</tbody>
</table>

Passengers; n=86
Positive answers; n=108
Negative answers; n=40
3.4 CONCLUSION

3.4.1 THREATS
Luggage handling competitors might be one of the biggest threats for the airline industry. The competition might be capable to steal away customers and with that, revenue from check-in luggage. One of the biggest threats in the future, might be the companies that provide a door-to-door luggage service. These companies promote their activities to be convenient and hassle free. The customer can choose where and when it is picked up and where it is delivered. In that way the passenger does not have to carry and drag the luggage. Passengers have the ability to choose how they want to handle their check-in luggage. It used to be standard that luggage was checked-in at the airline, but now the option of shipping it to the destination address is added.

3.4.2 OPPORTUNITIES
From the trends and developments it becomes clear that elderly will play a big part in society, since they will increase in number. This is also a demographic who has the ability to spend money. However, there is also an opportunity to target the generation born between 1980 and 2000. This group will also be able to spend money by 2020. Around this period this generation will enter their peak of earning and spending. So the elderly and generation Y will be a target group that is able to buy tickets and their check-in luggage at KLM.

Another opportunity are reduced government regulations. If the rules are indeed reduced it might be easier to implement new products and services. For example door-to-door delivery is not possible yet because of strict regulation. The passenger needs to hand over the luggage him- or herself. And an airline representative needs to check the documents. Perhaps in the future this could change.

People like convenience, everything that makes a process or procedure easier and suitable, is appreciated by consumers. Convenience can convince the consumer to buy your product instead that of the competitor.

Technology has always been important for industries to develop. Technology has developed rapidly in recent years. It started with self-service check-in followed by self-service drop-off points and now, self-service boarding will become a fact. Besides self-service, the internet enables companies to obtain more data than ever before. This data can be used to discover patterns of passengers and take action after analysing that data. Besides data mining and big data the IoT connects physical products to the internet. The knowledge about these devices creates opportunities to trace and track passengers, luggage and other objects. This information can be used to make predictions, as to whom will come, and when, or whether they will use the products, so that the context can react to the customer, to make life more convenient.

It is possible to improve the current experience of the passengers at several stages when interacting with the touchpoints of the luggage check-in. The highest rate has not been achieved during the research, this implicates that there is room for improvement to become the most customer centric European network carrier. There is room at the start of the passenger’s journey, when the passenger closes the door to leave to AAS. There is room for improvement during luggage check-in and when the luggage is in hands of the airline.
To understand why passengers do what they do and how they do it, three passengers were followed from the moment they closed the door, until the moment that the check-in luggage was dropped-off. Following these passengers created a view on which steps they needed to take to check-in luggage.

Besides following passengers, information on how the different steps in the journey were experienced and rated was obtained from the quantitative research performed to get an understanding how the different steps of the journey are perceived. This quantitative research is a survey that was completed by 86 passengers for whom the (connecting) flight was departing at AAS. The goal was to have a large sample of passengers, to create a baseline on how the steps of handling check-in luggage are experienced in the current journey. The result were discussed in "3.3 Passengers".
4.1 THE JOURNEY

The current passenger journey consists of several steps, which are not the same for everyone. In this case it is chosen to describe the journey from a general point of view. This means that each step comprises multiple options. Some steps do not include a rating of how the passenger experienced handling check-in luggage, while other steps are rated. The reason for this choice is that these points that are rated require a specific interaction with the check-in luggage.

Figure 34: Current passenger journey.

Focussed on check-in luggage and when this removed from the passenger (light blue line with suitcases). The blue dots are points where the experience is measured. Including the mean of the experience and frequent mentioned emotions.
4.1.1 THE FIRST STEPS
Going on a trip entail of more than just packing the suitcase and going to the airport and stepping onto the airplane. It starts with browsing for a holiday, which airline to take, which hotel and most likely these arrangements are just the tip of the iceberg. However, from the followed passengers who travelled with KLM, they arranged their luggage also with KLM. The three passengers arranged their luggage online when they booked their ticket. It was one of the last steps before paying for their ticket. When the passenger checked-in online at home, they had again the opportunity to arrange their check-in luggage (if they had not done so before). When the luggage is arranged it is a matter of packing. The passenger is given a list of rules what not to bring, maximum size and maximum weight. This is all written in the regulations on check-in luggage. However, some passengers are not able to find the regulations or find them hard to read since a lot of information is provided on the e-ticket and the booking confirmation.

4.1.2 TRAVELLING TO THE AIRPORT
When the luggage is packed, and the passenger is ready to leave, he or she needs to go to the airport with the luggage. When going to the airport people have several options regarding transportation. Some passengers are driven to a station from where the journey to the airport continues with public transport. Other passengers need to change trains, or from bus to train or other types of public transportation. Another group of passengers arranges a taxi, friends or relatives to bring them to the airport. One of the last options is to come by car and park it at one of the many parking places of Schiphol. The average time of travelling to AAS is between 30-60 minutes. And the passengers rate the experience of taking luggage to the airport with a 5.5 on average.

4.1.3 ARRIVING AT THE AIRPORT
When arriving at the airport there are several entrances. When passengers arrive at long parking, P3, they need to take the shuttle bus to the airport. This bus stops in front of the departure hall. If the passenger is brought by car or taxi the passenger is dropped in front of the departure hall. Another option is when public transport is taken, then the passenger arrives at Schiphol Plaza.

4.1.4 WAY FINDING AT THE AIRPORT
Several signs will guide the passenger in the direction they need to go. It starts with searching to which departure hall to go to and to which desk to go to for the drop-off of the check-in luggage. Then the question is: “are you flying economy or business and are you a priority passenger?” Because when a passenger is priority or business, he or she needs to check-in and/or drop-off luggage at a different point, which is also indicated on the digital screens. The departure of economy passengers is divided by KLM in Schengen and non-Schengen. Schengen is located in departure 1 and departure 2 is non-Schengen. This division is only valid for economy passengers and between certain hours.

4.1.5 DROP-OFF FOR CHECK-IN LUGGAGE
Economy passengers are most of the time directed to a SSDOP which are located at desk 7, 14 and 15. Unless there is an irregularity, passengers are redirected to a CUDOP. An irregularity might be oversized luggage, more weight than a SSDOP can handle, odd sized luggage or when the check-in of a passenger did not succeed at a self-service kiosk. When an irregularity occurs passengers are directed to desk 8 or 16. When it is crowded or when many passengers are expected, e.g. peak hours or season, the other desks are also opened.

Before passengers drop-off their luggage, a document check is done. At the SSDOP a mobile document check is performed and at the CUDOP an agent is checking it at the same desk as where the luggage is dropped-off. So there are four ways to drop-off
luggage, at a SSDOP, a CUDOP, a drop-off point for odd-sized luggage and irregularities and a CUDOP for business class- and priority passengers. Handling the luggage during drop-off is rated with a 5.8 and the time spent on the luggage check-in is rated a 3.0.

4.1.6 GOING TO SECURITY AND THE AIRPLANE
When the luggage is in hands of the airline it means that the passenger only has to take care of the hand luggage. Although the check-in luggage and passenger are separated in the process of luggage handling, the check-in luggage is still in the mind of the passenger. Some are relieved that they do not have to carry it any more, others are worried if everything will end well. Therefore, the question was asked how the passenger experienced his journey, once the check-in luggage was in the hands of the airline. Overall this experience has an average rating of 5.6. The next steps after drop-off, are passing the security, the shops and finding the gate of departure and boarding the airplane.

4.1.7 ARRIVING AT THE DESTINATION AIRPORT
Once arrived at the destination airport, passengers want to pick up their check-in luggage at the reclaim belt. The following information is derived from the graduation report of M. Lemmen (2016). Passengers experience all kind of emotions. The research of Lemmen learned that passengers already expect their luggage at the reclaim belt when they arrive at the reclaim area. Passengers expect this because they have walked for a while from gate to reclaim area. The average waiting time at AAS is 23 minutes before the first bag is on the reclaim belt (Lemmen, 2016).

The experience is measured based on certainty versus uncertainty. This feeling of uncertainty might be caused by previous experiences when a suitcase was not on the flight, and when it was temporarily missing. When the wait takes a long time, subjectively, in the mind of the passengers, they feel insecure because they imagine that the luggage might not have made it, they will worry whether everything is going well with their luggage, they will think “how long do I need to wait?”. Passengers felt secure when they knew they could not do anything about it, since it was in the hands of the airline. This secure feeling is applicable when their previous experiences were that luggage had always arrived.
4.2 THE POINTS FOR THE REDESIGN

When redesigning a passenger journey it is important to know how to choose this journey. From a personal point of view it is preferred to add value to a new redesign of the journey. From "3.3 Passengers" on page 52, it is known that passengers who take public transport, experience the step of travelling to the airport less positively than people who are brought to the airport or who came there with their own transportation. This group also uses words like stress and hassle to describe their experience. It is thus obvious that a change can be made for this group, related to the impact on the experience of travelling to the airport with their check-in luggage.

According to KLM the largest group that KLM carries are economy passengers. This is also evident from the fact that economy passengers are mainly the ones who completed the survey. So when redesigning for this group, it will have a bigger impact because of the size of this group. But still, business class passengers and frequent flyers benefit from multiple advantages like dropping-off check-in luggage for free and a special drop-off area. While economy passengers need to pay for their check-in luggage and the maximum waiting time is longer at the SSDOP (8 minutes) in comparison to business class at the CUDOP (2 minutes).

The way to check-in luggage still remains open since there is no significant difference in the experience of the passenger to handle check-in luggage at the SSDOP (5.4) or at the CUDOP (6.1).

So the customer journey that will be redesigned is based on the economy passenger that travels with the check-in luggage to the airport with public transport.
5. DESIGN BRIEF

I WANT TO DESIGN AN IMPROVED PASSENGER JOURNEY FOR ECONOMY PASSENGERS, WHO CURRENTLY TRAVEL BY PUBLIC TRANSPORT TO THE AIRPORT, WITH THEIR CHECK-IN LUGGAGE.

THE DESIGN WILL ENABLE THESE PASSENGERS TO EXPERIENCE AN IMPROVED EXPERIENCE WITH FEWER NEGATIVE EMOTIONS AND WILL REDUCE THE UNWANTED TIME AT THE AIRPORT.

ECONOMY PASSENGERS

KLM can achieve the largest impact of improvement for passengers who travel economy class. This group represents the largest group that is travelling with KLM. Therefore, this is the target group for whom an improved passenger journey should be designed. Note that economy passengers profit from fewer benefits than business class or priority members. On average the economy passengers currently need to stand longer in line.

PUBLIC TRANSPORT

From the research it can be deduced that passengers travelling by public transport, experience the journey less positively than passengers who use other types of transportation. These passengers need to travel with their check-in luggage by train, bus, metro and other public transports to reach the airport. And this travelling on public transport with their check-in luggage, causes a more negative experience and emotions, because carrying the luggage from bus to train or storing the luggage, is experienced as not very positive.

EXPERIENCE AND UNWANTED TIME

Currently the passengers experience stress, hassle and other negative emotions. From PASSME it is desired to improve the experience of passengers at the airport. The same is desired for reducing the unwanted airport time. The research revealed that people rate the experience higher when the perceived time spent on check-in is shorter. Therefore it is important that in the improved passenger journey the unwanted airport time is reduced.

PASSENGER JOURNEY

The moment from which passengers leave their departure address until the moment they have checked-in their luggage at the airport was researched. From PASSME it is desired to design a door-to-door passenger journey. This door-to-door journey is already offered by some potential competitors in collaboration with parcel deliveries. So what the passenger journey will look like, is to be designed. However, the focus will be, from the moment the passengers closes the door, until they have dropped-off their luggage at the airport.

So...
6. IDEATION

After the design brief, the process continuous with the ideation phase. The design brief provides the direction of what to design and for whom. The ideation will create several solutions to this design brief.

To create these solutions two approaches were used: ideation based on “how to?” questions and creative sessions. Two creative sessions were organised with people from KLM and students to determine other design directions. This method helps to design directions with the help of other people.

This chapter will show which idea directions were retrieved from designing individually and from the creative sessions. The final idea direction that was selected was validated based on the input of passengers, experts from the industry and the design brief.

Figure 36: The first sketches
6.1 THE START OF IDEATION

Ideation does not start after the analysis of the current situation, since ideas come up during the entire project. However, the analysis phase provided a clear direction for designing a solution to the problem definition from chapter "1. Assignment" on page 2. Some ideas from before the ideation phase can be used as a (partial) solution to the design brief.

