Delayed Baggage Process – Case Finnair

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Abstract

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Baggage handling is an important part of customer journey in air travel. Disrupted flights and mishandled baggage are inevitable due to the nature of the industry and the unstable environment. Air travel is very sensitive to outside events, and they usually have an impact on customer experience and baggage handling. Many times, for several different reasons, airlines prioritize on-time performance over baggage handling resulting to delayed baggage delivery. Customers expect their baggage to travel to their destination on same flights as they do.

Both IATA and SITA have an impact on delayed baggage processes in global airline industry. IATA has published Resolution 753 which includes baggage handling processes throughout the customer journey. IATA Montreal Convention 1999 defines the liability in baggage handling and sets the ground for maximum compensations. SITA is the world leader in baggage tracing technology and more than 500 airlines are using SITA's WorldTracer system for delayed and damaged baggage reporting and tracking. Within these regulations and systems airlines are building their own delayed baggage handling processes.

To understand the complexity of delayed baggage handling it is important to review how the regulations and systems effect on customer experience and satisfaction, service recovery processes, self-service applications and possibilities, customer communication as well as sustainability aspects in baggage handling. These topics are presented in this thesis.

Finnair had a disrupted baggage project in 2023 which concentrated on several issues regarding delayed baggage handling in its network. The project objectives were targeted on airport handling processes, system development, customer communication and notifications, automation and self-service applications. The project deliverables were introduced to Finnair network stations in two phases. The first phase in June 2023 included new processes, customer communication and self-service changes and capabilities and the second phase in September 2024 added automation and customer satisfaction survey.

In this thesis the impact of the changes in processes and procedures in different phases is evaluated by changes in customer satisfaction metrics, NPS and customer satisfaction survey.

The objective of the thesis is to provide Finnair with insight of the impact of enhancements, customer satisfaction and recommendations for the future.

Key words
Baggage handling, customer experience, customer satisfaction, customer communication, self-service, process enhancement, airline industry, service quality.

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1 Introduction

1.1 Introduction to air transport industry and case company

Air transport and airline industry have an important role in transportation of people and products from one location to another. Airport industry and air transport have many benefits through improving quality of life and improved living standards. Air transport industry has the most important contribution to the business growth in the global and national economy by influencing on tourism and productivity. It also increases supply chain efficiency, facilitates access and investments on international and domestic markets and stimulates innovation by providing welfare benefits for consumers. (Chen, Batchuluun & Batnasan 2015, 219.)

Aviation industry is very sensitive to influences from outside as the events in recent years have shown. The September 11 attacks in New York and wars in Afghanistan and Iraq affected the industry in early 2000. Changing and rising fuel costs and tightening competition from other modes of transport are adding further pressure on the industry. (Tiernan, Rhoades & Waguespack, 2008. 212-213.) Disease outbreaks like SARS, swine influenza and especially Covid-19 pandemic in 2020 had a significant impact on air transport industry. Climate change brings severe changes in weather conditions when winter storms, hurricanes and floods are affecting on the on-time performance causing delays, cancellations and operational challenges. The war in Ukraine closed the Russian airspace from many airlines affecting especially on the transportation and flights between Asia and Europe.

The aviation industry has high fixed costs relative to variable costs which make volume a crucial factor. The product is also perishable, and demand and volumes vary by season, weekday and time of the day. Some disruptions are more controllable than others but either way they cause extra costs for airlines with accommodation and customer care costs, rebooking costs and regulatory compensations and these all influence the revenue. Disrupted operations and baggage mishandling can cause serious damage to an airline’s reputation, brand, image, and customer loyalty. According to Park et al. (2019) given the competitive business environment in which global airlines operate, retaining customers is as important to most airlines as the acquisition of new customers (Park, Jang, Kim, Jeong Jeong, Bae, & del Pobil 2019, 186.)

Proactive processes and clear customer communication instruct passengers in flight disruptions and can give passengers an image of a caring and well-prepared airline. Customers want to have control and influence on the solutions given when something does not go as planned. Self-service options provide customers better control if they can do self-rebooking, make their own hotel accommodation choices and baggage disruption reports by themselves and choose the solutions and

schedules that suit them the best. Clearly communicated instructions ease the stress from customers, decrease the need to contact airline's customer service which again decreases the need for personnel resources for the airlines and reduces costs.

During the last years airlines have invested in self-service technologies offering customers an option for servicing themselves. Many journey touchpoints, such as flight booking, check-in and baggage drops, offer self-service options. Recently airlines have also invested in self-service options for baggage handling disruptions including delayed and damaged baggage reporting, customer communication and baggage tracking.

According to Amadeus study (2013, 4) transparent communication and practices as well as investments in systems that provide customers with fast insight and assistance via mobile devices, are very important for airlines. Investing in systems gaining greater understanding of customer preferences and reasons for travel, help airlines to implement passenger-centric solutions empowering passengers to choose alternatives that suit their needs the best. These thoughts, topics and survey results, although presented in Amadeus survey already in 2013, are in focus in this thesis as well. There has been a tremendous development in disruption handling, customer reaccommodation, communication and automation in the recent years, however, baggage disruptions have not had similar progress and interest in the industry. Still many parts of the mishandled baggage process are agent led and manual and don't give customers the control they require in disruptions and decision making.

International Air Transport Association IATA (2024, 1) states that year 2024 was a record-breaking year ending on a strong note in aviation industry. International passenger traffic reached new highs, growing 13.6% compared to 2023, even though Russian airspace restrictions reshaped the global network. It is important to remember, that the growth of the air transportation has also caused significant air traffic congestion globally (AlKheder 2021, 3).

Finnair is the national carrier of Finland, founded in 1923, being the fifth oldest still operating airline in the world. In the past years Finnair has invested in disruption management to minimize the impact on customers and operations and to provide customers with high-quality, consistent, customer friendly and timely services in exceptional situations. Understanding and meeting customer needs play a big role at Finnair and in customer service. Those topics have a special focus area in the upcoming strategy period starting from 2026. Investing in customer experience and operations development ensure Finnair's position as a safe high-quality airline. (Finnair 2025, 4.)

In 2023, Finnair carried 11 million customers. The Covid-19 pandemic as well as the war in Ukraine and the Russian airspace closure were big hits for Finnair both operationally and

economically, but Finnair succeeded in returning profitability during 2023. (Finnair 2024, 3.) In 2024 Finnair carried 11,7 million customers, about 6% more than in the previous year (Finnair 2025, 3).

1.2 Objectives of the work

After the Covid-19 pandemic, which almost shut down global air traffic, the aviation industry made a comeback in 2023. And even though the air traffic has increased, baggage mishandling rates decreased from 7.6 baggage per thousand passengers to 6.9, showing a good progress. Many airlines have a focus on baggage automation and visibility across baggage journey touchpoints. According to SITA (2024) a smoother and faster baggage recovery experience is expected due to data collection and sharing initiatives that are adopted by 93% of airports at baggage delivery and 95% of airlines at baggage collection. SITA also expects that the self-service options are more desirable by the passengers to gain control over their travel experience. To build trust and encourage the use of digital tools it is important to offer full visibility and improve the communication towards the passengers. (SITA 2024, 4.)

Baggage handling is often underrepresented in airport operations, even though it has a big impact on customer experience and expectations. Many times, the turnaround process and on-time performance are valued higher than baggage handling and any mishandling of baggage that might have an effect on flight departure on schedule leads to the process failure and baggage is left behind at the departure station (Reyes & Zane 2010, 769). However, customers expect that their checked-in baggage is delivered to their destination together with them on a same flight, and each mishandled baggage is a service failure and a broken promise in customer journey. Mishandled baggage is also a big cost for the airlines when customers need to be compensated for their expenses and the costs for delayed baggage delivery can be very high and lead to even higher compensations afterwards.

In January 2023 Finnair decided to improve the quality of mishandled baggage processes and enhance self-service capabilities, customer communication, and automation in baggage disruptions. Improvements both in airport processes as well as in technological capabilities were needed to create better customer experience, more transparent processes and to reduce costs. This thesis introduces Finnair disrupted baggage -project which started in January 2023 and ended in June 2023. Some of the enhancements needed more resources and development and were implemented in September 2024. The thesis follows the project plan and structure listing project's vision and objectives, processes before the project and future targets, what changes and improvements were done during and after the project as well as the outcome of the project. Customer experience and satisfaction are compared before and after the project. After the project many enhancements in

customer communication and self-service options were implemented in two phases and their impact on customer experience are evaluated in the work.

Customer satisfaction, comments and improvement recommendations are collected and evaluated from customer feedback received from Finnair engagement letter customer satisfaction survey. This survey is sent to all customers whose delayed baggage has been delivered to customers, and the delayed baggage report has been closed and finalized in the tracing system. Customers can evaluate and rate the level of service experienced from one to five stars. They can also give open feedback in the survey form. For the thesis customer feedback from the survey is collected and evaluated from three months period, from October until December 2024. This is because the engagement letter survey was implemented in October 2024, one and a half years after the project was finished. However, the survey data reflects to those improvements implemented after the project and gives a good view how customers experience the processes and what are the topics needing further improvement.

To gather the relevant feedback from the engagement letter data, Finnair GPT, company's internal generative artificial intelligence, was used. Finnair GPT assisted in summarising total of 997 open feedback rated between one and two as well as four and five in the engagement letter surveys. Those summaries have been analysed and explained later in this thesis. From the feedback analysis the bottlenecks in the processes are identified and listed and recommendations of the development topics are given. The aim of this thesis is to get development ideas and topics for Finnair's disrupted baggage processes and to evaluate if the improvements and changes in the processes and customer communication and automation have had an impact on customer experience and satisfaction. The findings, ideas and suggestions may enhance the processes, develop automation as well as customer communication to improve customer experience and satisfaction in the future.

The evaluation is done from the whole Finnair network, not on a specific station or country. No specific customer group or demographics has been selected for the thesis, but it includes Finnair customers whose baggage has been delayed and mishandled on a Finnair operated flight and who replied to the survey with open feedback. The concept of mishandled baggage often includes also damaged, lost and stolen baggage, but this thesis concentrates on processes, communication and customer experience of delayed baggage only. The outcome of the thesis is to introduce the pros and cons of the delayed baggage handling processes and how to improve the service quality, self-service options and customer communication.