The ideation started with the question: “how to solve the problems of passengers travelling with their check-in luggage to the airport by public transport”? For example, if the current way of luggage check-in can be done another way. Mostly “how to” questions came to mind at the start, for example:

• How to transport luggage?
• How to check-in luggage?
• Where to check in the luggage?
• How to make the check-in of luggage a positive experience?

From the answers to these initial questions more question arose. And the solutions to the questions gave a more detailed view on which aspects to take into account and the options that are possible. Some of the repeating key questions are:

• Who should check-in the luggage?
• Who should transport luggage?
• What is needed to check-in luggage?

Initial ideas derived from the questions and from before the ideation phase are:

• A door-to-door luggage pick-up and delivery service, which immediately solves the luggage transporting hassle of the passenger in public transport. He does not have to carry heavy pieces of luggage in public transport and does not have to wait in line to check-in the luggage.
• Changing the interior of the public transport to make it easier to store multiple pieces of check-in luggage.
• Alteration of the shape of the suitcase to make it easier to handle the suitcase during the journey combined with an e-tag to make dropping it off easier at the airport at a special desk.

The answers to the previous questions are only providing partial solutions to the problem that passengers have regarding their check-in luggage. Together the results can provide a sufficient solution to the design brief. However, in my opinion there might be more solutions to explore, before developing several ideas into more depth.

Figure 37: Overview of the first ideas
6.2 CREATIVE SESSION(S)

The creative session is a way to gather multiple ideas and thoughts in a short period of time from a group of selected individuals. An overview of the set-up is described in "Appendix M: Set-up of the Creative session". The outcomes of the sessions can be found in "Appendix N: Creative sessions".

Two creative sessions were held with two different groups. The first group existed of KLM employees who are product managers and graduate interns of KLM. The ideas that are generated were based on their own experience as a traveller but also on their experience with the current products and services of KLM. The other group consisted of students of the three master directions of the Industrial Design Engineering faculty of TU Delft. All individuals within this group have experience in travelling and designing.

The session started with an introduction about the project. After this an introduction was given by the participants of where they have been on a holiday and where they want to go to in their dreams. The purpose of this personal introduction was to get the participants in a certain mental mode of 'holiday feeling' and empathy with the situation.

The next step was to get the participants to study the problem together, to bring the subject to life and create discussion. What are the problems they can find from the design brief and what could cause these problems? The team(s) shared the knowledge they gained of the problem and discussed this. At this point they were asked to combine these insights in clusters. The participants then have an overview of which problems exist, which can then be tackled to optimize the experience of handling check-in luggage and/or reducing the unwanted airport time. The problems are translated into "how to's", to ensure that later in the process solutions to these "how to's" were identified. For example, there is little space in the vehicle, so a "how to" can be: "How to create space?". The clusters and its matching problems or causes can be found in Figure 39 on page 84.

After defining the problem clusters, ideas were generated in which possible solutions were identified. From there on the participants were able to design their own ideal process of handling check-in luggage. These ideas were again clustered in groups that could reinforce each other or could create a whole service or have something in common. Figure 39 on page 84, shows which groups are made and what kind of a solution it is. It defines if it is a product, a service, an application or a transportation service.

After clustering the solutions, the teams chose which cluster to develop into a more concrete idea. Eventually 5 ideas were generated by the teams. The ideas of the teams that were made are drawn and written on a predetermined lay-out. It requested an image of the solution, a description of what it is and what its unique selling point would be. These ideas are used as an input for developing potential concepts.
1. **KLM travel assistant.** A personalized application that helps the passenger to pack what is needed by asking journey specific questions. The application knows what has been packed and used on previous journeys, and therefore it makes it possible to reflect on what will be needed and not needed the next trip. When the passenger packs less than previous trips he is rewarded. The unique selling point is that it is a customized luggage advice.

2. **Skype packing help.** Getting the advice when you want to talk to a person. This will be integrated in the current KLM app. The personal help gives you advice on what you can and cannot bring. This service allows the passenger to get a direct response on the questions that arise during the packing. Unique selling point is that it is a personal customized luggage advice.

3. **Collecting bags at home.** The bags are collected at home and checked-in at the van that picks it up. This service is carried out by KLM. So it will be in the same airplane as the passenger. Unique selling point is that the bag is removed out of the passengers’ system from home to airport and airport to destination.

4. **E.V.A.N.** is the Electronic Visual Assistant Network. It is an application that shows which machines are available for check-in and how long the current waiting line is. EVAN shows how to navigate to this machine. Economy passengers also should be able to choose for upgrading if they only want to have the advantage that business/priority check-in offers. Special needs can be selected up-front to make it more personal and customizable.

5. **KLM airport guide.** A hostess is receiving passengers already in the area of arriving at the airport. She guides them to the check-in for luggage to improve the flow of passengers. The passengers arrive in batches and therefore easier to process. The unique selling point is that the passenger walks directly the fastest route to the drop-off points.
Figure 40: Impression of the five ideas from the creative session
6.3 THE DESIGNED IDEAS

After collecting the clusters of the creative session and combining it with initial ideas, 4 design directions are made from returning solutions, desktop research, and interviews with passengers and talking with KLM agents. These directions are explained in terms of which problem is solved and how it can be answered.

6.3.1 CHANGING PUBLIC TRANSPORT

One of the problems passengers encountered when travelling with public transport is that it is difficult to find a space for stowing the piece(s) of check-in luggage somewhere in the vehicle. If it is experienced in a negative way, it influences the experience and emotion of the passenger during the entire journey. Changing the public transport is brought up in both creative sessions and provides an obvious solution. The underlying problem is that passengers encounter difficulties because the space in the public transport does not facilitate storage of check-in luggage, due to size limitations. Changing the public transport means to adapt the interior of the vehicle. Examples of changing the interior are creating more space between the seats. Or to make the seats flexible or mobile. This extra space can be used to place different sizes of check-in luggage. With this solution it is possible to watch over the luggage from where you are sitting, which was identified as an additional limitation of current vehicle design.

Another solution might be to make new compartments specially designed for check-in luggage in the public transport. When entering the vehicle as a passenger it is made easy to place the luggage in the dedicated space in the entry hall or a special carriage. So there is no need to search a place where the luggage fits or climbing stairs in the train with the luggage.

Figure 41: Direction 1 changing public transport
6.3.2 KLM STATION TO THE AIRPORT

During the ideation it was suggested that KLM should introduce a service to pick-up passengers from stations or from home, like a touring car. Striking is that a KLM bus service already exists (“Appendix O: KLM projects”). This service does deliver value for the passenger for several reasons. They do not have the costs to go to the airport and they do not have to carry their check-in luggage for a long time since it is stowed below in the bus. The only things are that they need to go to the station of those cities and still need to check-in their luggage in the departure hall. Since the KLM bus service only serves Arnhem, Nijmegen, Eindhoven and Maastricht it would be a move to further expand this service to other cities. This expanded service can cover different parts of The Netherlands that are strategically chosen, for example Rotterdam. The current service was conceived from a competition point of view, since people living in these regions can choose to fly from Eindhoven, Rotterdam airport or from Belgium and German airports. For consumers it can be attractive to choose to fly with KLM because a part of the journey to the airport is arranged by KLM free of charge. And if something happens and therefore the flight is missed, the passenger is rebooked free of charge.

This current service can be extended to other cities as mentioned, but also the offering can be extended, for example in case passengers could already check-in their luggage at the bus. In that case they do not have to check-in the luggage at the airport. As an additional step, KLM needs to make arrangements on how they inject the luggage in the luggage system.

Another idea comes from the fact that passengers are worried if they will arrive on-time at the airport. The other problem is that some passengers travel alone or are not very strong which makes travelling with their check-in luggage not easy and they feel dependent on others. So the new product is to empower passengers with an application, in which KLM helps the passenger to plan the trip to the airport. Because the passenger indicates in advance which journey he takes, it is able to link passengers from KLM to each other that have the same trip. The advance knowledge of KLM telling the passenger which time to take the public transport might reduce the stress of coming on time if passengers trust KLM and the given advice. The other advantage is that people can get connected for the same trip in public transport. In this way they can ask for help of moving in and out of the vehicle with the piece(s) of check-in luggage.

Figure 42: Direction 2 KLM station to the airport
6.3.3 DECREASE THE WEIGHT OF LUGGAGE

In case the check-in luggage is not easy to carry, it obviously helps to only pack items that are really required during the trip. So if the check-in luggage is lighter it might be easier to carry it to, and during public transport. Eventually some participants during the session(s) said that they always bring stuff back home that they did not use. So the idea in this direction is to help the passenger pack what is needed for their trip. For this some basic questions can be asked like:

- What is the purpose of your trip?
- What kind of activities do you plan to do?

Based on the answers to the questions a list is made of items that are necessary. So if the application could learn from the journeys that are made and thus tracks what is and is not used, then passengers avoid to pack what is not used. If the passenger is able to track what he is bringing, a notification can pop-up when something is not allowed. And this makes it easier for the passenger to know what is missing when the luggage is mishandled or gets lost. When reporting a missing piece of luggage the passenger needs to give a list of what is in the luggage. This makes it easier for the handlers and airlines to find the missing luggage and for the insurance claim.

6.3.4 DOOR-TO-DOOR LUGGAGE SERVICE

The final direction that was identified is a door-to-door service. Luggage is picked-up from home and is send to the final destination of the passenger. With this service both challenges of unwanted airport time and inconvenience of traveling with check-in luggage are tackled at once. The passenger does not have to travel anymore with his/her piece(s) of luggage and the passenger does not have to go to the drop-off at the airport. Different options are possible in this design:

- to handle the entire process by KLM.
- to outsource it to other companies

![Figure 43: Direction 3 Making luggage lighter](image)

![Figure 44: Direction 4 Door-to-door](image)
that are specialised in shipping parcels like TNT or DHL.

- to outsource it to a company like Travel Light who already build a booking system and has the products that are needed for shipping different kinds of luggage.

The preference for a shipper would intuitively be TNT since it is also the one who delivers check-in luggage that was mishandled.

The process of the door-to-door luggage service can be similar to the one of Travel Light. The luggage is picked up two to three days before the flight. The passenger makes an appointment when the luggage is picked-up by a service (TNT or KLM). The passenger needs to secure the luggage and the driver places a special barcode on the luggage. The passenger gets a receipt with the same number and is now able to Track&Trace the luggage. The day before or the day of the flight the passenger gets the message that the luggage has arrived at the destination address. When traveling to the airport they can take the public transport without the hassle of handling check-in luggage. They arrive at the airport and go through security and catch the flight. When the passenger is arrived he can walk to the exit and can go where he wants to go because the check-in luggage is already at the destination.

6.4 SELECTION & VALIDATION

Which idea direction is more suitable for the problem passengers encounter when travelling by public transport? Also, which idea reduces the unwanted airport time and improves the overall experience? In this section, the most fitted solution is selected based on the design brief and if it fits KLM. Each idea is evaluated on the same points.

6.4.1 CHANGING PUBLIC TRANSPORT

When the solution ‘changing the public transport’ is reflected on the design brief it results in the following findings:

- As mentioned in the design brief, the target group are economy passengers. This solution is accessible for everyone that is travelling with the bus or train to AAS.
- The problem of storing check-in luggage in the public transport is solved. Nonetheless, it is not yet optimal. It makes it easier to find a place to store the check-in luggage, however it does not solve the problem of transferring between public transports.
- Also, it does not solve the problem of coming from home to the first station.
- The next point is that the unwanted airport time is not reduced. The passenger needs to go to the drop-off points at the airport. If this idea would be more developed on how the luggage does not need to be dropped-off by the passenger, it would reduce the unwanted airport time. However, this means that the vehicle needs to be adapted and also from KLM and AAS it requires a change in how the luggage is picked-up from this vehicle.

From the point of KLM, I do not believe that it will invest in making improvements to public transport. This should be the responsibility of the public transport companies. They should make investments in new vehicles or adaptions in the current ones.

It becomes clear that this direction might not be the ultimate solution for this project. It mainly involves...
CHANGING THE PUBLIC TRANSPORT

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<th>DESIGN BRIEF</th>
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<td>Accessible for economy passenger</td>
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<td>Improve handling check-in luggage in public transport</td>
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<td>Service oriented</td>
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Table 11: Changing the public transport and the fit with the design brief and KLM

public transport companies like NS, Arriva and Connexxion. To develop a product asks also investments of the public transport companies. Next to that the unwanted airport time is not reduced in this option. This direction will only be interesting if KLM gives its passengers the option to check-in their check-in luggage at the rail- and at bus stations and later on just to drop it off at a desk. So only changing the public transport will not be the solution for the entire set of challenges.