The first part of the work is an introduction to the thesis, the goals of the development work and the research problem. The second part consists of theoretical framework, which includes different theories and concepts about airport operations and regulations, baggage handling and baggage

tracking technologies, customer experience and satisfaction. Also, self-service technologies and theories, service recovery after service failures and sustainability aspects in baggage handling are introduced.

In the third part the methodology is presented. It concentrates on Finnair disrupted baggage project, its objectives, deliverables and impacts. The project structure and deliverables of different work streams are introduced as the project structure was divided into four working groups or streams: 1) Process and concept development, 2) System development and customer notifications, 3) Delayed baggage handling at airports and 4) Communication and change management. Methodology part is also about baggage handling processes, system overview and enhanced customer communication.

In the fourth part there are the results and analysis of the work. The process changes and improvements from the project are introduced in this part together with enhancements done in 2023 and 2024. This part of the thesis also presents the results and analysis of the engagement letter surveys from October, November and December 2024. Finally, the last part of the work consists of discussion about the findings, conclusions and recommendations from the analysis and customer feedback. These results should present topics and targets for future enhancements and research of disrupted baggage for Finnair.

2 Theoretical framework

2.1 Baggage handling and regulation

There are two big instances in the aviation industry setting the standards, processes, procedures and technology for baggage handling. International Air Transportation Association (IATA) has 349 airline members worldwide. Société Internationale de Télécommunications Aéronautiques (SITA) has more than 2800 customers of which more than 500 are airlines. Both of these instances have several different coordinating committees, steering groups and working groups developing baggage handling. IATA Baggage Steering Group has 20 airlines representing the industry and SITA WorldTracer Coordinating Committee also has 20 airlines representing all customers, airlines and airports. Both instances are working to enhance baggage handling processes and performance in the aviation industry. (SITA 2025; IATA 2025.)

SITA provides a global baggage tracking and tracing system called WorldTracer, which is an industry leading solution. WorldTracer Coordinating Committee is planning and developing WorldTracer baggage tracing system with new functions to support the tracing and tracking processes. The committee also improves the self-service capabilities with more customer friendly user interfaces, reporting flows and capabilities as well as customer communication capabilities. IATA Baggage Working Group is developing industry level recommendations and regulations regarding to baggage processes and future development. Different IATA working groups are working on the development of aviation processes and regulations, and they are presented to airlines in a yearly IATA Passenger Standards Conference, where airlines are voting for new recommendations and regulations. Once they have been accepted unanimously by all members, they are usually implemented during next year by the time of the next Passenger Standards Conference in October. (SITA 2025; IATA 2025.)

One of the first expectations of air passengers is that their baggage arrives with them to the same destination. A key to any business' success is to meet the customers' expectations. Baggage can often be stranded in the baggage handling system or placed accidentally to flights to wrong destinations and neither the airlines nor passengers know where they are located. Sometimes baggage is never found at all. Baggage tracing and reuniting them with their owners are often time consuming, expensive and labour-intensive processes. (Koenig, Found & Kumar 2019, 437.)

International Air Transportation Association IATA published the Resolution 753, which mandates all member airlines to track baggage at four mandatory points throughout passenger and baggage journey. (IATA, 3.2.2025.) From 1 June 2018 airlines should track baggage at four different touchpoints: passenger handover to airline (acceptance/check-in), loading to the aircraft (load), delivery

to the transfer area (transfer) and return to the passenger (arrival/airport claim) (Koenig et al. 2019, 438).

IATA Joint Passenger Conference (currently IATA Passenger Standards Conference) approved Resolution 753 in 2013 enabling sufficient time for implementation in 2016 and putting into force in 2018. The resolution is intended to encourage airlines to reduce the number of mishandled baggage. The point is to implement cross-industry tracking capabilities for baggage journey and if the baggage does not arrive with passenger to their destination, there would be more information available for the service recovery and baggage tracing. The resolution aims to enhance customer satisfaction, improve operational efficiency, and reduce costs associated with mishandled baggage. Airlines must share tracking data with their partners to ensure transparency and accountability throughout the baggage handling process. The tracking ensures that passengers know the status of their baggage at each stage and helps reduce the number of lost or delayed bags. (Koenig et al. 2019, 438.)

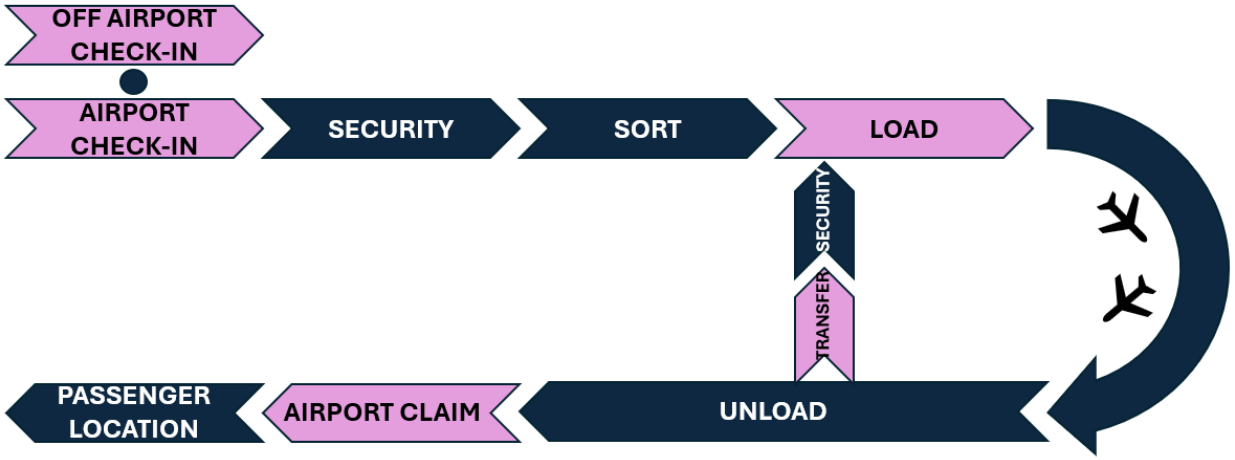

Figure 1. Baggage journey (adapted from IATA 3.2.2025)

When the customer perception is highlighted in the airport industry, it provides competitive advantages for airports to increase innovation. The effects of service innovation for airport products and services are useful for customer experience. All engaged parties must be efficient for a successful service innovation, as bottlenecks or barriers in some parts of the process can undermine the effectiveness of the service chain and innovations. (Chen et al. 2015, 219-220.)

Airlines must develop a sophisticated value chain system to efficiently manage the logistic complexities involved in air transport and baggage handling. Many times, airlines are concentrating on swift turnaround of aircraft to maximize revenue per seat mile, however, passengers have implicit expectations and priority on on-time departure and accurate baggage handling. Turnaround

activities are the biggest source of delay for the airlines. Delays have cumulative effects thus they are very costly and while aircraft is on ground, it is not generating any revenue and interruptions in baggage handling process can cause a delay in the departure. Insufficient loading and offloading processes contribute to the possibility of significant delays. (Reyes & Zane 2010, 769-770.)

Numerous techniques to identify and locate baggage for routing purposes have been employed by airports. Each piece of baggage is labelled with a baggage tag including a barcode, which are scanned and processed for sorting. Barcode technology and tracking system works correctly in average of reading eight or nine baggage out of ten. As the labels are subject to mechanical destruction and can become occluded, proper sorting may be prevented and baggage needs to be moved to manual sorting. (Reyes & Zane 2010, 772.)

Since 2022 rates of mishandling have dropped by 9,2% despite record passenger numbers (SITA 2024, 26). Majority of mishandling cases, 77% according to SITA, are due to flight delays. SITA asked passengers which solutions would increase their confidence to check baggage when they are flying and only 32% said either “none” or “not a confidence issue”. Two thirds, or 68% feel more confident if new solutions would be available, so baggage tracking capability can boost passenger confidence in this. (SITA 2024, 27.)

About three quarters (77%) of mishandled baggage in 2023 were delayed baggage. In 2023 the number of stolen and lost baggage decreased slightly to 5%, however, the number of damaged and tampered baggage increased to 18%. The airline and airport industry are trying to tackle these problems by investing in better ways collecting baggage delivery data and with many baggage collection initiatives. Technical investments help airlines to decrease especially delayed baggage incidents and improve baggage handling operations. Data-driven approaches give also passengers visibility of baggage delivery, not only sharing information with personnel, and passengers will have a clear understanding of their baggage journey. When mishandling incidents are less likely to happen, passengers also feel more confident checking in their baggage. (SITA 2024, 9.)

Transfer baggage is still the biggest category of mishandled baggage. In 2023 the number of transfer baggage increased to 46% of all mishandled baggage, growing 4% from 2022. Below are other reasons for delayed baggage in 2023; tagging error when baggage is tagged to a wrong destination or the tag is torn off from the baggage (4%); loading errors when baggage are loaded to wrong aircraft and destination or not loaded at all and left at the departure point (24%); ticketing and security errors cover situations when for example passenger has restricted items in the baggage that need to be removed and due to the inspection baggage is left behind (14%); arrival mishandling is sometimes caused by delayed delivery to the baggage carousel (4%) and operational restrictions can be caused due to several reasons like loading staff resources or weather conditions (8%). The

numbers below show that industry still needs to step up and use all available data wisely through baggage handling process to achieve a smooth and hassle-free automation. (SITA 2024, 10.)

Figure 2. Reason for delayed baggage 2023 (adapted from SITA 2024, 10)

While baggage volumes are increasing, airports are forced to invest in new and faster baggage handling technologies and operations. Maintenance management is challenged to reduce costs and the risk of system breakdowns. Passengers want a fast check-in process also for their baggage and to be reunited at the destination with their undamaged baggage as soon as they arrive. A failure in baggage handling systems can shut the whole facility for many hours causing thousands of mishandled baggage, significant inconvenience and negative financial impact both for passengers and airlines. (Koenig et al. 2019, 435-436.)

In many cases the arrival baggage carousel can be a key element in the process when passengers evaluate the quality of their journey. Even though baggage can be lost at any stage during the journey, it is usually at the baggage carousel where passengers realise their baggage is either late or lost. (Koenig et al. 2019, 35, 36.) For example, Helsinki airport went through an extensive ten-year development program during 2013-2023 which increased the baggage handling capacity by 50% including several new baggage carousels in the arrival hall speeding up the baggage delivery (Finavia, 2.3.2025).

Checked baggage fees are often associated with a decrease in mishandled baggage rates, but there has not been found a significant relationship between the fees and the numbers of customer

complaints. So, when baggage fees may improve airline operations, they are not necessarily improving customer satisfaction. Passenger view is often positive when association to better operational outcomes, but negative as an additional cost of air travel. (Scotti, Dresner & Martini, 2016, 143.)

2.2 Sustainability aspect in baggage handling

As the airline industry is handling more than two billion passengers annually, the amount of lost baggage and disposable baggage tags made of paper and plastic are forcing the industry to improve baggage tracking and to reduce the disposable baggage tags. A huge number of resources at the airports and airlines are needed to trace and return delayed baggage to passengers. (Wong & Wong 2016, 1.) Even though baggage is quite well tracked by the barcode-based baggage tags, the technology works well and reads the barcoded data correctly only eight or nine times out of ten (Wyld, Jones, & Totten 2005, 382). Radio Frequency Identification (RFID) technology has been found to decrease the mishandled baggage cases. RFID technology allows users to track and trace baggage locations and provides real-time information. It can also be used to provide on-time data for the passengers. (Wong & Wong 2016, 1, 2.)

To improve the environmental protection and sustainability, airlines should move to reusable baggage tags to reduce the number of disposable paper baggage tags. A huge number of adhesive baggage tags are printed and thrown away every year and it creates environmentally unfriendly waste. Airlines have also developed permanent digital baggage tags to improve sustainability. These tags use Near Field Communication (NFC) technology and electronic ink and the barcode can be read by the baggage handling system. Some airlines have also used RFID technology instead of NFC technology in transmitting flight details into the reusable baggage tag. (Wong & Wong 2016, 3.)

In their study in 2016, Wong & Wong proposed development of an integrated reusable RFID baggage tag that could be used from baggage purchase at the retail store, at the check-in and baggage handling system, loading, arrival delivery and even at the hotel check-in. Due to more accurate baggage tag reading and better visibility during the baggage operation, RFID technology was estimated to reduce 20% of baggage mishandlings. Wong & Wong also stated that the technology and development of reusable baggage tags should move forward as a collaborative effort together with airports, airlines and baggage manufacturers. Reusable baggage tags could reduce the use of billions of disposable baggage tags every year, decrease the amount of mishandled baggage due to missing or torn off baggage tags. Reusable baggage tags could also speed up the check-in process, when there is no need to print a baggage tag at the counter. This would bring a positive environmental impact with lower production costs and generated waste, and the mobile tracking

capability connects the baggage location and flight information to the passenger. (Wong & Wong 2016, 3, 9-10.) While the aviation industry is paying more attention to emission reductions, the passenger and baggage volumes are exponentially growing, which cause challenges for sustainable airports (Jiang, Yang, Zang, Wei, Thompson, Tran, Encinas-Oropesa & Williams 2022, 1).

Wyld et al. (2005, 384) are listing a comparison between traditional baggage tags with barcodes and RFID tags with radio frequency identification capability. When barcodes require a line of sight to be read in the handling system, RFID tags can be read or updated without a sight. Barcodes can only be read individually or cannot be read at all if they become dirty or damaged, but RFID technology allows multiple tags to be read simultaneously and can cope with harsh and dirty environments. Barcodes need to be visible to be logged when RFID tags, being very thin, can be read even when concealed within an item. Barcodes have limitation when identifying the type of item and must be manually tracked for item identification, which makes human error an issue. RFID tags on the other hand can identify a specific item, automatically tracked for item identification which eliminates human error. When barcode information cannot be updated, electronic information can be over-written repeatedly on RFID tags. (Wyld et al. 2005, 384.)

Table 1. RFID vs barcode technology (adapted from Wyld et al. 2005, 384)

Barcodes	RFID tags
Barcodes require line of sight to be read	RFID tags can be read or updated without line of sight
Barcodes can only be read individually	Multiple RFID tags can be read simultaneously
Barcodes cannot be read if they become dirty or damaged	RFID tags are able to cope with harsh and dirty environments
Barcodes must be visible to be logged	RFID tags are ultra thin, and they can be read even when concealed within an item
Barcodes can only identify the type of item	RFID tags can identify a specific item
Barcode information cannot be updated	Electronic information can be over-written repeatedly on RFID tags
Barcodes must be manually tracked for item identification, making human error an issue	RFID tags can be automatically tracked, eliminating human error

Many airlines are offering different ways of offsetting carbon emissions for the passengers. According to SITA (2024) the percentage passengers would be willing to pay extra only 10% or less for offsetting carbon emissions rose from 53% in 2023 to 64% in 2024. Only one in seven would not pay extra at all and very few passengers would pay more than 30% of their ticket price. The average price people are willing to pay extra for their flights for offsetting is 10.8%. In SITA's survey 81% are willing to check-in lighter baggage or only to take a carry-on baggage to lower the

emissions. Many passengers are willing to do their part in reducing emissions in the aviation sector. (SITA 2024, 18.)

Passengers value the use of technology as a sustainability initiative. Technology is in the heart of creating a sustainable aviation future. Airports and airlines are encouraging passengers to travel greener, and passengers are willing to consider changing their personal travel and doing some sacrifices for the sake of sustainability. However, many passengers think that aviation sector should be running environmental initiatives with a wider adoption. (SITA 2024, 19.)

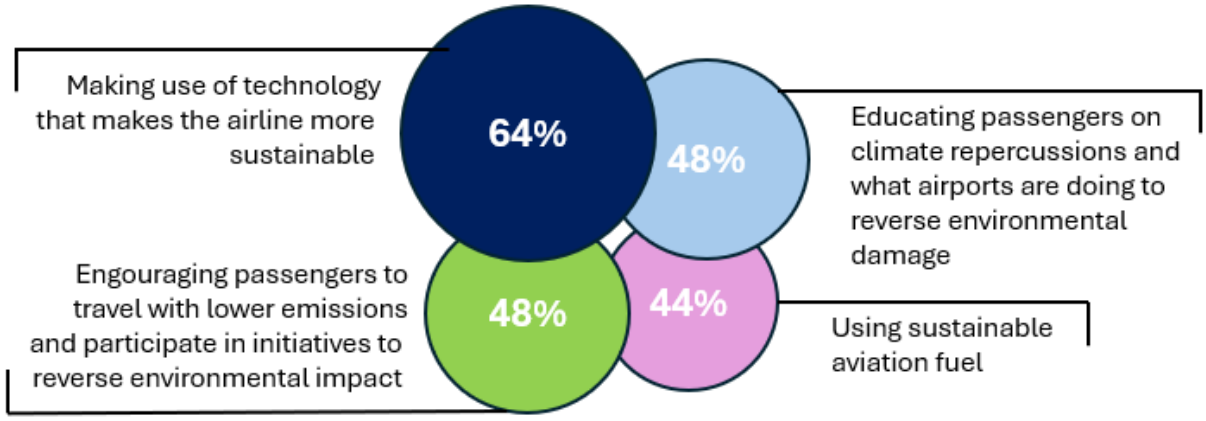

Figure 3. Most valued airline sustainability initiatives (adapted from SITA 2024, 20)

2.3 Customer experience and service quality

Teixeira et. al (2012) have defined customer experience being an internal and subjective response customers have to any contact, direct or indirect, with a company. (Teixeira, Patrı´cio, Nunes, No´brega, Fisk & Constantine 2012, 363). There is a strong relationship between service quality and customer satisfaction (Eboli & Mazzulla 2009, 41). Consequences of unfavourable service encounters have been paid considerable attention to in marketing literature. Unfavourable service encounters also apply in the aviation industry with passengers who have lost or mishandled baggage. The following four key performance metrics are mandatory to be reported by the airlines to the US Department of Transportation (DoT) in the United States: 1) on-time arrivals, 2) mishandled baggage, 3) involuntary denied boardings and 4) 12 different areas of customer complaints. (Wyld et al. 2005, 383.)

The Gap Model is one way explaining customer dissatisfaction, so when there is a difference between customer's expectations and what has been delivered, the service quality is considered as low. There is more dissatisfaction the wider the gap is. If the service provider is responsive in trying to recover the service failure, there is a better chance to reduce the caused dissatisfaction. Due to

its labour intensiveness, service failures are a big problem in the aviation industry. In the Gap Model baggage mishandling is a particular problem as the baggage is either delivered or not. It is very limited how to close the service gap, if the baggage has not been loaded onboard the aircraft. Passengers have numerous reasons to travel and delivering the baggage the next day might not have much or any value for them and passenger's problem cannot be recovered immediately. According to Wyld et. al, when a customer is lost, to get a new customer is six times more expensive than retaining the present customer. (Wyld et al. 2005, 383-384.)

Some airlines have managed to market a consistent service quality experience in the face of global industry problems (Tiernan et al. 2008, 220). The impact of service failures to customer satisfaction in airport environment varies and others may be significant and effect on behavioural intentions to reuse and/or recommend the airport or the airline. Service encounters often involve people, and they can affect how services are delivered, despite many of the key processes at airports are standardized by technology. Service failures are inevitable and may have a major influence on satisfaction and customer loyalty. (Halpern & Mwesiumo 2021, 1, 3.)

Services are both intangible and tangible and to facilitate evaluating of service quality, the consumers are likely to focus on tangible parts of the services comparing of expectations with performance. Woo (2019) studied four dimensions of intangible aspects of airline service: 1) empathy (how to provide personal care to make customers feel valued and special), 2) reliability (ability to fulfil the promised service dependably and accurately), 3) assurance (knowledge, skills, and courtesy of employees), and 4) responsiveness (willingness to help customers and provide prompt service). The most used value definition is the value-for-money conceptualization, but when traveling to different destinations, people acquire different values such as emotional, intellectual, spiritual, or physical values. (Woo 2019, 41.)