Fit with KLM:
- Innovative: It requires a new design which is not available yet.
- Customer centric: It makes the journey more pleasant for the passenger.
- Efficiency for KLM: It does not add any value to KLM.
- Service oriented: It is a service when it can be reserved, however when all luggage spaces are occupied there is little service available to make space.
- Safe: the luggage is not locked, it requires attention from the owner.

6.4.2 KLM STATION TO THE AIRPORT

KLM has already a service that transports passengers from Nijmegen, Arnhem, Maastricht and Eindhoven to AAS.
- The problem of traveling with the check-in luggage and storing it is solved from the boarding point to AAS. However the passengers still needs to carry the check-in luggage to the bus station. From that point, this solution only covers a part of the problem of handling check-in luggage at the public transport.
- This service is accessible for business and economy class passengers. However, it is only accessible for passengers who live in the neighbourhood of these cities. So the service needs to be further extended to make it accessible for every passenger.
- The next point of the design brief is if it reduces the unwanted airport time. Since the current service of bringing people to the airport does not include that the luggage is checked-in by KLM, the passenger needs to do this on its own. So it only will reduce the unwanted airport time when this service also checks-in the luggage of the passengers. To make this happen, changes need to be made in how passengers check-in their luggage in the bus. Which should be possible since at the parking 'P3'

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Table 12: KLM station to airport Changing the public transport and the fit with the design brief and KLM
passengers of some airlines can check-in their luggage over there ("Appendix O: KLM projects").

So this idea direction does not fully answer the design brief on the required reduction of unwanted airport time. Yet, the design brief can be answered if a sub-solution is introduced that makes it possible to check-in luggage before entering the airport. So a new drop-off can be introduced for passengers that are already prepared at home.

Fit with KLM:
- Innovative: it is already an existing service, which need to be expanded.
- Customer centric: The basis of this service is to attract passengers that normally would fly with another airline. Nonetheless, it is for free and the passenger does not need to handle the luggage the entire trip to AAS.
- Efficiency for KLM: Not necessarily efficient, however KLM knows when to expect a certain amount of passengers when the bus arrives at AAS.
- Service oriented: The passenger is provided with many comforts and does not need to worry when they are not on time for a flight, since the staff will take care of them.
- Safe: The luggage is safely stored in the bus.

The other idea of passengers helping each other in the public transport is complicated since this solution is too dependent on the willingness of people to help.

6.4.3 DECREASE THE WEIGHT OF LUGGAGE

When reflecting the design brief on this solution of making the luggage lighter, it results in the following outcomes:
- The KLM application ‘Make your luggage lighter” can be accessible for every passenger who has access to the KLM application or internet.
- It improves handling check-in luggage if the weight of the luggage indeed reduces. When the weight reduces it makes the luggage easier to handle during transportation. And it makes it even easier when the passenger can use a smaller suitcase because less items are packed. Also, when the passenger uses a smaller suitcase it makes it easier to handle the luggage during the trip to the airport. Because then the passenger can stow the luggage in the cabin above the head or under the seat, dependent on the type of public transport.
- When the passenger can use a hand luggage size of suitcase it will reduce the unwanted airport time, since they do not have to spend time to check-in their luggage.

However, when this is not the case the passenger still needs to check-in the luggage at the airport.

Fit with KLM:
- Innovative: It makes use of the developments of tracking data and learning from this data. From this information, it is possible to make a personal advice. And such a service does not exist yet.
- Customer centric: The customer is very important here since it is focused on giving the best advice to the customer.
- Efficiency for KLM: KLM needs to transport less weight of check-in luggage. The advantage for the

<table>
<thead>
<tr>
<th>DECREASE THE WEIGHT OF LUGGAGE</th>
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</thead>
<tbody>
<tr>
<td>DESIGN BRIEF</td>
</tr>
<tr>
<td>Accessible for economy passenger</td>
</tr>
<tr>
<td></td>
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<tr>
<td>++</td>
</tr>
</tbody>
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Table 13: Decrease the weight of luggage and the fit with the design brief and KLM
airline is that the weight of luggage is reduced and therefore less fuel is needed, so it is also a sustainable solution.

- Service oriented: it is a service specially developed for the passenger to give the best advice.
- Safe: When the data of the passenger is safely stored there is no safety issue.

### 6.4.4 DOOR-TO-DOOR LUGGAGE SERVICE

When this direction is reviewed based on the design brief, it is noticeable that when the luggage is removed from the passengers' journey to and at the airport, 2 of the 3 points of the design brief are answered positively.

- The total airport time spent at the drop-off of check-in luggage is entirely avoided.
- Since the check-in luggage does not have to be brought in the public transport, the discomfort of handling check-in luggage is disappeared.
- Further, this service can be made available for every passenger that travels and book at KLM.

Fit with KLM:

- Innovative: The service already exists and is carried out by Travel Light. However, it is not yet offered by airlines in the Netherlands.
- Customer centric: The hassle of handling luggage is removed and the journey should be made as easy as possible. The passenger should be in control of where and when the luggage is picked-up.
- Efficiency for KLM: KLM can predict already when shipments are arriving at Schiphol, or even more efficient when the costs of handling luggage at AAS are removed totally.
- Service oriented: it is an extra service that is offered to add value to the passengers' journey
- Safe: The only doubt is about the safety since it is not in control of KLM when it is executed by a logistic company.

### 6.4.5 CONCLUSION

From previous paragraphs it can be concluded that the door-to-door luggage service is the only direction that answers to the design brief and matches the values of KLM best. However, the concepts are also shown to passenger passengers, students and KLM agents to get their feedback. Some directions were more positive received than others. Eventually changing the public transport and the door-to-door direction are received as products/services that adds value to their passenger journey. “Appendix P: Does the concept adds value?” shows the results. To conclude, people like the idea of the door-to-door luggage service and it fits the design brief and KLM. Therefore, the door-to-door luggage service is chosen to work out into more detail.

<table>
<thead>
<tr>
<th>DOOR-TO-DOOR LUGGAGE SERVICE</th>
<th>DESIGN BRIEF</th>
<th>KLM</th>
</tr>
</thead>
<tbody>
<tr>
<td>Accessible for economy passenger</td>
<td>Reduce unwanted airport time</td>
<td>Improve handling check-in luggage in public transport</td>
</tr>
<tr>
<td>++</td>
<td>++</td>
<td>++</td>
</tr>
</tbody>
</table>

Table 14: Door-to-door luggage service and the fit with the design brief and KLM
7. DETAILING THE DESIGN

It is chosen to develop the door-to-door luggage service, where check-in luggage is picked up from home and delivered at the destination address and back. In this scenario, the handling of check-in luggage is avoided during the public transport journey. Therefore, the expectation is that the experience of travelling to the airport will improve. In addition, handling check-in luggage at the airport is also avoided during the journey, which means that the passenger does not have to drop-off the check-in luggage anymore at the airport. The unwanted airport time regarding luggage drop-off will be reduced to zero for passengers that use this service. This chapter will explain the idea of door-to-door luggage service into more detail and how it will work. The design is explained from the passenger perspective as the passenger journey will be redesigned. The new passenger journey can be seen at “Figure 45: The new passenger journey” on page 104. The blue dots represent where the changes are made and which steps are added.

In this chapter of detailing the design there are two options for designing.

One option is to collaborate with the company Travel Light. In this case the KLM passenger can be redirected to the Travel Light website to book the service. The advantage of this is that it is clearer that the service is carried out by Travel Light. When this option is chosen the KLM passenger will be redirected to a web page of Travel Light. A variation on this is that the passenger stays in the KLM environment and that the information is passed to Travel Light.

The second option is that KLM will set-up its own service and will collaborate with a logistic partner. In this case learning can be gained from viewing the Travel Light website and how it offers the service. The examples of the Travel Light touchpoints can be found in “Appendix Q: Travel Light service”. By learning from this example a KLM branded service is designed. As will be learned from chapter “8. Business cases”, it is recommended to set-up the own service in collaboration with a logistic partner. Therefore, this chapter will show what this service will look like when it is KLM branded and within the KLM environment.
Currently the passenger has multiple options to book check-in luggage that goes in the hold of the airplane at the same flight, which is discussed in “2.2.1 Products & services”. The new journey will first be designed for the online channel ‘KLM.com’ because most passengers arrange their check-in luggage online (Jong, 2016). The new screens are currently only in Dutch because it will be tested first in the Dutch market. All the screens that are visible regarding the booking of check-in luggage can be found in ”Appendix U: Web design Pick-up & Delivery”.

Figure 45: The new passenger journey

Figure 46: Current steps of booking a ticket online at KLM.com
7.1.1 SELECTING WHICH DROP-OFF POINT

The main use of the website remains the same, the steps required to be taken can be seen in Figure 47 on page 106. Only the step of selecting 'your luggage at step 2 - select additional options, will change. When selecting the option 'luggage' there it will be visible that not only the choice is available of dropping off check-in luggage at the airport but that also pick-up and delivery as a drop-off point is available. The lay-out is to a large extent the same as the current online offering. Figure 46 on page 107 shows the old situation and the new lay-out of booking check-in luggage and the differences that are made. With a simple click on + or – and the customer will see the price and can view the total luggage allowance for the selected flight.

The goal of these screens is to keep the appearance the same as the other screens. It should be recognizable and clear for customers to book the service. All the information should be clear at a glance. Customers should be able to see which service they are using, the price per item and the total price. The expectation is that in the beginning customers will not know what the pick-up and delivery is. Therefore, an information button is present and a short explanation is written below the name of the service. Especially in the beginning and when customers want to book luggage and made a mistake when clicking or to make them aware of what they have chosen, a screen pops-up. It is not a warning because they might not have chosen the service, it shows that the passenger selected the pick-up and delivery service and that the address details can be filled-in now or later.
7.1.2 COMPLETING THE ADDRESS FORM

The second step is that the pick-up address and the delivery address should be filled-in. The first moment of offering to fill-in the address details are directly by pressing continue. However, a notification is provided if the passenger wants to fill-in the address details. If the passenger does not want to do this, for any reason, then he presses ‘not at this moment’. If the passenger does not fill-in the address details the first moment, he needs to do this at a later moment in time. To remind the passenger to not forget to fill-in the details, the passenger needs to be reminded several days before the flight. The address details need to be known a few days before the departure of the flight, since the package for preparation (which will be discussed in “7.2.1 Preparation package” on page 118) needs to be sent to the passenger in time. If the passenger already knows the address he can press continue and is able to fill-in the address details per passenger and for each flight separately. Figure 48 on page 108 shows the screen that needs to be filled-in.
7.1.3 COMPLETING THE BOOKING FOR CHECK-IN LUGGAGE

After all required details have been filled-in, the customer needs to make sure that the details are filled-in correctly. Figure 49 on page 110 shows the screen for the overview of the filled-in details. The details can be changed at that moment or up to several days before the departure. If everything is filled-in correctly the passenger needs to read and accept the terms and conditions. When continue is pressed the customer is returned to the extra option screen and is able to view what he booked including the total price of ticket(s) and luggage. This process continues as the current way of booking: filling-in personal details (step 3), paying (step 4) and the confirmation (step 5). The passenger gets an e-mail afterwards with the confirmation of the booking and the e-Tickets.
### Ophalen & Bezorging

#### Reminder e-mail when details are missing

**Beste mevrouw Marie,**

Denk u wel dat u gekozen heeft om uw koffer(s) op te laten halen en deze op uw bestemming af te laten leveren.

U krijgt dit bericht omdat wij nog adres gegevens missen om u deze service aan te bieden. Wij willen u vragen om de adresgegevens compleet te maken. Mocht u vragen hebben voelt u vrij om contact op te nemen met de KLM Service Centre.

---

#### Ontbrekende gegevens

<table>
<thead>
<tr>
<th>Ophalen &amp; Bezorging</th>
<th>Mijn Reis</th>
<th>Voltooi uw reis</th>
<th>Reisgids</th>
<th>Flying Blue</th>
</tr>
</thead>
</table>

#### Adres gegevens

**Ophalen & Bezorging**

**Uw bagage thuis opgehaald en bezorgd bij uw verblijf**

**Adres gegevens**

**De heenvlucht - 21 juli 2016**

- U heeft gekozen voor het ophalen voor het volgende adres:
  - Røntgenweg 463, 2624 WW, Delft, Nederland
- De koffers worden bezorgd op het volgende adres:
  - Onbekend

**Aantal bagage items**

- 1 koffer van maximaal 23kg

**De terugvlucht - 03 augustus 2016**

- U heeft gekozen voor afleveren voor het volgende adres:
  - Røntgenweg 463, 2624 WW, Delft, Nederland
- Aantal bagage items
  - 1 koffer van maximaal 23kg

**Wij verzinnen u voor 18 juli 2016 de gegevens compleet te maken. U kunt de wijzigingen doorgeven op [VOLTOOI UW REIS](#). Als u geen wijzigingen doorgeeft kunt u van deze service gebruik maken.**

---

**Boekings bevestiging**

**Ophalen & Bezorging**

Uw bagage thuis opgehaald en bezorgd bij uw verblijf.