From a strategic perspective, quality has also been incorporated as a means by which companies can increase their distance between themselves and their competitors. To achieve a genuine and sustainable competitive advantage, service quality becomes significantly important to companies. Process errors may impact negatively on airline service quality and both airports and airline should work together to improve service quality. (Yifei & Xinhui 2007, 2-3, 6.) Nowadays many airports and airlines are using digital customer facing technologies to improve passenger perspective of service quality during their journey. Good information and communication systems increase passenger's likelihood to value the overall airport and airline quality positively. (Brida, Moreno-Izquierdo & Zapata-Aguirre 2016. 212.)

2.4 Customer satisfaction

When customers are asked to issue an overall satisfaction and judgement about their experience of the quality-of-service delivery, every service attributes affecting directly on customer's attitude and passenger satisfaction is a key performance indicator for the operations of an airport and an airline. The evaluation and maintaining high levels of service quality of the passenger service at airport requires continuous monitoring as it is an on-going process with several different service areas. (Brida et al. 2016, 209-210.)

There are several service quality functions performed by the airlines and baggage handling transportation and delayed, and lost baggage handling are among them. Other activities where service quality is measured are for example ticket reservation, check-in, inflight product and service, on-time performance and services for disrupted passengers. Service quality dimensions are a combination of subjective and objective factors and difficult to evaluate appropriately. High-quality service is key to airlines' long-term success and competitiveness. (Percin 2017, 48-49.)

Customer feedback is in many cases the base for managers to redesign strategies and to improve service delivery, which increase customer satisfaction. Airlines can increase satisfaction by dealing with customer complaints, and by solving for example baggage delivery problems. According to Percin (2017), customer satisfaction is the most important criterion when evaluating airline's service quality. (Percin 2017 57-59.) Air travel can be broken into two stages: ground services and in-flight services and passengers' expectations of service quality may vary at different stages in the process. For service providers, it is the most important step in defining and delivering quality service, to understand exactly what customers expect. (Chen & Chang 2005, 79-80.)

In the service industry's strategy service quality is a critical component as it has a strong effect on customer satisfaction, customer retention and loyalty. Especially in air transport industry through service quality and customer satisfaction, passengers are inclined to choose service providers, airports and airlines for their journeys. Service quality and customer satisfaction need to be embraced for the competitive edge in the highly competitive aviation environment. (Otieno & Govender 2016, 387.) Through the introduction of low-cost carriers, the business environment has become even more competitive, making it necessary to reduce costs and improve operational efficiency (Park et al. 2019, 186).

Customer satisfaction is strictly tied to customer's perception or product performance, and it can be an immediate or an overall reaction to a series of situations and experiences. Satisfaction often starts with expectations person has and satisfaction or dissatisfaction results from a comparison of expectations with actual performance. (Chen et al. 2015, 219, 222.) Customer satisfaction

elements consist of several steps along the service process. Service quality becomes of tangibles like reliability, responsiveness, assurance and empathy. Together with service quality, product quality and price customers get satisfied or dissatisfied with the service. Situational and personal factors also effect on customer satisfaction. At the end customer satisfaction relates directly to customer loyalty. (AlKheder 2021, 2.)

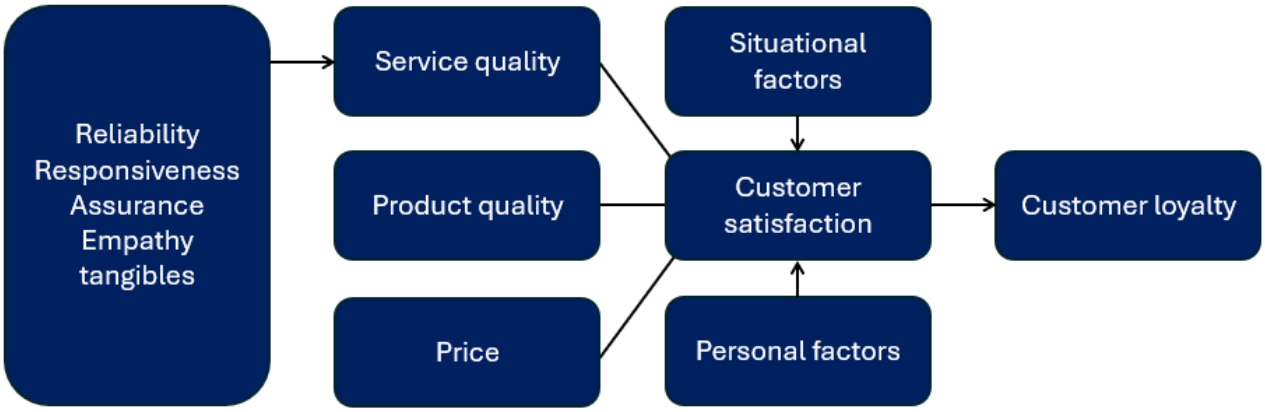

Figure 4. Customer satisfaction elements (adapted from AlKheder 2021, 2)

According to Koklica et al. (2017), numerous studies show the dependence of airlines' market share, revenue, positive word of mouth, and customer retention on the consumer perception of service quality, customer satisfaction and loyalty. The airlines providing fewer quality services have more dissatisfied customers than those providing more quality services. They consequently have more passengers and more satisfied customers contribute to higher profits. Airline tangibles and quality personnel are influencing positively to customer satisfaction in the airline industry, and customer satisfaction also influences on repurchase intention and airline recommendation. (Koklica, Kukar-Kinney & Vegelj 2017, 188-189.)

It is important ensuring a satisfying experience because only satisfied customers will recommend the airline to their friends and family and are more likely to travel with the same airline in the future. Koklica et al. (2017) also mention that to generate customer satisfaction it would be beneficial to analyse how financial inputs translate into improvements of the airline tangibles and personnel quality. According to their research personnel quality had stronger impact on customer satisfaction than airline tangibles, so airlines should pay particular attention to effectively improve personnel quality. Airlines should also understand and continuously monitor customer expectations as they are fluid and subject to change when the competitive landscape changes. (Koklica et al. 2017, 194.) Customers should have positive affective experiences and service providers should be aware of the importance of customers' affective minds in shaping their satisfaction (Park et al. 2019, 189).

According to Grönroos (2001), probably the only unique characteristic of services is the fact that services are processes, not things. The consumption and production of services are partly simultaneous activities and customers participate in the service production process. In each encounter customers bring their previous experiences and overall perceptions of the company. (Grönroos 2001, 150-151.) Service failures are not easily forgiven by passengers and in the competitive market, they can choose from various service providers. Travel industry and air travel has benefited from the various technologies related to travel such as self-service, biometrics and supportive smartphone applications. (Bogicevic, Bujisic, Bilgihan, Yang & Cobanoglu 2017, 351.)

2.5 Service recovery

Airlines cannot totally eliminate service failures, but with efficient service recovery procedures they can learn how to effectively respond to such events. Effective service recovery creates customer satisfaction which is an important part of customer loyalty as well as word of mouth recommendations and future purchasing intentions. (Chang & Chang 2010, 340-341.) Companies should not only focus on good customer service but investigate the causes of service failures and the service recovery process. When the service failures cannot be eliminated altogether, a better understanding of how to avoid failures and how to respond to them effectively plays a crucial role. In reducing the negative effects of service failure, service recovery is playing an important role. (Halpern & Mwesiumo 2021, 11.)

A service failure can be corrected by service recovery actions. Vazquez-Casielles et al. list three aspects of service recovery: 1) to learn from failures to prevent them happening in the future, 2) personnel training to recover service failures and 3) how different service recovery strategies effect on customer satisfaction, post-purchasing intentions and company reputation. Customers can respond in different ways to service failures and company's service recovery strategies, so the companies should have, if possible, a proactive response plan to service failures. (Vazquez-Casielles, Iglesias & Varela-Neira 2012, 83, 86.)

When customer satisfaction after a service failure exceeds satisfaction level before the failure, it is often called the Service Recovery Paradox (SRP). In these situations, the satisfaction increases by the satisfaction strategies to solve the service failure. Customers may be more satisfied, but they can also provide a long-term value that can mitigate the recovery costs. To retain customers, it is not enough to solve the problem, but customers also expect financial compensation to maintain the relationship with the company. For those who receive financial compensation in a service failure and in the recovery, encounters are more satisfied, and they experience more positive and lower risk post-purchase behaviour intentions. However, those lacking a financial compensation may feel

anger if customers feel that they paid for a quality service and they received a service of a substantial lower value. (Vazquez-Casielles et al. 2012, 86-88.)

In the competitive industry it is a key for the airlines to remain competitive and they should have effective customer relations management to translate satisfied customers' experience into behavioural commitment. By customer feedback companies can identify future goals and monitor the performance through customer satisfaction and loyalty scores. It is critical for airlines to understand what service attributes lead to customer satisfaction and their positions in airline business models and service classes. However, most customers may not always be willing to share genuine feedback, particularly about dissatisfaction. (Sezgen, Mason & Mayer 2019, 65, 66.)

2.6 Self-service technologies

For hundreds of years services have been existing as an important economy. The latest achievements of modern science, information technology (IT) and modern management are the basics of the service industries, and IT can and has significantly changed our lives and society. (Idouhi, Seffah & Kolski 2012, 287.) In all organizations labour costs contribute significantly to the operating costs of a company. The challenge in reducing labour costs in the aviation industry is complicated due to scheduling employees in 24 hours of operations. Personnel scheduling involves many operational constraints, fatigue management and other working conditions, but at the same time a need to minimize the labour costs. (Wu & Lim 2021, 1.) When putting the control into the hands of customers by introducing self-service, companies gain efficiency increase and can reduce costs and labour (Chen et al. 2015, 219, 220). Self-service technologies (SST) allow customers taking responsibility for their airport service transactions and confidence benefits from the use of SSTs can form realistic service expectations at airports (Bogicevic et al. 2017, 353).

Greater levels of automation in key processes can create opportunities when using technologies replacing passenger interactions with staff at the airport or airline service, such as using artificial intelligence for customer service functions. However, care will need to be taken as not all passengers are interested in using airport technologies and technologies could be introduced for those wanting to use them. That will free up staff for personal service for those who prefer attention. (Halpern & Mwesiumo 2021, 11-12.) Customer expectations of airline service quality are likely to be affected by interactions between customers and staff. But if the staff cannot or is unwilling to handle customer complaints it will decrease an airline's competitive strengths. (Percin 2017, 51.)

There has been a tremendous increase in the application of self-service technologies (SST) over the years in the service industry. In the airport environment and aviation industry there has been a particularly strong growth in using self-service at various passenger service touchpoints.

Customers also have an influence on service quality as they are cocreators of the service participating both in the production and delivery of service, which is even more valid in SST environment. Passengers are cocreators of the service in many customer touchpoints of automated services in the airport self-service environment, which may diminish how they perceive service quality outcome. Putting customers in control of their journey by self-service technologies, may deliver customer experience and satisfaction. Many customers have become used to automation and online services and technology-based delivery is an attractive choice if the customer interface is not too complicated and intimidating. (Otieno & Govender 2016, 387-389.)

Mobile technology and devices are seen as a primary platform for information access in tourism as they allow to take advantage of real-time information and help both users and suppliers to be connected. Air transport industry should take this new generation of tourists into account who naturally demand alternative ways of being informed and connected. (Brida et al. 2016. 213.) The interaction between customers and organizations has changed by self-service technologies bringing new ways of doing business. Passengers can utilize the services by themselves without a need of interaction with airline staff and they feel more comfortable using self-service with increased independence and freedom from time and space constraints. Service providers can standardize service delivery and expand delivery options by using SSTs. They can also increase productivity and efficiencies as well as reduce costs and increase satisfaction. When investing large amounts of money in SSTs, companies want some benefits in return, so providing and keeping the actual usage of SSTs is very important. (Gures, Inan & Arslan 2018, 215-216.)

Most of the airlines have utilized SST and are trying to increase the usage due to its advantages to both airlines and passengers. According to the study by Gures et al. (2018), functionality of SST was found as an important antecedent of actual usage of SST. So, if airlines want to increase the passengers' actual usage of SST, they should enhance functionality of SST. Airlines should provide user friendly, simple and easy-to-use, customized and excellent services right at first time. Passenger’s personal information shall be kept secure by providing secure systems passengers can use safely. SST may be advantageous for airlines when passengers save time and have short waiting times and the airlines may utilize their limited resources, so they may increase profitability over the long run. (Gures et al. 2018, 217-218.)

Flexible, cost-effective and simpler systems to connect with passengers have been possible by rapidly advanced technology. Both business goals and passenger expectations are driving the focus on innovations and competitive advantage through digital channel development. When most passengers are willing to use mobile devices during their travel, the market of tech-savvy consumers is growing, and they expect self-service solutions to simplify their travel experience. (Straker &

Wrigley 2018, 83.) Rosenbaum & Wong (2025, 1863) say that regardless of their technological readiness not all SST options are perceived equally useful by customers, and they are more drawn to options offering fun and entertainment. According to Iqbal et al. (2018) service quality has emerged in form of self-service technology and has profound effects on customer interaction creating positive outcomes like customer satisfaction, loyalty and behavioural intentions (Iqbal, Hassan & Habibah 2018, 1).

When SST generates and utilizes services without direct personnel contact, it can enhance productivity, proficiency, and effectiveness through modern and convenient channels. SSTs help companies to serve more customers with fewer resources reducing costs, training needs, equipment and communication costs. This way services become more consistent and steadier with less effect from variations of service demand or personnel frame of mind. SSTs also help companies to approach new customer divisions as they give power to both personnel and customers through value additions increasing time and place convenience. When customers can complete the transaction more quickly and conveniently, it leads to perception of enhanced service. Customers don't need to wait for service personnel when the services are provided by a technological interface. (Iqbal et al. 2018, 2, 4, 15.)

Self-service technologies in aviation industry have potential value to companies and their customers. The value is primarily in saving employee costs, shortening the queues, occupying smaller space and minimizing the service time for consumers. Mobile applications are the key providing several additional mobile functions including baggage tracking. (SITA 2013a; 2013b; Smit, Roberts-Lombard & Mpinganjira, 2018, 1.) Smit et. al (2018, 2) are questioning if customers are ready to adopt mobile self-service technologies. According to Parasuraman (2000, 308), technology readiness (TR) is an overall state of mind resulting from mental enablers and inhibitors. These can be used when determining if individuals are ready to embrace and use new technologies. Parasuraman explains that technology readiness is defined as "People's propensity to embrace and use new technologies for accomplishing goals in home life and at work". It is important for the companies to uncover consumers' readiness and adoption of new technologies (Smit et al. 2018, 2).

According to Lai (2008,19), perceptions of a person about technology are either positive or negative. The positive aspects push a person towards new technologies and the negative ones pull them away and together they influence if a person is ready to adopt new technologies. SSTs can sometimes fail due to mechanical or human error, so they are not 100% perfect. Transformation to SSTs requires adaptation of new business models and management systems as unexpected system failures and breakdowns can result in massive cost losses. Management needs to plan for the costs and staff must have the skills and ability to deal with these failures. (AlKheder 2021, 2.)

To reduce the waiting times at the airport has been a major objective of service providers as queueing and waiting is associated with poor and negative service experience. Airlines are not eager to increase the service personnel capacity due to increased costs and it has been proved to be a more cost-effective approach to introduce self-service technologies which offer customers more choice of how and when to receive the service. (Kokkinou & Cranage 2013, 435, 437.) With SST companies can increase the number of customers they can serve without recruiting more employees and offer customers greater accessibility. It is customers' choice to discontinue the use of SST should they find the service inconvenient and impersonal or if they lose their trust and commitment. (Hsu, Nguyen & Huang 2021, 1-2.)

According to SITA (2023) baggage management is also an important investment area in digitalization delivering greater automation and self-service, which are a top priority in the industry. In 2022 baggage handling self-service initiatives increased and major airports and airlines invested in digitalization, which together with automation brings opportunities to improve operational efficiency, better passenger experiences and reduced costs. In the evolving industry, digital technologies and innovations are crucial for smooth baggage handling and enhanced travel experience. Automated baggage handling and self-service kiosks help airports and airlines in handling growing traffic volumes more efficiently. In the last years a key priority for many airlines has been investing in real-time baggage status. In 2023 airline personnel were provided mobile access to real-time baggage status information by 57% of airlines and by 2025 the number is expected to increase to 84%. Airlines are also investing in real-time baggage status information to passengers and by 2025 67% of airlines plan to offer such service. Investments in technology increase customer satisfaction with stress-free travel experience, improve brand image and decrease number of mishandled baggage. (SITA 2023, 2, 3–4, 6.)

In this section of the thesis the theoretical framework has been presented. The framework consists of theories and studies of six main sections which are baggage handling and regulations, sustainability aspects in baggage handling, customer experience and service quality, customer satisfaction as well as service recovery and self-service technologies theories. The theoretical framework is used as the basis for analysis and recommendations in this study. Below is a summary graphics of the concepts and theories essential for this work to wrap-up the theoretical framework.

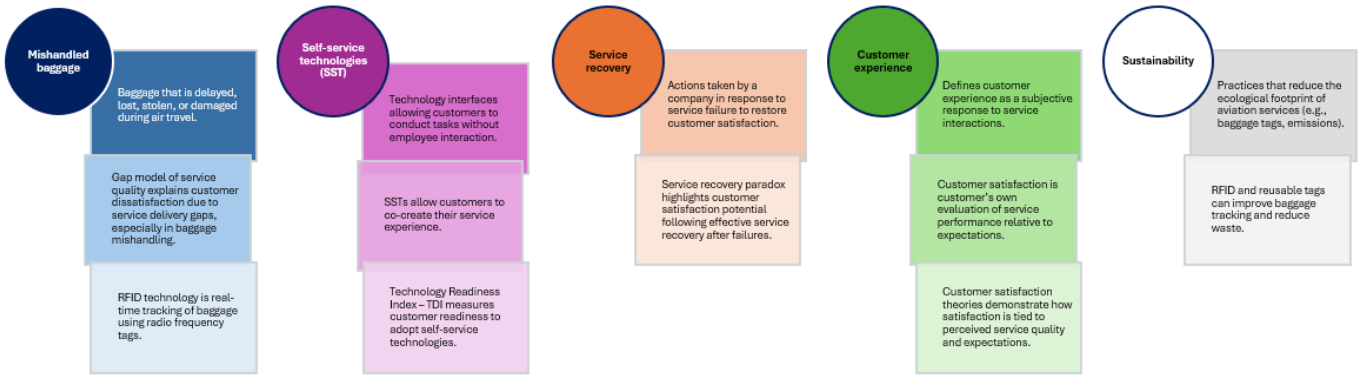

Figure 5. Summary of concepts and theories essential for thesis.

3 Methods and implementation

The approach for the thesis was the reason that baggage is not often prioritized in airport environment and daily operations. Still, baggage handling and delivery are very important aspects for the customer, and they expect their baggage to arrive to their destination with them as planned. Many times, on-time-performance overrules baggage handling processes and that results to baggage mishandling and delayed baggage delivery. For customers a delayed baggage is a broken service promise, and it influences on the customer journey, customer satisfaction and loyalty.

In this thesis Finnair disrupted baggage project is introduced. The methodology part of the thesis consists of explanation of the need for the project, introduction to project's vision and objectives, presentation of pre-project processes and future targets, enhancements which were done during and after the project and the outcome of the project. Customer experience and satisfaction before and after the project are compared and evaluated to find out if the enhancements and development items implemented after the project have an impact on customer satisfaction. After the project many enhancements in customer communication and self-service options was implemented and their impact on customer experience are evaluated.

Qualitative research methodology was chosen for this thesis. According to Turner et al. (2021) it is an increasingly popular methodology choice in business and marketing research. This method is often using in-depth unstructured data for insights of consumer behaviour. Human society and business environment are becoming more and more dynamic, so it is important not only to collect credible data, but also to analyse and interpret data providing explanations of different phenomena. They also describe that qualitative data comprises words or textual data that is not based on numerical figures, so when analysing written text and feedback it is a good methodology for this thesis. There are many ways to sort and organize big amount of data such as laying out printouts of data transcript, organizing sticky notes and using colours to identify particular data. (Turner, Ting, Wong, Lim & Tan 2021, 2, 5-6.) In this thesis the large amount of data is categorized and partly analysed by artificial intelligence as described later below.