**Beste mevrouw Marie,**

Dank u wel dat u gekozen heeft om uw koffer(s) op te laten halen en deze op uw bestemming af te laten leveren.

Deze e-mail is de bevestiging dat u de adresgegevens heeft ingevuld. Wij willen u vragen om de gegevens te controleren. Mocht u vragen hebben voelt u vrij om contact op te nemen met de KLM Service Centre.

---

**Controleren**

<table>
<thead>
<tr>
<th>Flight details</th>
<th>Pick-up address</th>
<th>Delivery address</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flight details</td>
<td>Pick-up address</td>
<td>Delivery address</td>
</tr>
</tbody>
</table>

**Datum ophalen en bezorging**

Uw koffer wordt minimaal 2 werkdagen voor vertrek opgehaald. U kunt aangeven wanneer u de koffer wilt laten ophalen door onze partner TNC. U kunt nu uw voorkeur doorgeven op [Mijn Reis]. Als u geen voorkeur heeft staat de datum vast op het ophalen op vrijdag 22 juli 2016. De koffer wordt weer bij u thuis bezorgd op zaterdag 06 augustus 2016.

---

**Welkomstpakket**

Per post sturen we u een week voor vertrek een welkomstpakket waarin alles zit voor een zorgeloze reis.

---

**Figure 50: Reminder e-mail when details are missing**

**Figure 51: Reminder e-mail when details are complete**
7.1.4 REMINDER NOTIFICATION
Currently the passenger gets an e-mail 14 days in advance about preparing for the trip and an e-mail when the passenger is able to check-in. See “Appendix S: E-mails prior to departure” for an example of these e-mails. A lot of information is present in both e-mails. So therefore, it is suggested to send another reminder e-mail that is specific for the pick-up and delivery service several days before the departure of the flight. The goal of this reminder e-mail is to notify the passenger that they have booked the pick-up and delivery service and to let them check if the address details are (still) correct. When the preparation package is send, it will be difficult to provide the passenger with the valid documents in time. This reminder e-mail should have two versions: one version for passengers who did not fill-in any details (Figure 50 on page 112) and a second version for passengers who did fill-in the details (Figure 51 on page 113). The important details are highlighted in both versions.

7.1.5 COMPLETING AND CHECKING THE DETAILS AFTER BOOKING
When the passenger chooses to fill-in the address details at later juncture or wants to check the details, the passenger is directed to 'My Trip'. The link is visible in the confirmation e-mail when the ticket is booked, and in the e-mail with the reminder that the passenger has booked the pick-up and delivery service and needs to fill-in or is able to change details. ‘My Trip’ (Figure 52 on page 116) shows that an extra tab is added to the menu. The reasoning for adding an extra tab is to make it easier to find the pick-up and delivery service for the passenger. Because it is experienced by passengers that they currently have difficulties to find the luggage allowance for their flight. The current 'My Trip' can be viewed in "Appendix T: My trip".

At the new page of pick-up and delivery passengers can change two things: the address details and the pick-up/delivery date for each passenger and for both trips. When passengers want to change the address details, they will see the same screen as when they (would have) filled-in the details during the booking. It is possible for the passenger to change the pick-up date to the passenger’s preference. In this way the passenger is more in control of when and where. This to make the passenger less dependent on the system. In this way they can fit in the appointment to their planning of the day or week. The passenger is directed to another page in where the date can be changed (Figure 53 on page 117). In this calendar only the possible dates are available to click on. This date picking system is the same as from the current way of booking a ticket. So that it has a uniform appearance and that it is recognizable for customers booking at KLM.
7.2 PHYSICAL: INTERACTION WITH THE SERVICE

The transportation of the luggage can be done by several logistic partners. The logistic partner for the collaboration has not been chosen or researched during this graduation project. Therefore, it is chosen to describe how the service should be carried out when there is a physical interaction between the service and the passenger. However, in the examples TNT will be used as a logistic partner since TNT already handles delayed luggage that needs to be delivered to the passenger. This paragraph will define several aspects of the service.

7.2.1 PREPARATION PACKAGE

After booking the door-to-door service it is important to send the passenger preparation package to the home address of the passenger. This package includes items to prepare the luggage for transportation. This package includes the following:

- Instruction form on how to prepare the luggage.
- Guiding letter when and where the luggage is picked-up and delivered.
- Plastic bag(s) to seal the luggage for each transport.
- The address sticker(s) for each piece of luggage and transport.

The actions that are required from the passenger should enhance the experience of handling the check-in luggage. It should not require too much effort. Learning is taken from the current products that Travel Light sends to its customers. The reaction from people to the preparation package of Travel Light was that it contained too much paper and because of that it was not always that clear. Another opinion was that it took too much effort to place the luggage in the bag. Therefore, it is chosen to summarize the important steps that need to be taken in one form as can be seen at Figure 54 on page 119. This to avoid passengers skipping steps that need to be taken, such as reading the letter with the information of when and where the luggage is picked-up and delivered. For the return flight the same information is provided of when and where it will be picked up and delivered. The reaction from people to the preparation package of Travel Light was that it contained too much paper and because of that it was not always that clear. Another opinion was that it took too much effort to place the luggage in the bag. Therefore, it is chosen to summarize the important steps that need to be taken in one form as can be seen at Figure 54 on page 119. This to avoid passengers skipping steps that need to be taken, such as reading the letter with the information of when and where the luggage is picked-up and delivered. For the return flight the same information is provided of when and where it will be picked up and delivered.

Figure 54: Instruction form of the Pick-up&Delivery service
delivered. If something is not correct in the details and need to be changed, the contact details of KLM are included. However, this is information that has been derived from the information the passenger already had filled-in at the KLM website. So the likelihood that data is not properly reproduced will be small.

The next instruction step is about preparing the luggage for the trip to and from the destination. Since people had difficulties putting the plastic bag around the suitcase, the instruction guide is written with the main steps that need to be taken. A plastic bag is used to protect the luggage from water or other dirt during transport. The current plastic bag that Travel Light uses has no additional cut-outs for the wheels or handles. Because of that people needed to carry their 'heavy' luggage in a difficult manner. Or they needed to customise their own cut-outs for the wheel or handles. The plastic bag is not fully redesigned during this graduation project. Though, how it could look like can be found in “Appendix V: Content Preparation package”. An additional seal is added to the design of the bag because of security reasons. It is important for passengers to know if someone might have tampered with the luggage. Another advantage of the seal is that passengers do not have to provide their own tape for closing the bag. The advantage of using a plastic bag is that the address label will stick on the material. So when a soft-case suitcase is used, stickers might fall off which may cause losing luggage of the passenger during transport. And losing luggage is not desirable for both passenger and KLM. When using the plastic bag around the suitcase losing the address label will be avoided.

The current address label(s) are from TNT, and are standardised. When choosing another logistic partner, they will also have their own standardised labels. The requirement of collaborating with a logistic partner is that the passenger can Track&Trace the luggage. This code will facilitate passengers to know where their luggage is located. Usually this Track&Trace is a code on the address label. When the luggage is packed it is time for the next step, sending it away.
7.2.2 COMMUNICATION OF THE LOGISTIC PARTNER

Before the passenger takes the flight, the luggage needs to be picked-up by the logistic partner. It is preferred to customise the way of communication of the logistic partner, to the manner of how KLM would do this. Since the service is part of KLM, and KLM collaborates with a logistic partner for picking up and delivering the luggage, the service should be seen as an experience that involves KLM and the logistic partner.

The logistic partner is the main touchpoint in this part of the journey. Therefore, during the pick-up and delivery, the interaction between the logistic partner and the passenger is key. From the pilot it is known that the interaction between passenger and logistic partner was not found very important, but it did matter on how the service was experienced. So, how the luggage is picked-up and delivered influences how passengers experience their journey.

When the luggage is picked-up by the logistic partner, this person needs to have a ritual of how to pick-up luggage. This ritual needs to be shaped in order to transfer the desired experience. Therefore, the best case example is taken of how a KLM agent would interact with passengers.

The current project of Appy2Help enables KLM agents to know certain things about their passengers on board. This allows the agent to interact on a more personal level with the passenger. For example, when it is the passenger’s birthday the KLM agent can say congratulations and maybe give a small present. Or when a passenger is afraid of flying the agent can say some calming words. It supports the agent in the job they need to perform.

KLM started the roll out of the ‘KLM Compass’ in June 2016, this represents the blueprint of KLM. The goal is that in October 2016 the employees know and understand the chosen strategy of KLM and eventually want to act upon it. The core of the strategy is to excel in customer contact, which is called the customer intimacy strategy. The desired customer experience is:

- I feel recognised.
- Easy to deal with.
- I feel comfortable.
- I feel touched.

The basic characteristics the person needs to have are: representative, open, reliable, customer centric and service oriented. By learning from the given examples guidelines per situation are made on how to interact with the passenger during:

- Pick-up of the luggage.
- Delivery of the luggage.

Both situations will be described in the following paragraphs.

7.2.3 PICKING-UP LUGGAGE

Before the logistic partner arrives at the passenger’s pick-up address a notification is send to the passenger. This notifications informs the passenger that the logistic partner is on its way and that the passenger is expected to be at the address. When the logistic partner arrives at the address the following is known:

- The name of who (probably) hands over the luggage
- The amount of luggage that is picked-up
- That the person used the Pick-up & Delivery service of KLM
- The destination of the passenger

Having this information, the logistic partner can start an interaction with the passenger as is described in Figure 56 on page 124. When the door opens the logistic partner starts by asking if the person is from who the luggage is picked-up. The logistic partner gives an introduction of who he is, so that the passenger knows with whom he has to do. When the luggage is handed over, the logistic partner checks if the plastic bag is placed properly around the suitcase and if the address labels are attached correctly. The passenger signs that the luggage is picked-up and that there are no dangerous goods in the luggage. When this all is been checked, the
Track&Trace code is activated and the passenger is able to follow the luggage. The logistic partner should always ask if there are any questions relating to the transportation of the luggage. If there is a question that cannot be answered, the logistic partner directs the passenger to the customer service of KLM’s Pick-up & Delivery.

When everything is done and checked-in it is time for goodbye. Here it is important to make it well-meaned and not forced. For example, only a goodbye is normal and not so memorable. Wishing the passenger a safe flight is already an extra step. Since the logistic partner knows the destination of the passenger a little extra can be done when he has visited that place. For example having a tip of where to go to. It should be a positive start of the journey for the passenger.

7.2.4 THE JOURNEY OF THE LUGGAGE

When the luggage is picked-up and on its way to the destination address the passenger is able to track the luggage. The Track&Trace code can be entered in the website of the logistic partner or is send via e-mail to the passenger. When the logistic partner is TNT the Track&Trace can be seen in “Appendix R: Track&Trace from TNT”. Here the passenger can see two things: the status of the luggage and which depots the luggage passed through. When the journey of the luggage goes as expected, the luggage will arrive one day before the passenger arrives. So when the passenger leaves to the airport, the luggage is already at the destination. The luggage is accepted by the destination address and is signed for receiving. Because of that, it is required that the destination address has someone present at the time that the luggage is delivered.

The best situation for the passenger and most customer friendly will be when the luggage is placed in the room of the passenger before arrival. This will make the service from the Pick-up and Delivery and from the accommodation more convenient and luxurious for the passenger. Because then the passenger does not have to carry his own luggage to its accommodation.

7.2.5 DELIVERING LUGGAGE

When the passenger is ready for the return flight, the luggage is handed over to the reception or someone who will hand it over to the logistic partner. This will be picked-up the day after the return flight. When the luggage is picked-up the passenger gets a notification in the form of a Track&Trace code by e-mail.