According to Lim there are four reasons to choose qualitative research. First is the necessity and addressing complex social phenomena. Second is the importance. Qualitative research is generating rich insights and human-centred understanding. Third is the relevance, connecting research to real-world issues and fourth is the urgency, when the research is responding to a rapid social change. Qualitative research is not only a methodological choice but also a commitment to exploring the depths of social phenomena. It is enabling researchers to connect with the subjective experiences of their research subject. It is a constructive methodology aiming to explain and to answer what, why, when, where, who and how is behind the interaction, not just quantify occurrences.

(Lim, W-M. 2024, 1-3.) According to Gentles et al. (2015) qualitative research is the observation and interpretation of people's perception of different events. It also takes the snapshot of the people's perception in a natural setting. (Gentles, Charles, Ploeg & McKibbon 2015, 1786.)

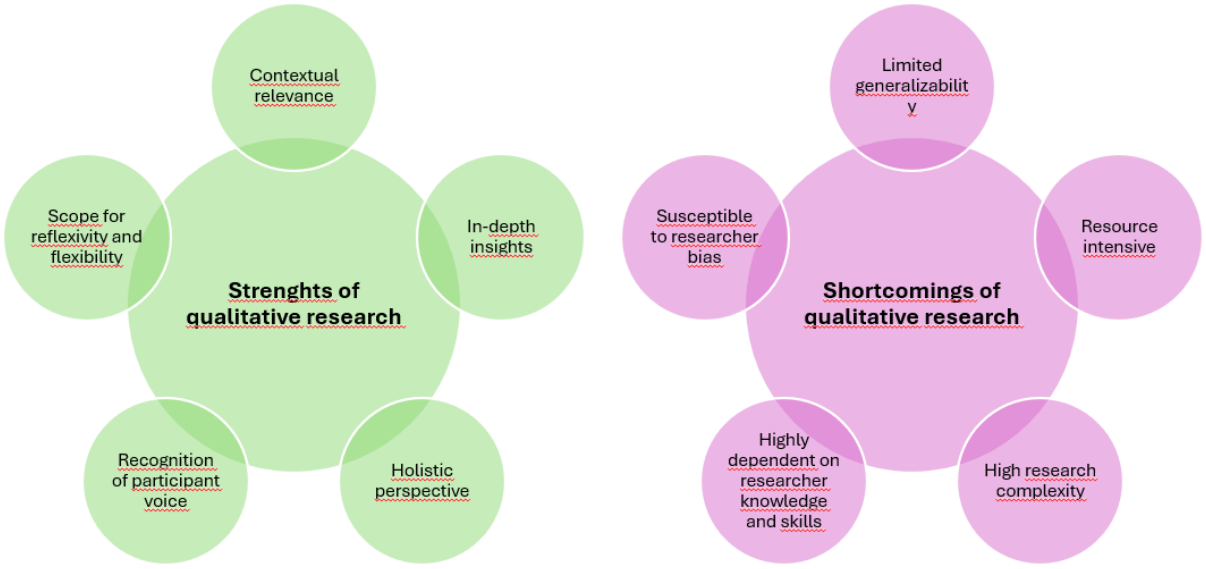

Figure 6. Overview of strengths and shortcomings of qualitative research (adapted from Lim 2024, 4)

By comparing delayed baggage delivery and customer feedback data before and after the project, it can be evaluated if the enhancement and development topics that were identified and delivered during the project have an impact on customer satisfaction, self-service rates, and Net Promoter Score (NPS). NPS is widely used to gauge the loyalty of customer relationships and acts as a predictor of business growth (Halpern & Mwesiumo 2021, 7). However, even though used by Finnair, NPS does not clarify the reasons behind customer's willingness to promote the company, nor does it define or list the service attributes leading to customer satisfaction or dissatisfaction.

According to Korneta (2018) NPS metrics provide little or no information on future consumer behaviour. Still, NPS has been used as one of the modern customer loyalty metrics as it is significantly reliant on promoters, who are willing to recommend a product or company to a friend or a colleague and on detractors, who are the opposite. Happy customers promote the company's products and become an unpaid marketing department of the company. But it is not only enthusiasts who count as the level of frustration and disappointment is also important, because the company may lose these customers, if corrective actions are not taken. Criticism has also been raised because NPS is calculated based on two out of three customer categories, promoters and detractors, lots of information is being lost and that NPS is overly simplified and cannot measure complicated sets of relationships. (Korneta 2018, 136, 138-139.)

Demographics in this study are unknown as the data from the customer satisfaction engagement letters is anonymous. Customer feedback, comments and opinions are not connected to any specific flights, routes, stations or dates. Eboli & Mazzulla (2009, 41-42) mention, that services can be improved by considering passenger feedback and point-of-view about their satisfaction and dissatisfaction about the services. They explain that there are two basic concepts in customer feedback surveys. First the expectations from the service that customers evaluate through the level of importance. And second the perceptions, which represent what customers receive and are evaluated by a judgement of satisfaction.

In evaluating Finnair's delayed baggage process, an engagement letter for customer feedback on service success within delayed baggage handling process, is used. To start the analysing process of the feedback, Finnair GPT, internal generative artificial intelligence (AI) was used to collect customer insights from delayed baggage engagement letters to get the most commented topics from the highest and the lowest customer satisfaction scores. Finnair GPT utilises generative artificial intelligence and can be used securely for processing internal information. It operates like a chat conversation and analyses the content of the requested document. Finnair GPT is a secure application and as with all AI tools, it's advisable to verify the accuracy of the information provided by Finnair GPT, especially for critical information. (Finnair 2025.) Artificial intelligence is deployed at multiple domains. It is forecasting revenue, guiding robots and drones in the battlefield, driving cars, recommending policies to government officials, predicting pregnancies, and classifying customers (Batarshe, Freeman & Huang 2021, 1.)

All customers who have made a delayed baggage report to Finnair, receive a customer satisfaction engagement letter when their baggage has been delivered. Customers can give a rating between one and five reflecting their satisfaction level of the delayed baggage service, communication and delivery. It is also possible to give open feedback and recommendations to improve the service. From mid-October until end of December 2024, customers left total of 997 open feedback in the survey. From that feedback satisfaction scores one and two as well as four and five were chosen for this study. To analyse the feedback, Finnair GPT was used, company's internal artificial intelligence tool. Form the feedback, each month (October, November and December) and satisfaction score category was analysed separately. From the analysis both good and bad topics are found, and they are further analysed and introduced in the enhancement recommendations.

3.1 Background for Finnair disrupted baggage project

In 2022 Finnair transported about 6,2 million pieces of baggage on its flights. About 1% of baggage was left behind and delayed to the destination and delivered to the customers. Already some years ago, Finnair offered automated delayed baggage reporting for the customers. When baggage was left behind, automation created a Property Irregularity Report (PIR) of the delayed baggage in SITA's WorldTracer baggage tracing system and customers received an SMS notification informing them about the automated report. Customers then logged in into WorldTracer online service and completed the report with detailed information about the baggage type, brand and color and personal and delivery information. Mainly due to poor communication and unreliable baggage loading data, this system was not very reliable and caused many duplicate reports and files, so it was decided to put the service on hold until new and more advanced technology was available. It also required changes and improvements to baggage handling processes for more reliable baggage loading data, which is the basics for automated reporting and customer communication.

As delayed baggage has a big impact on customer satisfaction, it was decided to kick-off a project to define current state and problems of delayed baggage handling, recognize the bottlenecks, clarify airport process points and improvements, and to create better automated and more consistent customer communication and enhanced self-service options. The project plan included current and future state analysis, definitions of project vision, objectives and deliverables, business impact and items that were out of scope in the project. I was the project manager for the project, and it started in January 2023. New enhanced processes, automation and customer communication was implemented in June 2023 and in September 2024.

3.2 Project objectives and impact

Before the project, it was important to recognize and analyse the bottlenecks which needed to be improved and what would be the desired state in the future. The current and future states were defined and with the analysis, the objectives of the project were decided and documented. From the current state analysis, it was clear to see, that there was a need for more automation in several process touchpoints. There was also a need for more self-service options and alternative ways of working for both customers and personnel who are working at the arrival service counters. The current self-service flow was not very user-friendly and did not support and follow all Finnair usability and brand guidelines, so that needed to be enhanced.

Customer communication with clear instructions and guidance was another topic on the future state list, as it is important that customers are communicated through each touchpoint of baggage handling and delayed baggage tracing process. With correct loading data it is possible to

proactively inform customers if their baggage has not been loaded onboard the flight. Clear instructions also release the personnel to guide and help the customers more proactively and meet them remotely at the baggage belts, instead of sitting behind the arrival service desks. There was also a need for better station performance follow-up as Finnair is buying baggage handling and tracing services from many ground handling agents globally.

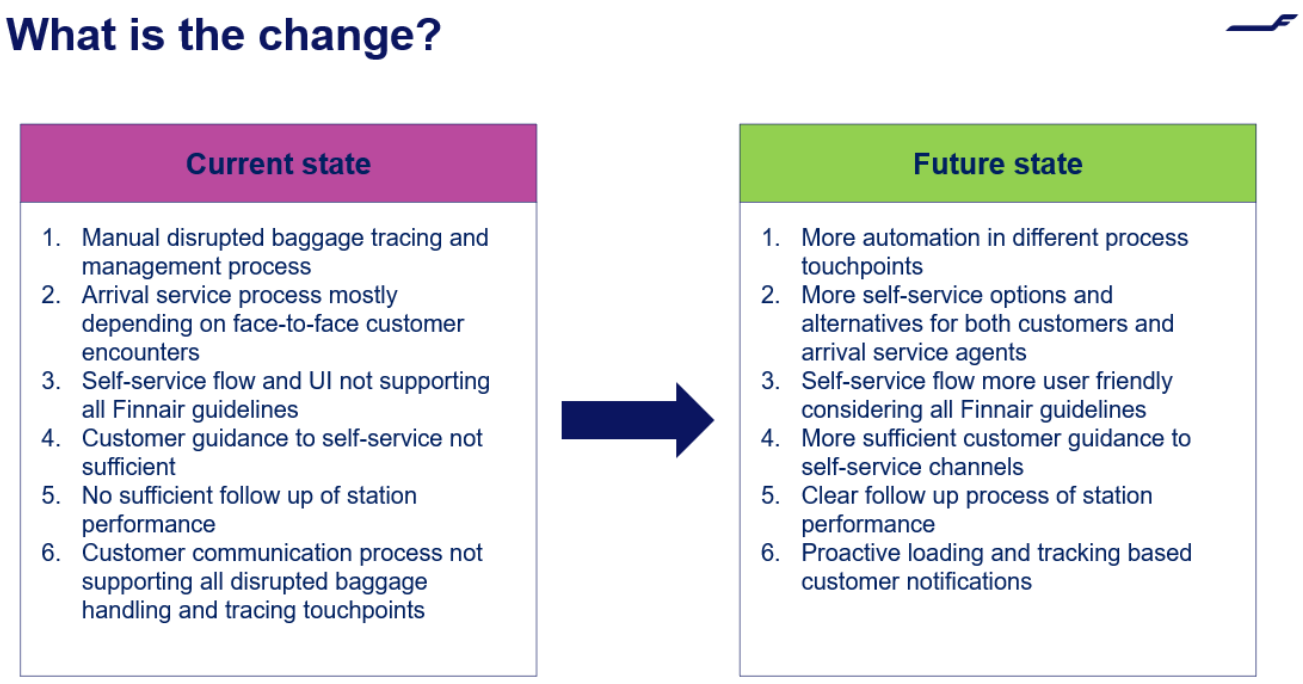

Figure 7. Finnair Disrupted baggage project. Current and future state analysis.

In the beginning of the project, project group defined the vision, objectives, deliverables, business impact and out of scope topics for the project. The vision was to have better disrupted and delayed baggage handling capability for summer 2023. As objectives the project group defined that the self-service process and service concept should be supporting both customer and agent experience and there should be data of the disrupted baggage performance available for daily follow-ups. Another project objective was to have proactive customer notifications in different baggage handling touchpoints.

The deliverables of the project included developing a user-friendly online self-service flow and the kiosks to be available at Helsinki Airport arrival service for customers to complete their delayed baggage reports in self-service. By correct baggage loading data, the proactive notifications and customer communication could be implemented to notify the loading status of the baggage to the customers. With the notifications customers whose baggage has been delayed can be guided and directed to use the self-service options and channels more efficiently at the arrival instead of

waiting for the baggage by the baggage belts. This concept was to be introduced to whole Finnair network to have a consistent and fully aligned service process.

With the process and technological enhancements there would be a great business impact with faster and more controlled handling of disrupted baggage. The reduced customer contacts during baggage tracing have an impact on resourcing, both at the airport and at the contact centres. Airport agents have more time to serve customers who are not able to use self-service options for one reason or another. Clear communication and guidance should have effect on customer satisfaction, NPS and customer experience. New targets were set for increased self-service rate as well as decreased contact centre calls for summer 2023. This project did not include some it-related system integrations and enhancements, nor building a dashboard for reporting purposes. Also, improvements related to baggage handling, notifications and communication in Finnair mobile application was out of scope as well as any internal or external personnel resourcing targets.

Table 2. Finnair Disrupted baggage project. Project objectives and impact.

Project objectives and impact

Vision	Disrupted baggage capability building for summer 2023
Objectives	• Self-service process and service concept supporting both customer and agent experience • Disrupted baggage data available for daily follow-up • Proactive customer notifications in different touchpoints
Deliverables	• User friendly online self-service flow and kiosks at HEL arrival service • Proactive customer notification of baggage loading and disrupted baggage tracking • Customer guidance to use self-service channels more efficiently • Network wide station service concept alignment
Business Impact	• Faster and more controlled handling of disrupted baggage • Less manual work and reduction of incoming customer contacts of disrupted baggage • Better customer service options for front line agents • Improved NPS by customer notifications and better guidance to self-service channels • Self-service target rate for S23 45% • Contact center call reduction for S23 25%
Out of Scope	• Salesforce and WorldTracer integration • Dashboard for cost and delivery performance • Finnair Mobile APP development (except link to finnair.com/bag) • Internal and external personnel resourcing

3.3 Project structure and stream deliverables

Disrupted baggage project was divided into four streams:

1. Process and concept development
2. System development and customer notifications
3. Delayed baggage handling at airports
4. Communication and change management

A stream lead was named for all streams responsible for the progress of their own stream's deliverables. Each stream had specific deliverables that needed to be fulfilled during the project on a given time scale. The project manager was following the progress of each stream and if there was any reason for stream leads not being able to finish their deliverables as scheduled or at all, it was discussed together with the project manager and escalated to the project steering group, if necessary.

Table 3. Finnair Disrupted baggage project. Stream deliverables.

Stream deliverables

What needs to be produced for accomplising the targets of the work package?

Streams	Main deliverables
1) Process & Concept Development Stream Lead: XX	• Simplify disrupted baggage handling process for all stakeholders • Define disrupted baggage handling service concept • Implementation of self-service kiosks for HEL arrival service
2) System Development & Customer Notifications Stream Lead: XX	• WorldTracer self-service flow usability enhancements • Loading data based notifications to customers departing from Finland • Three day notification including instructions to fill in baggage content data in self-service flow • Proactive notifications on baggage tracking events by WTD triggers • Proactively guiding customers to self-service for tracing status follow-up and file updates
3) Delayed Baggage Handling at Airports Stream Lead: XX	• Disrupted baggage service concept and forwarding process clarification and follow-up for all stations • "Roaming agent" model definition and implementation at HEL arrival service • Customer guidance to self-service at the airports
4) Communication and Change Management Stream Lead: XX	• Communication plan • Instructions to Baggage Recovery, airports and other stakeholders • GOM updates if needed

3.3.1 Process and concept development stream

Simplicity is one of the values of Finnair and it was included in this project's deliverables as well. New disrupted baggage handling processes should be simplified and a new service concept to be defined. Process and concept development stream's deliverables included also implementation of self-service kiosks at Helsinki Airport arrival service. This task was projected together with Finavia as they own the self-service kiosks at the arrival service area. Unfortunately, it was not possible to connect the kiosks online outside of current common use environment, so the actual self-service reporting solution could not be connected to the kiosks. However, a static picture with short instructions for customers and a QR code connecting to self-service online flow was loaded on the kiosks' screens and they could be used by customers with their own mobile devices.

3.3.2 System development and customer notifications stream

Finnair had offered customers self-service capabilities in delayed baggage reporting already before the project. However, the usability of SITA's application was not very good so one deliverable for system development and customer notification stream was to enhance the usability of SITA's WorldTracer self-service flow. This was done during the project together with SITA's representatives to ensure that the customer experience would be as good as possible, and all outgoing customer communication would have Finnair tone of voice. Also, the look and feel of the application should follow Finnair brand guidelines and that work was very time consuming including many stakeholders from Finnair as well as from SITA.

Another deliverable for this stream was to build connection between baggage loading data and Finnair customer communication system for proactive notifications to be sent to customers if their baggage was not loaded onboard the flight. In the beginning this functionality was limited to customers departing from Finland only, but later, it would be available for the whole network. This stream needed to work together with Finnair Ground Operations unit to define which stations can provide reliable baggage loading data before flight departure and could be introduced with the proactive customer notifications.

Automation between SITA's WorldTracer system and Finnair customer communication system was also needed for the system to send automated notifications for customers if their baggage had not been located within three days after the report was created. This notification is sent to customers for them to login online on their delayed baggage report and update the content of their baggage for tracing. Usually, the tracing process is transferred from the airports to the centralized baggage tracing team if baggage is still missing after three days. By updating the content of the missing baggage in the report, tracing becomes more effective as WorldTracer can get more reliable matches of unknown baggage also according to the content, not only according to the type, brand or colour of the baggage.

System development and customer notification stream was also working on improving the process of proactive tracing notification events. In this process customers are notified during baggage tracing according to certain events, when the process is progressing. The notifications are triggered by WorldTracer events, such as file suspension of the file when baggage has been located, but not yet delivered. Also, baggage forward message including flight details of onboard which flight baggage is arriving to destination would trigger a customer notification with flight information. And finally, when baggage arrives to destination and the report file is closed, customer receives another event-based notification. After that baggage service agent will contact the customer for delivery arrangements. In case of slow baggage tracing process and without the event-based notifications

customers are notified to go online and check the tracing status for their baggage to avoid unnecessary contacts to customer service and contact centres. The customer service agent might not have any more information about the tracing progress or baggage location, than what customers see in the online service themselves.

3.3.3 Delayed baggage handling at airports stream

This stream defined and clarified Finnair's disrupted baggage service concept. It was important to deliver and share the new concept to all stations network wide. One task highlighted in the concept was to remind all stations and handling agents of the importance of correct loading data before flight departure as well as correct forward messaging procedures for the delayed baggage. All stations must understand their role and importance in the process for a successful delivery, when baggage have been left behind.

When introducing self-service options and channels network wide, it is important to communicate the new process clearly to the handling agents and airport personnel serving Finnair customers. This way all agents can guide and direct customers to the correct channel to get them effectively in the baggage tracing process and the delayed baggage delivered to them. At Helsinki airport a roaming agent model for arrival service was introduced to move the agents among the customers near the baggage delivery belts from behind the service desk. This way agents can already at the baggage belt help the customers and introduce them to the self-service solution should there be delayed baggage or delayed delivery to the baggage belt and customers don't need to queue at the service desk for any information and reporting.

3.3.4 Communication and change management stream

The fourth stream, communication and change management, created a communication plan including schedules, list of stakeholders, channels and instructions. When talking about disrupted baggage there are many stakeholders who need to get the information of in new processes and concepts well in advance before implementing them into practice. Usually, any new process needs to be introduced to airport agents minimum of two weeks before implementation. But if there is more time, it is more likely to be better implemented as there are several hundreds of agents who need this information. Customers might be contacting Finnair customer service and contact centres about their baggage problems, so the process need to be clear for those agents as well, not only for airport agents. Finnair handling instructions are also documented on Ground Operations Manual (GOM) and this stream needed to evaluate if any of the processes needed to be updated in the manual for all airports' knowledge.