The passenger has made an appointment for when and where the luggage will be delivered after the return flight. A notification is send to the passenger with the message that the logistic partner is on its way to deliver the luggage. From here on it is almost the same as when the luggage is
picked-up. When the logistic partner arrives at the address the following is known:

- The name of who (probably) accepts the luggage
- The amount of luggage that is delivered
- That the person used the Pick-up & Delivery service of KLM

With this information the logistic partner can start by asking if it is the contact person. If so, the passenger's experience can be asked about the trip or the service. In the meanwhile the luggage is handed over. The logistic partner checks if the passenger has received the amount of luggage that needed to be delivered. If everything is good the Track&Trace code is deactivated. A signature is asked for receiving the luggage. Since everything is handed over, the logistic partner should ask if there are any questions relating the luggage. If there is a question that can not be answered, then the logistic partner directs the passenger to the customer service of KLM's Pick-up & Delivery service. Finally, the logistic partner should wish the passenger a good day and hope to see him in the future.
7.3 WHEN IT GOES WRONG

How the pick-up and delivery service is described in the chapters “7.1 Online: booking the service” and “7.2 Physical: interaction with the service” is all positive and everything is going as it is designed. However it is possible that things can go wrong during the journey. Where people are involved mistakes are made. Therefore, it is described what can go wrong and how it can be handled, in order to be prepared on what could happen.

7.3.1 WHAT CAN GO WRONG?

In this section the problems that can occur are discussed per step of the passenger journey.

It starts with the booking of this service by the passenger. Not everyone knows already the specific destination address when a flight is booked. So at this point the only thing that can go wrong is that the passenger does not complete the filling-in of the address details.

When the address details are filled-in and it is the day that no more adjustments can be made, the preparation package will be send to the passenger. There are several things that can happen with this package:
- The preparation package is not delivered (on time).
- There are products missing or defective from the preparation package.
- The address details are not correct in the information letter.

When the luggage is picked-up at the passengers address the following problems can occur:
- The passenger is not home during the pick-up appointment
- The Track&Trace is malfunctioning e.g. not linked or registered
- The luggage is not packed properly e.g. plastic bag is not around it, address label is placed where it is not visible.
- The logistic partner has not arrived during the timeframe of the appointment.

When the luggage is picked-up and on its way to the destination or back home the following can happen to the luggage:
- Goods are stolen from the luggage during the transport
- The luggage is missing during transport
- The luggage is damaged during transport
- Luggage arrives after the passenger arrived at the destination address.

When the luggage will be delivered to the destination address problems regarding the delivery can take place:
- Luggage could not be delivered because nobody was present to accept the luggage
- The accommodation does not agree to receive the luggage because it is not aware of the procedure or that is was coming another way.

Another problem that can occur is that the passenger wants to change addresses of pick-up and delivery for the return flight.

As can be seen many things can go wrong. The problems can be divided into groups of who caused it. Sometimes it can happen that the responsibility is unambiguous. These are the following individual groups:
- KLM
- Logistic Partner
- Passenger

The following paragraph will discuss how the problems can be solved, how it should be solved and by who.
7.3.2 WHAT TO DO WHEN IT GOES WRONG?

So how to solve the described problems? Since the pick-up and delivery service is offered by KLM, passengers will contact KLM when something is not going as it should.

**Address details are not filled in**

In the case when the address details are not filled-in KLM needs to make one last effort to make the passenger aware that it needs to be filled-in, if the passenger wants to make use of this service. This notification should be send the last day that is possible to add or change address details. When the passenger still does not fill-in the address details, the passenger should be switched to drop-off at the airport. This is something that should be mentioned in the terms and conditions and also explicitly written in the e-mails that are send to the passenger when the address details are not complete. So here it is the responsibility of the passenger to complete the details for the service, nevertheless KLM will also take the responsibility to warn the passenger on time.

**Preparation package**

When the preparation package is not delivered (on time) the passenger should contact KLM about this problem. Because KLM can not know if it has arrived or not. The passenger is aware that he will receive a preparation package several days before departure, since it is mentioned in the confirmation e-mail. Here the problem is caused by KLM, however the passenger should take the first step to solve the problem. When it is reported, the solution is dependent on when the luggage will be picked-up. When there is still enough time between sending a new preparation package and when the luggage is picked-up a new package is send to the passengers address.

When there is not enough time a decision must be made on which option to choose: is a courier sent with the preparation package or will the logistic partner provide the preparation package at the moment of pick-up? A courier can be expensive, while the logistic partner has limited time and needs to bring it along. This is something that needs to be calculated: what the best option will be.

In the case when something is missing from the preparation package or is incorrect, the same solution is valid for when the package is not delivered (on time). The passenger needs to contact KLM that something is missing or incorrect. Here, it will also be dependent on the time between when it has been reported and when it is picked-up. When there is enough time, the package is send again. When there is not enough time, the same question rises, can the logistic partner bring it along, or is a courier send with a new preparation package.

**Pick-up of the luggage**

The other problems that occur during the pick-up are outside the range of KLM to solve. However, in circumstances when the logistic partner is late, there is a likelihood that the passenger will call KLM. When this is the case, KLM should get in contact with the logistic partner. Whereas the logistic partner should get in contact with the passenger, since they might have the know-how on why the driver is late. Because of that, it is preferred that when the logistic partner is late and this is already known, the passenger needs to be notified in some way e.g. a phone call or text message. When it is to blame, KLM or the logistic partner may offer to compensate the passenger in some way e.g. extra Flying Blue miles, an upgrade, or access to the lounges. This should be a last resort to demonstrate that KLM regrets that something went wrong, for example that the logistic partner showed up late.

It can be also the other way around when the passenger is not home when the luggage is picked-up. In that case the passenger needs to get in contact with the Logistic partner to reschedule the meeting. However it would be more customer friendly if the driver would call the passenger. In that case,
the driver can try to fit it in his schedule to drive by another time. Nevertheless, it is the passenger’s responsibility to be on time at the appointment. When the luggage is picked-up a day later, it might happen that the luggage will arrive the same day as the passenger at the destination or a day later than the passenger. This consequence needs to be communicated to the passenger, as to what can be expected.

When the luggage is not packed properly, the bag is not tight around the suitcase and no handles are visible it is difficult for the logistic partner to carry the luggage. When this is the case, the logistic partner needs to help the passenger with putting the bag around the suitcase. However, because of the seal, the bag can not be used again. Only when a new tape is placed around the bag, however the problem then is that it is not visible anymore that there might have been tempered with the luggage. So it is suggested that the logistic partner has an extra set of bags with him. When the logistic partner helps to pack, this will be an example of how the passenger needs to do this for the return flight.

Another problem might be that the Track&Trace code is malfunctioning, for example that the code is not linked or registered. In this case it should be possible that the logistic partner can solve this on the spot.

**Journey of the luggage**

When goods are stolen from the luggage, luggage went missing and/or luggage got damaged then this should be compensated by the logistic partner. Because at that moment it is in their hands. However, when they will not compensate KLM needs to do this. When the luggage is stolen or is missing the compensation should be as how it is done now at KLM. When it is the first day not arriving, they get an allowance and they need to save the receipts.

**Delivery of the luggage at the accommodation**

When the luggage arrives too late at the destination, the passenger should receive compensation. Because KLM was not able to keep word about having the luggage delivered when the passenger arrives at the destination.

First and foremost, no matter who is to blame, KLM needs to try to solve the problem according to its policy, to keep the passenger satisfied. The basic principle is when KLM does not handle the luggage, it should not be accountable. The logistic partner needs to be accountable when something has happened with the luggage. To make the collaboration successful agreements need to be made with the logistic partner about who is responsible when and for what. This makes it clear where the claim of the passenger is recovered. And it is important to have a plan of action, when the luggage arrives a day later, what should we do and how do we compensate? This should be written in the policies of KLM’s Pick-up & Delivery service.

In circumstances where the luggage can be delivered, but there is nobody to accept the luggage, the luggage will be delivered at another time which needs to be communicated to the passenger. So that the passenger can be present to receive the luggage. This should be done by the logistic partner. This solution is also the case for when the luggage is not accepted for reception by the destination address for whatever reason. When the accommodation is not aware of this service they might refuse the luggage, so it is important that accommodation knows that luggage is sent to them, so that they can prepare for reception. In this case, the logistic partner is not accountable but KLM. In all these cases, the passenger needs to be compensated when the luggage arrives one day or more after they have arrived.

**Changing the address details**

One last problem can be when passengers want to change the pick-up address for the return flight. In this case it should be possible to arrange this a few days before departure. However the passenger should be able to get new address labels for the luggage. It may be the case that the passenger
needs to print these stickers on paper and tape it on the bag. So this problem is the responsibility of the passenger. Because of that they need to contact KLM and the passenger should make the arrangements to add his correct address label onto the luggage.

7.3.3 CONCLUSION
So there are many things that can go wrong, however there is a solution. It is important that the solution is reasonable for the passenger and KLM. When a mistake is made it should be solved. KLM, as a company, has the mission to be reliable, safe and service oriented (section “2.1.1 Mission statement”) and has as vision to become the most customer centric European network carrier (section “2.1.2 Vision”). So trying to offer the passenger the best possible solution to the problem is the part of KLM’s ethos and goes to the core of how it wishes to operate.
Will the new service be interesting for KLM? And will the new service cover, or even improve, the overall financials of the luggage department? For these questions several business cases are made to investigate if the new service is interesting for KLM to invest in.

To compare the results with the current situation, a business case is made, focused on the European Union (EU).

Figure 58 on page 138, shows the map of Europe and which countries are also EU and/or Schengen.

The business cases that are made are:
- The continuation of the current situation.
- If KLM collaborates with Travel Light.
- If KLM collaborates with a logistic partner.
- The most likely to happen scenario.
Figure 58: What is Europe, what is the EU and what is Schengen?
8.1 CONTINUATION OF THE CURRENT SITUATION

To know how the door-to-door luggage service will be of financial beneficial, it needs to be compared with the current situation. However specific revenue and costs are not known for the EU. Therefore, the analysis of the current situation will be made with several assumptions.

8.1.1. REVENUE

The basis for the revenue of paid check-in luggage is Europe. The assumption is made that for every destination country in Europe, the same amount of check-in luggage is bought by the passenger. KLM is flying to 43 countries in Europe of which 28 are part of the EU, see “Appendix W: countries in Europe”. As a result, to calculate the amount of pieces of check-in luggage and the revenue, the European values can be multiplied with a factor of 28/43 which is 0.65.

Revenue is obtained from several touchpoints. At the online touchpoint KLM.com, the customer can buy check-in luggage at the check-in kiosk at the airport, at the SSDOP, at the KLM ticket office and at other travel agencies who operate online and offline. Odd size luggage can be only bought at the airport.

8.1.2. COSTS

The costs for check-in luggage at the airport are made at several points, as can be seen in Figure 59 on page 142. Within the departure hall, check-in luggage is dropped-off. To determine the costs of the check-in area, the amount of space used to process the passengers with check-in luggage to a country within the EU, needs to be known. The current departure hall is divided in Schengen and non-Schengen. The countries that signed the Schengen agreement, are most of the EU countries, with a few exceptions (“Appendix W: countries in Europe”), and a few non-EU countries. At departure hall 1, passengers who go to a Schengen destination, can check-in their luggage. Because the countries in the EU and the countries that signed the Schengen agreement, is almost the same, for simplicity it is assumed that all the EU flights of KLM are handled in departure hall 1.

Within the departure hall the following costs can be determined:
- The installation and maintenance of seven SSDOP machines.
- Employee costs.

The costs to use of the space in departure hall 1 and the use of the check-in counters are included in the airport fees of AAS. The same goes for the handling of the check-in luggage in the baggage handling system of AAS. These costs are calculated per passenger that the airline handles.

When the check-in luggage has reached its destination in the basement, there are several cost factors for KLM:
- BTS employees. It is assumed that their number will stay the same, because you will always need one driver and someone loading the trolley.
- Use of the required machines.
- Depreciation of the machines.
- Loading the check-in luggage in the airplane.

The other costs that are made for check-in luggage are kerosene and luggage claims, if something should happen to the check-in luggage of the passenger.

8.1.3 IMPLICATIONS

As can be seen from the financial overview of the current situation in “Appendix X: Business case - Current situation”, KLM has a stable forecast for the coming years. The calculated situation will function as an example of the minimum to be reached in financial terms, when the door-to-door service is implemented in the various scenarios.

A sensitivity analysis is performed in order to know which factors have a high influence on the Net Present Value (NPV). From the sensitivity analysis a change in the sale price has a big impact on the NPV. It shows that the NPV is highly dependent on how low or high the sale price is of the check-in luggage. So when the current situation will be continued it is advised to increase the sale price for the check-in luggage. This in order to improve the financial situation of check-in luggage at KLM.
Figure 59: Overview of the costs of handling check-in luggage
8.2 THE NEW SERVICE

As described earlier, KLM wants to be innovative, customer centric, service oriented and efficient. This can all be achieved with the door-to-door luggage service. It is new and innovative in comparison to other airlines in Europe. With this luggage service KLM will be the pioneer of a door-to-door luggage service. It makes the trip for passengers more comfortable to the airport and they do not have to stand in line to drop-off their luggage and they do not have to wait at the reclaim belt.

The service might attract new customers who want to try out new services and therefore also buy a ticket of KLM. Introduction of the door-to-door service will allow current customers to try the new service. Further, existing customers who stay true to their brand, will still be able to experience a new service.

However, there is a risk for KLM if they decide to offer the door-to-door luggage service, since passengers are not yet used to this way of travelling. However, since the service can be compared to sending and receiving a package, there will also be a sense of familiarity. Therefore it is assumed that the discount rate will be 12% for the new service.

The following chapters will discuss which business case is financially the most attractive for KLM.
8.3 COLLABORATION WITH TRAVEL LIGHT

To calculate how attractive a collaboration will be with Travel Light, a financial overview is created. This financial overview is based on the extreme case that all the check-in luggage of the EU will be processed by Travel Light. In this case the customers of KLM are redirected to Travel Light. It is assumed that everyone can make use of the service.

8.3.1 THE FINANCIAL OVERVIEW

When KLM will start a collaboration with Travel Light the following assumptions are made:

- All the check-in luggage that is checked-in in the current situation will be handled by Travel Light.
- The current selling price of Travel Light is used to calculate the revenue. Therefore it is assumed that the sale price to every country is the same. Consequently, this sale price is the most common price for sending one suitcase of 20 kg. Therefore, the sale price is €79.00 for one suitcase of 20kg.
- KLM gets a 15% margin of the total revenue (de Laaf, 2016).
- The marketing costs will be 20% of the gained revenue the first year. After the first year the marketing costs will drop down to 5% (Eijk, 2016).
- Increase of 1.5% inflation each year.

8.3.2 IMPLICATIONS

As can be seen from “Appendix Y: Business case - Travel Light”, the financial situation of KLM has improved in comparison to the current situation. As from the first year, if KLM only offer the door-to-door service, KLM makes a profit with the door-to-door luggage service that is carried out by Travel Light.

From the sensitivity analysis it appears that the margin of KLM, has a very high influence on the NPV. With an increase of the margin, the NPV increases multiple times. When the margin is too low, the collaboration with Travel Light will not be of financial beneficial. In conclusion, when a collaboration is committed by KLM and Travel Light, the operating margin is a very important point to discuss.
8.4 COLLABORATING WITH A LOGISTIC PARTNER

The collaboration with a logistic partner is based on the indication that Post NL gave on how much they would ask for transporting the indicated luggage.

In this scenario it is taken into account that with the offered price of PostNL, the luggage still needs to be sent 2-3 days prior to departure. When the luggage is picked up 1 day before departure, the prices of handling the luggage will be far higher. This would not be a problem, when passengers are prepared to pay more than they indicate at this moment ("Appendix AB: What passengers would pay?"). However passengers are not prepared to pay that much money for the service. It is good to be aware of the possibilities that a logistic partner can offer, because it can be a proposition towards the passenger. The proposition can be: do you want to send your luggage as late as possible, if so then this is possible for higher price. However for this business case it is more likely that the luggage is picked-up 2-3 days prior to departure.

8.4.1 FINANCIAL OVERVIEW

The assumptions that are made for the financial overview are:

- All the check-in luggage that is checked-in in the current situation will be handled by a logistic partner.
- The price of sending luggage from home to destination and return, will be 60 euros.
- The costs are based on the indications of PostNL (Franzen, 2016).
- The marketing costs will be 20% of the gained revenue the first year. After the first year the marketing costs will drop down to 5% (Eijk, 2016).
- Increase of 1,5% inflation each year.

8.4.2 IMPLICATIONS

As can be seen from "Appendix Z: Business case - Logistic partner", the financial position will improve even more than if a collaboration is made with Travel Light. However, it does mean that everything of the service needs to be developed by KLM. This also means that KLM needs to be prepared to either handle the service by its own or to outsource it, e.g. to the logistic partner. But that means that the logistic partner is the point of contact for the KLM passengers regarding the service and that the logistic partner makes the preparation package.

From the sensitivity analysis it can be concluded that the sale price and the cost price of the luggage has an impact on the NPV, and thus on the financial overview. The discount rate is also from importance. This factor has the greatest impact on the NPV. Since it is a high risk to introduce a new service, investors can demand a higher extra return for investing in the service. The discount rate also shows that money in the future is not as valuable as money in the present.
8.5 MOST LIKELY TO HAPPEN

The previous scenarios about collaborating together with a logistic partner and Travel Light are two extremes in where KLM only offers the door-to-door luggage service and not the drop-off at the airport. However this gives an impression which of the two cases has the most potential. As been said, both cases have advantages and disadvantages. Working with Travel Light means that everything is outsourced and that KLM does not have to take care of the door-to-door luggage service. However working together means also that the revenue is shared. When working with a logistic partner, KLM has a higher operating margin than collaborating with Travel Light, but KLM needs to take care of how the service is carried out. Since KLM is a revenue driven company it is most likely that a collaboration is started with a logistic partner.

It is most likely that KLM will not immediately get rid of the drop-off for check-in luggage. After some time, when the door-to-door service has proved itself, it is a possibility to do so, when it is an accepted service by passengers. It is assumed that in the year 2018 the service can be introduced (See chapter "9. Implementation"). From there on it is assumed that by 2025 the door-to-door service is the only option for passenger, and not a choice, when they want to take check-in luggage on their trip.

It is suggested that odd size luggage always needs to be arranged with the door-to-door luggage service. Currently odd size luggage is very labour intensive. It is not a product that simply fits into the system. Odd size luggage is mostly handled manually. Therefore the recommendation is that the door-to-door luggage service will be the only option for passengers when they want to take odd size luggage on their journey.

8.5.1 FINANCIAL OVERVIEW

The following assumptions are made for the financial overview ("Appendix AA: Business case - Most likely"):  
- 2017 the development of the service starts  
- 2018 the door-to-door service is introduced   
- Odd size luggage is always sent with the door-to-door service  
- By 2025 door-to-door luggage service is the only option  
- The price of sending luggage from home to destination and back (return booking) will be 60 euros.  
- The costs are based on the indications of PostNL.  
- The marketing costs will be 20% of the gained revenue the first year. After the first year the marketing costs will drop down to 5% (Eijk, 2016).  
- Increase of 1,5% inflation each year.

8.5.2 IMPLICATIONS

From this scenario it is clear that the financial position first will be stable because of the relative low investments. From the start of the introduction of the door-to-door luggage service the operating margin is increasing every year. This has to do with the assumption that every year more passengers will make use of the service. However from the point that the service is fully implemented and the only option, the revenue and costs will be stable from that year on. To conclude: If the door-to-door luggage service is introduced, KLM will benefit financially.

The most sensitive aspect in this business case are the sale price of both the door-to-door luggage service and the airport drop-off. Another sensitive factor is the cost price of the logistic partner per piece of check-in luggage.


8.6 CONCLUSION

From the business cases several things can be said. First, the business cases that are based on the new door-to-door luggage service give a positive impression. All the cases show a financial benefit in comparison to the current situation of drop-off at the airport. Secondly, a full switch is not recommended initially, since it demands a big change of habit from passengers, as described in the most likely to happen scenario. It is recommended that passengers get used to the door-to-door luggage service before a full switch is realised. So, when comparing this scenario to the current situation, it can be seen that after a few years after the service has been implemented, the financial position of KLM regarding operating costs is expected to be better than if the current situation is continued as-is.

To conclude: If KLM chooses to implement the door-to-door luggage service, KLM’s financial position will improve after a few years after starting the service. Because of that it is recommended to consider this door-to-door luggage service, so that KLM is as it wants to be, innovative, customer centric, service oriented and efficient.
9. IMPLEMENTATION

The implementation of the luggage pick-up and delivery service can be done quickly when given the right priority by KLM. Most facets of the service already exist. However, it is strongly advised that refinements needs to be done to the current concept. From the previous chapter on business cases we choose to continue with the most likely scenario in which the pick-up and delivery service will exist next to the current luggage check-in processes at the airport. This chapter will discuss how the door-to-door service can be implemented, so that eventually the passenger can buy the service.
9.1 PREPARATION BEFORE IMPLEMENTATION

9.1.1 STAKEHOLDER EXPLORATION
Before further development can take place the question needs to be asked: "Is there interest to develop this service in more detail?" Since KLM currently facilitates the check-in luggage process, and will potentially benefit most from the solution, the interest in the solution first needs to be established at KLM. The concept needs to be pitched and explained to relevant stakeholders at KLM, with the aim to answer the question "How interested is KLM to implement the pick-up and delivery service?" In this pitch, both operational effects, financial effects and passenger experience need to be elaborated on.

9.1.2 FURTHER DEVELOPMENT
If KLM expresses enough interest, the designed products/touchpoints for the door-to-door service were derived from the current looks of the existing online KLM-products. As mentioned, further development is required to make the products and touchpoints fit to the standards of KLM. These products are:

KLM online
- The booking web pages of the pick-up and delivery service
- 'My trip' web page with referral to the pick-up and delivery service
- The confirmation e-mail(s)

Door-to-door service
- The preparation package
- The interaction with the logistic partner and passenger.

Online content
The further development includes the programming of the 'door-to-door service' web page and incorporating it in the current website of KLM.

E-commerce will take responsibility for the online content, since this department within KLM has the knowledge what language should be used to contact and inform the passenger. Thereby, e-commerce has a clear vision on how the looks and the feel should be of the web pages. The current concept is a derivative of the current web pages on booking luggage at KLM.com and 'my trip' at KLM.com. This look can of course be changed. For example, in the first stages after introduction of the 'door-to-door' service it is advisable to change the look to indicate to the passenger that it is a new service.

For the confirmation e-mail, it is important that the information that is filled-in during the booking corresponds to what is written in this e-mail. Here the example of how this e-mail should be sent can be derived from current e-mails that are send to passengers.

As mentioned before, the design is currently only for KLM.com. To reach a larger target group it is suggested to roll-out the pick-up and delivery service also to other touchpoints where the luggage can be added to the flight. However, to make use of this service it is suggested that the booking period of this service will close several days before the flight, in order to send the preparation package and for administrative reasons. So the touchpoints where this service is recommended to be possible to book are:
- KLM.com
- 'MyTrip' at KLM.com
- At the KLM app
- At ticket offices of KLM
- Agencies that offer tickets of KLM (for example D-reizen and vliegtickets.nl.

Preparation package
The preparation package needs to be further developed in the following aspects:
- The information letter should be revised. This means that the text needs to be adapted on how KLM would communicate the information to their passenger.
- The instruction form should be revised with respect to text and visualization. The current suggested instruction form is not using the visuals KLM normally uses.
- The plastic protection bag needs...
to be changed, because of security it needs to have a seal. For this a partner needs to be found that could make the bag with the seal that is KLM branded.

It is also recommended to outsource the production of the preparation package and sending this to the passenger, for example to the logistic partner, since they already have the expertise with sending large numbers of packages. The ability to outsource the production and distribution of the preparation packages should be a requirement during the search for a logistic partner that KLM will collaborate with.

**Logistic partner**

The collaboration with the logistic partner should be made specific to with whom KLM wants to collaborate. Which logistic company could live up to the standards and expectations that are set by KLM? Which logistic company can perform the best service for the best value? Which logistic partner operates in the EU, and possibly all the countries KLM flies to/from?

In choosing a logistic partner it is important that they handle the luggage with strict safety and security. To interact with the passengers training is needed for the logistic personnel so that the interaction is to the same customer-focused standards of how KLM would interact with their passengers.

### 9.1.3 PILOT OF THE PICK-UP AND DELIVERY SERVICE

It is clear that the service will not be implemented without testing it on a small case first. There has been a small pilot program with people who used the service that is offered by Travel Light. However, since this KLM service is different and now will be carried out by KLM and the logistic partner a new pilot program is needed. It is recommended to start this pilot program with passengers that normally also fly with KLM. This group is able to compare the old and new situation. Next to that, they know how KLM interacts with them, which makes it possible to evaluate how staff of the logistic partner interacts with them when the luggage is picked-up and delivered. On the basis of the pilot program, information is gained on which points of the service optimisation is needed and possible. The results of this pilot program will determine what the next steps will be in the process of implementation.
9.2 IMPLEMENTATION OF THE SERVICE

9.2.1 WRITING THE BUSINESS PLAN

With the business case a start is made on what the possible advantage will be when choosing to collaborate with a logistic partner and offering this service next to the current airport drop-off and what the advantage will be when eventually only this service is offered. Next to this financial gain, what are the goals and the mission of this project when the service will be implemented by KLM? Is the service feasible? Does KLM want to switch fully to the pick-up and delivery service at a certain point in time? Who may want to buy this service? And how to market this service to this target group? These are all questions that should be asked and answered when writing the business plan.

9.2.2 ROLL-OUT OF THE SERVICE IN COUNTRIES

When the service is handled by a logistic partner, luggage and passenger are not travelling together anymore. Only in this construction it is possible to make sure that the luggage is arrived at the destination before the passenger. It is chosen to work with a logistic partner since is the law does not allow that passenger and their luggage are travelling on different flights. It is recommended to roll out this service first in the European Union. The advantage of starting in the EU is that EU laws permit the free movement of goods. This implies that the passenger does not have to pay import costs when the luggage is checked by customs when it arrives in an EU-country.

When other countries outside the EU are included in the service, the passenger needs to take more actions. When luggage is shipped ahead outside the EU, the passenger needs to declare that the content of the luggage is owned by him/her. Besides that, the flight ticket should be included in the luggage, to prove that the products in the luggage are for personal use. So when passengers want to take a souvenir for others from their trip, they can not do this without risking that they need to pay for import.

Therefore, offering the pick-up and delivery service is recommended to offer this in countries outside the EU when law and regulation has changed to make it possible to send luggage ahead without this hassle.

From the workshop 'baggage as a service', in June 2016, it became clear that changing laws and regulations is expected to take considerable time, due to the role of safety and security issues that play a central role in transporting check-in luggage. These issues will be dealt with eventually, since most attendants agreed that a luggage door-to-door service will exist in the future. During this workshop the attendants also discussed how to change certain laws and regulations regarding passengers travelling separately from their luggage. Therefore, it is expected that sending luggage, travelling separately from the passenger, is possible outside the EU in the coming years.

So it can be imagined that the roll-out of the door-to-door service first starts in the EU, that it will extend to Europe and later in the process to the entire world. However, when expanding the areas every time, the delivery distance will also grow. Consequently, the time that luggage is picked-up before the flight might increase. When this time is higher than the expectations of the passengers, new arrangements need to be made on how the luggage is transported by the logistic partner to live up to what is acceptable by the passenger.
9.3 CONCLUSION

Assuming KLM will embrace the door-to-door service, the results of the pilot determine when the next steps can be taken. In particular if the results of the pilot require changes in the service, then the official roll-out will be delayed as a result. The other factor which is important for the roll out to outside the EU, will be the law and regulations to make it possible to send luggage ahead with the logistic partner. To make the pick-up and delivery service possible it is of importance to set clear goals and to involve relevant stakeholders and partners to make this door-to-door service a success.

Figure 60: Roadmap of how to implement the service at KLM
Before it is possible to say if the service works, it is wise to confirm with consumers who might use the service. Because the company Travel Light offers the door-to-door service in The Netherlands, it was possible to collaborate with them. Travel Light was willing to share their expertise and service. By examining their service it was possible to evaluate how their service is experienced by people. Besides the evaluation with customers, the service will be evaluated with the deliverables of PASSME and also with the assignment.
10.1 CUSTOMERS

The evaluation of the door-to-door service was evaluated two times. The first time was by means of a survey which was sent to consumers who are linked to Travel Light, the second time was with an interview which was conducted with people who recently used the service. Both results are discussed in this report.

10.1.1 SURVEY

The survey was aimed at people who already knew Travel Light and who had (possibly) experienced sending their luggage with its door-to-door service. See “Appendix AC: Survey Travel Light users (Dutch)” for the survey and “Appendix AD: Results Survey (Dutch)” for the results. The goal was to get an understanding of how they experienced the service and how much they would be prepared to pay for this door-to-door service. Finally, the results of the survey are compared to the original passenger journey in terms of how passengers experienced travelling to the airport with public transport.

Respondents who did not use the service

Eventually 40 people filled-in the survey, of whom 27 did not send luggage with Travel Light. These 27 people gave the following answers for why they did not use the service:
- 3 respondents have used the service for the odd size luggage e.g. ski-sets and bicycles but not for check-in luggage.
- 13 respondents indicated that they have the intention to use the service in the future.
- The other 11 respondents do not see an added value in the service or are worried about certain parts of the service.

Since this group did not use the service it was not possible to ask how they experienced the service yet. Nevertheless it gives an idea why people would not use the service.

Respondents who did use the service

13 respondents did send their luggage with Travel Light. Figure 61 shows the reasons why they chose to make use of the service offered by Travel Light. Mainly this service makes it more convenient because the customer does not have to carry the luggage (7/13) and they do not have to spend time to check-in (7/13). When the luggage is picked-up, the user is very positive about their experience, with an average rating of 6.6 out of 7. The only negative emotions they have experienced are related to that it is a new experience for most of these respondents. They hand over their belongings to someone else and they are worried about whether the luggage will arrive undamaged and at its destination. Figure 62 on page 168 shows the experienced emotions of when the luggage is picked-up.

When the luggage is in the hands of Travel Light, the average rating is a 5.9. People do not know what happens with their luggage since it is out of sight. However, track and trace and the collaboration of a recognized
company like TNT reduces the negative emotions. The Track&Trace code helps the user to stay connected to their luggage and to know where it is located and if it has already reached the destination.

From the 13 respondents who used the service, 9 travelled with the public transport. They experienced their journey positively and rated this on average with a 6.3. When looking back to section "3.3.2 Quantitative research" on page 58, the passenger rated this experience with a 4.7 on average. Of the users who used Travel Light, only 1 used once a negative word (boredom).

As can be seen, the experience of travelling improved, when the door-to-door service is used. The positive emotions that are mentioned to describe the experience of travelling to the airport can be seen in Figure 63 on page 168. The reasoning for this change, is that travelling without luggage is more convenient, they feel independent, and they have their hands free.

How much would you pay?
When the following question was asked: “How much would you pay for this service in the following situation? Your one piece luggage of 23 kilograms is picked-up at your home and is delivered to your holiday accommodation somewhere in Europe. Your luggage is also being picked-up to take it back home. What would you be prepared to pay?” Most respondents who have experience with this service answered: €50 per suitcase, for trip and return trip combined. This is different from people who did not use the service before. The vast majority of people who had not used the service before, indicated they were willing to pay between the €30 and €50 for this service, for trip and return trip combined. So the respondents who have experienced the door-to-door service, have experienced its value, and are prepared to pay more than the respondents who do not have the experience with the service.
Do they recommend KLM?
In both groups the question was asked if they would recommend KLM to a friend or colleague if this service is offered. From these answers a Net Promotion Score (NPS) can be obtained. The NPS is a score that indicates how likely people would recommend your company and how loyal they are. This score is also used at KLM. Correspondents who gave a rating of 9 and 10 are promoters (14/40), people who rated between the 7 and 8 are passive (16/40) and people who rated between the 1 and 6 are detractors (10/40). If the NPS score is calculated this would be 10, which is targeted to be 40 at KLM. This score of 10 does not mean that the service is not valuable, it is only an indication if it could deliver value to KLM to retain and attract customers. Whereas it now indicates that this service would not be the main reason to fly with KLM.

10.1.2 PILOT
The result of the interview show which points of the door-to-door service, offered by Travel Light, can be improved. In total 4 people participated in this pilot. The structure of the pilot can be found in “Appendix AE: Interview guide for the Pilot”, the interview’s questions can be found in “Appendix AF: Interview Questions pilot (English)” and the results of the interviews can be found in “Appendix AH: Results Interview (Dutch)”. The goal of the pilot was to research what should be improved before KLM can implement the door-to-door service. Next to that, it gives another chance to evaluate how this ‘new’ door-to-door journey is experienced in comparison to the ‘old’ passenger journey.

Not participating in the pilot
From the pilot it becomes clear that how the service is offered currently, it is not optimal. It was targeted to have a larger group to test the door-to-door service. However, there are several bottlenecks. Some people that were approached turned down the offer of trying the service (for free), for several reasons:
- When booking the service online at Travel Light, the customer needs to book the service on average 14 days prior to the arrival date at the destination. It was apparent that most people start thinking of their check-in luggage closer to the day of departure. Because most people responded after these 14 days, they were ‘too’ late to make use of the service. The only option, when booking too late, is to approach Travel Light personally and print the required address stickers from TNT. So, if Travel Light would have to deal with these issues with the expected sales volume, it would not be likely that it can live up to the demand of last minute booking.
- The next bottleneck is when the luggage is picked-up by TNT. In some cases this was 6 days prior to the arrival of the passenger. This duration was for some people unacceptable, because the service required them to change their preparation, and start packing many days before departure.
- The final reason to turn down the offer is that people do not only book at hotels, but they also book their accommodation at Airbnb or another accommodations without a reception. In the latter cases it is not guaranteed that the luggage is accepted when it is delivered at the destination. So obviously, because it was not certain whether the luggage would arrive and on time, people did not participate.

Participating in the pilot
The participants who took part in the pilot had never used Travel Light before. They were asked to look critically to the process and highlight the positive points as well as the points that could use improvement.

Booking the service is experienced as positive, especially when there was a personal contact. That was experienced as convenient since questions can be asked about the door-to-door service (which reassures people). Filling in the address details, it was obvious what was expected, however it requires some work to look up address details like the e-mail and phone number of the
accommodation. For one participant the accommodation address was different from the delivery and pick-up address. It was not possible to adjust the address at the website. In such cases, consumers need to contact Travel Light personally. It would be practical if a field was added for comments or to make it possible to add different addresses for pickup/delivery. Another remark is that the date for pick-up can not be changed to a date that fitted the customer better. Altogether, the process of what followed after the booking was made, was found to be simple.

To prepare the luggage to send it to the accommodation, was perceived mostly as a positive experience. The positive point was the guiding letter and the explanation that listed the steps that needed to be taken. It was written very clearly what the customer needed to do. In the case of the bicycle that was sent, the participant mentioned that it can be a challenge when you have not sent a bicycle before. The advantage of preparing the shipment of the bicycle at home, is that you have the time to prepare it and that you do not have the hassle at the airport. However one participant received the wrong instruction letter. Because of that, confusion and uncertainty arose when there was no box for the luggage. A remark of one participant was that the feeling of insecurity and worries predominated during packing of the luggage. Especially with items that can break or items that are valuable. The advantage of the plastic protection bag is that it is big and fits many suitcases. The disadvantage is that the customer needs to carry the luggage instead of rolling the suitcase (if possible), unless the plastic bag is modified in a way that the wheels and handle stick out. Another recommendation from the participant was to make clear which form or label is for whom and where it should be placed (e.g. sticker on the plastic bag, document for TNT).

When the luggage is picked-up by TNT the customer gets a good feeling because it is a recognized logistic company. It was very positively received that Travel Light made a new appointment with TNT when the customer was not at the pick-up address at the moment when the luggage was supposed to be picked-up. Picking-up the luggage was not very memorable. However everyone noted that the time window was very big. It was either in the morning between 09:00 and 13:00 or in the afternoon between 12:00 and 18:00. They did not like having to stay at home for the pick-up for such a long time. It is recommended to either give the customer the option to choose between smaller timeframes or to make the time frame for pick-up shorter. Another recommendation of a participant was to open drop-off points, where you can bring your luggage when it suits you. The last point was that two participants were happy with TNT, however, when this service is also applicable to KLM passengers, they would have higher expectations of the person's behaviour who is picking-up the luggage.

When the luggage is picked-up, the users are mostly positive. The participant who sent the bicycle was relieved not to have to take it to Schiphol anymore. Most of the participants found it a hard to think about what they should pack, which normally comes naturally, without having to think about it, when they pack on the day of or before departure. It really meant a change of mind for the customer, when it comes to packing the luggage. They all suggested to reduce the time between the pick-up of the luggage and the departure of the passenger. The biggest problem for passengers, which the interviews made clear, is not knowing what is happening to your luggage from the moment it is in the hands of the logistic partner, and even more when it has arrived at the accommodation. And what about insurance? The travel insurance companies are not very familiar with this way of handling luggage. Will the damage be compensated when something happens to the luggage? From the interviews, the worries about how the insurance will treat your claim when something happens to the luggage is the biggest concern when the luggage is not in the hands of the customer.
Travelling to the airport without luggage is experienced as a relief, it is comfortable. It reduces the time that passengers need to spend at the airport before departure and when arrived at the destination airport. So the door-to-door service really adds value for the customer who is going to the airport. For one participant it did not make a real difference, because dropping-off luggage was part of the experience of going on a holiday. Nevertheless this participant could imagine the advantages of the door-to-door service. Finally, a last remark was that it felt safe to go quickly through security, when thinking of the several terrorist attacks in Belgium and Turkey in 2016 (Born, Ast, & Klomp, 2016; Leijten & Ritzen, 2016).

The advantage that the luggage is sent ahead is that the customer did not have to go to the accommodation directly. By using the Track&Trace code it was known that the luggage had arrived. However, there is still the worry whether everything has arrived as expected. And when it did not arrive, the passenger was without the belongings he wanted to use. Another critical point is that the luggage does not look the same anymore as when it is sent away (e.g. plastic bag is removed, it has clearly been opened). This last point, made the participant worry and suspicious about what might have happened with his belongings inside. The last point is about the provided sticker with the information for the accommodation. It is good that there is a message on the luggage, however not everyone speaks English well, or not at all, and the accommodation sometimes did not understand what was written on the sticker.

When it was time to go back home, the luggage is picked-up a day after the departure of the customer. The positive points that are given are that they do not have to wait for the pick-up and that it was easy to travel to the airport. The only point for improvement is that the accommodation did not know what to do with the luggage. They required explanation of the customer of what was expected. A note in the language of the country where the customer is would be an option. In this case it requires minimal effort for the customer. Finally, there is the issue of not knowing how the accommodation treats your luggage when you are already home. Again here insurance is an issue.

10.1.3 RECOMMENDATIONS FOR THE SERVICE

From the pilot several recommendations are made to improve the service. These improvements are needed, so that the experience that passengers have is optimal. And when this service is the best one can find, KLM will be at the forefront of the airline industry in offering an innovative and customer-oriented service for check-in luggage.

The people who turned down the offering to participate in the pilot made several recommendations, such that this group would make use of this service in the future:

- Reduce the time that is needed to book the luggage. This makes it possible to arrange the pick-up of the service closer to the departure date. From the information of KLM it is possible to determine when the passengers book their check-in luggage. However, it needs to be calculated how many days are needed to send the preparation package and when the luggage should be picked-up. This will eventually determine the number of days until departure, that passengers can still book this door-to-door luggage service.
- Reduce the time that is needed for the pick-up of the luggage. In that case, the current routine of passengers does not have to be changed drastically when packing their bags. 1 or 2 days would be far better for the customer. Especially when the luggage needs to arrive one day before they do.
- Making it possible to choose when the luggage arrives at the destination, this is important when the accommodation has no reception. This should make it possible for the passengers to make use of the service so that they can...
receive their luggage themselves at the destination. Or opening a pick-up point at the airport where the passenger is arriving.

From the feedback of people who participated in the pilot, several recommendations can be made:

- The same recommendations as the group that did not participate in the pilot: reduce the time for booking the service; reduce the time that luggage is picked-up before departure; being more in control as a passenger.
- Filling-in the address details can be a challenge when it involves an international address. It would be recommended that with some details the fields can be completed automatically.
- Give the customer choices on which date the luggage is picked-up at home and delivered home. The customer wants to be in control of his own schedule and does not want to adapt to the schedule of the service, in this case.
- The amount of paperwork in the preparation package is experienced as being quite a lot. Some papers are necessary, but some others are not. It is important to know which of the papers are necessary and which not. When time is scarce, the customer wants to work as efficiently as possible. Therefore, it is recommended that only the necessary papers are included in the preparation package, and no advertisements.
- When wanting to be service oriented it is recommended that the passenger only pack the suitcase. It will be the logistic partner that prepares the suitcase for the journey.
- The logistic partner needs to interact with the passenger as if they work for KLM. The logistic partner should treat your luggage not as just another package. The interaction and handling needs more attention than when a regular package is picked-up or delivered.
- Making the Track&Trace code less technical so that the passenger can understand where the luggage is and when there is an error code, that it is clear what this error means.
- The person from the accommodation who receives the package at the destination address needs to sign for the package and wait for the package to be picked-up. This is perceived as strange by the accommodation since it is not for them, it is for a guest. They will want to be aware of what is expected from them. It is therefore recommended that when the service is implemented at KLM, a collaboration is started with hotels. An agreement can be made so that the luggage is always accepted when it is delivered. And then the passenger and KLM do not have to make the accommodation aware that luggage is sent upfront. In this way KLM is certain that the service is completed as intended.
- When there is an agreement, and the accommodation knows what is expected from them, for the same goes when the luggage is picked-up from the accommodation to be delivered back to the passenger’s home.
- When there is no agreement with an accommodation, the accommodation needs to be notified. However, suppose the accommodation does not want to accept the luggage, then this gives KLM a problem. Therefore, it is important for KLM to think about how to handle cases where the accommodation does not want to collaborate in this method of luggage handling.
- It needs to be clear what the insurance will do, when something happens to the luggage. Especially so at the moment when the luggage has arrived at the destination. It is recommended to notify travel insurances of this service and to discuss with them, on how they would handle a claim on baggage that was sent using this service. What can be expected from these companies, so that the passenger can be informed beforehand to reassure them, in case it might go wrong? Finding out how travel insurance companies will handle a claim when something happens when the luggage has arrived at the accommodation and the passenger still needs to arrive, is thus essential.
10.2 PASSME

When reflecting the objectives of PASSME and in specific the work package for a passenger based origin to destination (O2D) luggage system, on the new service several things can be said per objective.

The first objective of PASSME's work package is "to reduce the effect of the handling of luggage to zero with respect to the throughput time of the passenger. So no extra time, nor delays caused by the handling of all types of luggage. We take as proxy of the time saved: 30 minutes of the total journey time, which encompasses 50% of the PASSME overall goal." So how does the service answer the first objective? First, when the 'old' journey and the 'new' journey are compared, time is reduced at the drop-off since the passenger does not have to drop-off luggage any more. At the SSDOP this is on average reduced by 6 minutes and 11 seconds and at the staffed drop-off this is on average 9 minutes and 50 seconds. The collection of the check-in luggage at arrivals can also be reduced, since this is removed from the journey. This reduction is dependent on which gate the passenger arrives at. Until the first bag is on the reclaim belt, takes on average 23 minutes at AAS. So when the passenger arrives near the reclaim area the waiting time can be 20 minutes for example, while when the passenger needs to walk 20 minutes to get to the reclaim area, it may be that the luggage has already arrived at the reclaim belt. So in the best case scenario, when the passenger does not have to walk a long distance, the waiting time can be reduced by 23 minutes. In total, the waiting time for passengers can be reduced from 29 minutes to 34 minutes, when the door-to-door service is used. This shows that the waiting time can be reduced by the mandatory 30 minutes of PASSME, when passenger use the door-to-door service.

The second and last objective of the O2D work package is "to improve the experience of the passenger through the ease of use and reduction of hassle. The passenger should feel safe regarding the luggage." As was found during the research, passengers who take public transport experience the journey significantly less positively than when other types of transportation are used. Passengers rate the 'old' journey of coming to the airport with a 4.7 and when using this 'new' service it is rated on average with a 6.3. This indicates that there is an improvement for this group of passengers. However, the general PASSME objective wants to improve the experience for at least 70% of the passengers. Passengers who take public transport to AAS accounts for only 40% of all travellers to AAS. However, passengers who are being brought to the airport (24%) might feel less dependent on others when they take the public transport. One respondent from the survey mentioned that they did not have to ask their children anymore to bring them to the airport. From previous interviews it became clear that one of the reasons for passengers to ask someone else to drop them off at the airport, is because of the check-in luggage. This means that not only people who take public transport benefit from this service, others too can benefit from it and the experience improves when using the door-to-door service. Nevertheless it is not possible to say exactly for how many passengers the experience will be improved. This also because of the fact that the door-to-door service is not the only factor that influences the entire experience of passengers when flying.

Finally, the second objective discusses also that the passenger should feel secure about their luggage. This should be partially solved by collaborating with partners that are well-known by passengers. Another solution is that the passenger is able to track and trace their luggage at all times. Although there should be an improvement in how the location is communicated, it gives the user of the door-to-door service a more secure feeling when the luggage is on its way to the destination. This more secure feeling becomes a secure feeling when the passenger knows that the luggage is arrived at the destination. Especially when passengers will use this service for the first time, they will worry more than when it has been used multiple times. Therefore, it is important to know that passengers need to get familiar with the door-to-door service and that this will take a certain period. For this reason, it is important to make the service transparent so that the user knows what happens at each step.
From section “1. Assignment”, several research questions are set up. The first research question was to determine the current situation for KLM passengers. This research question was answered in sections “3.3 Passengers” and “4.1 The journey”. From the passenger journey it became clear that passengers who travel by public transport experience travelling to the airport significantly less positively than passengers who take other transportation vehicles. Further, it became clear that at the point of luggage check-in and luggage reclaim the passenger spends ‘unwanted’ time at the airport.

The second research question was to determine the current state of KLM’s process for handling check-in luggage. From this question it became clear that KLM is not in control of this process and of how long the journey takes when luggage is in the system. Nevertheless KLM is in control of the check-in luggage when the passenger needs to check-in the luggage. So at this point, waiting time can be reduced.

The answer on the third research question to find moments where improvement in both passenger journey and luggage journey is possible. A significant improvement can only be made for passengers travelling by public transport. Time can be reduced for both journeys at the check-in. For the passengers, time can be reduced at the reclaim belt.

So from the assignment, is there a new seamless passenger journey designed from the perspective of the passenger experience, relating to ‘check-in luggage’ from the departure point to the destination point, which improves the experience and reduces the unwanted time at the airport? Yes, the door-to-door luggage service improves the passenger experience when travelling to the airport by public transport from 4.7 to 6.3. Because of this service, the passenger does not have to handle the check-in luggage anymore from origin to airport. Since this service removes the check-in luggage from the airport, the passenger does not have to spend time at the luggage check-in area nor at the reclaim area. So the experience is improved and the unwanted airport time that is related to check-in luggage is reduced. Both journeys can be seen in Figure 64 on page 182.
THE ORIGINAL JOURNEY OF THE PASSENGER: TRAVELLING WITH CHECK-IN LUGGAGE

The Original Journey:
- Searching & booking a flight
- Check-in online
- Planning & packing check-in luggage
- Arriving at the airport
- Way finding at the airport
- Self-service passenger check-in
- Waiting for drop-off check-in luggage
- Drop-off check-in luggage
- Luggage in hands of the airline
- Entering the security area
- Proceeding to the gate

Arriving at the destination airport:
- Waiting for check-in luggage
- Collecting check-in luggage
- Traveling to the final destination
- Arriving at the final destination

THE NEW JOURNEY OF THE PASSENGER: DOOR-TO-DOOR LUGGAGE SERVICE

The New Journey:
- Searching & booking a flight
- Arranging baggage during booking
- Receiving preparation package
- Packaging & preparing luggage
- Pick-up of the luggage / in hands of logistic partner
- Passenger check-in
- Travelling to the airport
- Arriving at the airport
- Way finding at the airport
- Self-service passenger check-in
- Entering the security area
- Proceeding to the gate

Arriving at the destination airport:
- Deboarding
- Leaving the airport
- Travelling to the final destination
- Arriving at the final destination

Figure 64: Old and New passenger journey
10.4 CONCLUSION

The door-to-door service is promising and makes travelling more comfortable and relaxing for passengers. Although there are benefits in using the service, e.g. reduction of unwanted time at the airport, for a more positive experience when travelling with public transport to the airport, there are many points for improvement. It is recommended to improve these points before the service is implemented. Starting with a service that is sufficient is not acceptable for KLM. For KLM it is required to provide the best service there is because expectations of passengers are high since KLM is not a budget airline.

The most important improvements that need to be made are:

• When the door-to-door service is optimal and transparent, it is more likely that passengers will consider the service. Because of this, the time frame between booking the door-to-door service and the departure date needs to be reduced. Also the time frame between pick-up of the luggage and the departure date of the passenger needs to be reduced.

• For the service itself passengers should be allowed to choose what suits them. It should be possible to choose in which time frame on a given day, and on which day, the luggage is picked-up and delivered.

• Clear agreements between the different stakeholders to provide the best service for the passenger (e.g logistic partner, accommodation and insurance company)

When this service is implemented, KLM also profits from this service. The check-in luggage can be removed from the airport, when the time is right. When the luggage is removed from the airport, KLM does not handle check-in luggage anymore which means that less FTE are needed in the departure hall. This means other cost savings in the department of BTS since the luggage does not have to be sent to the airplane anymore.

"Let your memory be your travel bag"

- Aleksandr Solzhenitsyn
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