3.4 Baggage handling process and system overview

In 2023 Finnair transported 8 million baggage network wide. About 73 000 of this baggage were delayed and only 173 were never found and were compensated to customers. Finnair target for mishandled baggage varies depending on the station and for 2023 the average number of baggage reported to Finnair was 6,53 per 1000 passengers, which is a little over industry average. Baggage handling is a highly automated mechanical process and there are several reasons and process touchpoints where baggage can be mishandled.

Aviator is the handling agent responsible for Finnair baggage handling at Helsinki airport. Airport customer service at baggage arrival service area is done by Finnair personnel. At outstations Finnair does not have its own personnel, except management at the long-haul stations, and both customer service as well as baggage handling are performed by ground handling agents. Finnair Ground Operations unit is responsible for ground handling contracts and implementing Finnair processes at all stations. Ground Operations unit is also following up the handling performance and quality of the outsourced handling operators and the level of customer satisfaction. Baggage handling targets are important key performance metrics when ensuring that the performance is according to Finnair standards.

Traditionally ground handling agents have been responsible for baggage handling and delayed baggage tracing. Local arrival services create delayed baggage reports for Finnair customers, trace the baggage, contact customers when baggage arrives to the destination and deliver the baggage to customers. In September 2020 Finnair took over baggage tracing from many stations and started centralized baggage tracing with Baggage Recovery Team (currently called Baggage Solution Team) which is part of Finnair Customer Solution Management unit. Centralized baggage tracing unit is responsible for all baggage tracing after five days of the reported baggage mishandling, if the baggage is still missing. Centralized baggage tracing is also processing all baggage tracing on behalf of many of the outstations, which are still responsible for creating the reports or guiding the customers to self-service, contacting the customers and delivering the baggage once they arrive to the station.

Finnair introduced delayed baggage reporting self-service solution in January 2020. First the self-service option was implemented at Helsinki airport and selected outstations. These stations were also sent some roll-up posters to guide the customers to use self-service instead of standing in line for the customer service agent. The roll-ups included instructions for customers and a QR code that connected them to the self-service flow for delayed baggage reporting. It was obvious, that doing the delayed baggage reports in self-service was a new option for customers and most of them still wanted to make the report with an agent to get more instructions and information of how the

baggage tracing would be processed and if there was any pre-information of the baggage and its whereabouts and delivery. To get more users for self-service reporting, there was a clear need for better communication and instructions to win customers' trust in the new process. These are some of the reasons why the Disrupted baggage project was started.

Finnair reorganized delayed baggage handling at Helsinki airport, including baggage tracing, customer contacting and delivery, in 2021. Baggage handling and tracing is taken care of by ground handling agent Aviator. They control the back-office functions at Helsinki airport organizing baggage tracing for first five days and contact the customers to arrange and agree about the baggage delivery. Baggage delivery is handled by Jetpak delivery company. Finnair's own arrival service personnel no longer do any baggage tracing as the tracing is passed to Baggage Solution team if baggage is still missing after five days. Arrival service personnel can concentrate on customer guidance and service.

Baggage tracing is done by SITA's WorldTracer system, developed together with IATA. It is an industry-leading, global baggage management system designed to help quickly track, locate and recover mishandled baggage. More than 2800 airports and airlines are using WorldTracer. (SITA 13.4.2025.) The whole baggage tracing process can be done in one system, from the reporting until baggage delivery. When a delayed baggage report is made in WorldTracer, the system starts to look for a match of similar baggage in the system, which are either left behind or forwarded to the destination as delayed baggage. There are several different items that give a value for the match in the system. These are for example tag number, type and colour of the baggage, customer name, fight and date information etc. The bigger the match value is, the more likely the baggage is the correct one that is being traced. When the match value is high enough, agent doing the tracing can request the baggage to be forwarded to the station where the delay was reported. Once the baggage arrives to the station, agent contacts customer to reconfirm that the baggage is correct and to agree about the baggage delivery arrangements. During the tracing there are several touchpoints in the process that can be used as triggers for customer notifications to keep customer informed about the progress of tracing.

3.5 Enhanced transparency by automated customer communication

Proactive customer communication was named as one of the project objectives. Customers should be notified already before the flight departure if their baggage was not loaded onboard the flight. This data is available in Amadeus Altéa Customer Management (Altéa CM) departure control system. A connection between Altéa CM and Finnair Customer Notification System (CNS) would enable to automate customer notifications if baggage was not loaded on the flight. For correct and reliable data, the loading process needs to be consistent at all stations, otherwise customers might

receive incorrect notification even when the baggage is onboard the flight. Being proactive and able to notify customers about the loading process is not only a good thing. When customers receive such notification of unload baggage before flight departure, they might cause a delay for the flight by requesting and demanding their baggage to be loaded before the flight can depart. It might also cause uncomfortable situations during the flight for the cabin crew as they are not able to assist customers with their questions during the flight. It is important to decide at which point these notifications shall be sent to the customers.

After making a delayed baggage report, customers don't usually have visibility on how the baggage tracing is progressing. Customers can login to see their report status, but many times the tracing status remains unexplained and unclear to the customer. This causes unnecessary contacts to airline's customer service where the agents have the same visibility of the tracing status as customers have online. Baggage tracing personnel have more visibility on the status as they are professionals and can interpret the tracing progress and information in the file better. There was a clear need to keep customers up to date during the tracing process to avoid customer frustration, bad experience and unnecessary contacts.

SITA provides automated customer communication solutions in several WorldTracer touchpoints. These are for example tracing suspension, which is done once the baggage has been located, and it is on its way to the destination. By suspending the tracing, baggage is no longer in active tracing process and does not create matches to other similar type of baggage. This is one touchpoint which is important for the customers, so they know their baggage has been located and it is no longer in tracing. Once the station handling the baggage is forwarding it to the station requesting the baggage, a forward message sent in WorldTracer can trigger an automated customer notification. In this notification customer sees onboard which flight and on what date the baggage will arrive to the destination. After the baggage has arrived at the destination, the agent is closing the file, and another automated notification is triggered and sent to the customer. With these kinds of automated notifications customers are informed about the tracing process and there is no need for them to contact customer service for more information. The notifications give more transparency on how the airline is performing and progressing with the tracing process. If there is a need to update the report and tracing file by customer, they can login online and make updates such as new delivery address or contact details in self-service portal.

4 Results

4.1 Baggage tracing process and customer communication enhancements

In the beginning of the project the objectives, deliverables and new process enhancements' impact were defined. One of the objectives was to get reliable delayed baggage data for daily and monthly performance follow-up. This data should be available with a connection from WorldTracer to Finnair's data warehouse and reports should be available for all users. For example, Ground Operations Service Delivery Managers need this data when they are following outstation performance of mishandled baggage. New data was added in Finnair Power BI reports of mishandled baggage.

Another objective was self-service process and service concept to be supporting both customer and agent experience. This objective is linked to proactive customer notifications in different touchpoints, bringing more transparency in mishandled baggage process to all stakeholders. Customers needed to be guided to use self-service option more efficiently by both customer communication and active agent guidance. From the beginning it was clear that the service concept should be such that it can be implemented network wide to all Finnair operated stations.

One project deliverable was to implement self-service kiosks for delayed baggage reporting at Helsinki airport's arrival service. Finavia moved older kiosks from departure level to arrival service with check-in capabilities. However, there are not many customers who need to do the check-in upon arrival and there was a long discussion with Finavia, if these kiosks could be used for delayed baggage reporting. The problem was that the kiosks at the arrival service are CUTE stations (Common Use Terminal Equipment) with no internet connections. WorldTracer self-service on the other hand is a web-based application, thus cannot be used in a CUTE environment. Finavia was able to add a static picture with Finnair instructions and a QR code on the kiosk screen. Customers still need to have their own mobile device and an internet connection to login to WorldTracer for creating a delayed baggage report. Finavia provides free wi-fi connection at Helsinki airport, so all customers should be able to access internet and make a report by themselves.

In the beginning of the project in January 2023 the service concept was defined. There were several simplifications in the concept and process for all stakeholders. At Helsinki airport arrival service agents were moved from behind the desk to meet the customers by the baggage belts and to guide them to use the self-service channel for delayed baggage reporting. Those customers not able to use the web-based solution could still be served at the service desk. It was known that some customers prefer direct customer service over digital applications and some are not able to connect to self-service solutions due to their mobile phone capabilities.

Instead of notifying the customers about unloaded baggage before the flight departure, it was decided that the notifications are sent to customers after the flight arrival at the destination. This way customers wouldn't need to worry about the baggage left behind during the flight nor would the cabin crew be in any unpleasant situation during the flight if they were not able to assist the customers. Customers receive the notification after flight landing and with the link in the notification they can make the delay report online and continue their journey from the airport. There is no need for customers to wait by the baggage carousel to find out their baggage was not loaded on the flight, which is very annoying and frustrating leading to bad customer experience.

To be able to send the notifications of unloaded baggage to the customers, the loading data needs to be correct in Altéa CM. There was a lot of testing done to ensure correct data transfer between baggage reconciliation system and Altéa CM. After successful tests and correct data transfer, this process was first implemented to Helsinki and other domestic airports in Finland, before the process could be expanded to other stations as well. It took some time to make the stations understand that they need to follow a process which is linked to customer communication and everybody needed to understand their part in the end-to-end process. If some parts in the process don't work and are not performed properly, the rest of process is failing also. These notifications were sent from Finnair Customer Notification System, and it was important to ensure that correct templates are sent to correct customers with correct data, so a lot of testing was required.

Building an event-based customer communication process with SITA was a time-consuming process. It required several workshops with SITA and development in WorldTracer. It was decided that at this point Finnair would use SITA's communication automation instead of building another connection between WorldTracer and Finnair Customer Notification System. Finnair CNS was an old application and at the same time there was an ongoing project to renew the notification system, so it was not feasible to build a connection to a system that would be disabled soon. All notification templates needed to be created or rewritten to follow Finnair customer communication guidelines and tone of voice. Currently the notifications are sent from Finnair's internal customer communication system, and the SITA communication application is no longer in use.

As the event-based tracing status notifications were a new service and process, it needed to be defined with SITA that correct templates and notifications are sent out with correct events and touchpoints. A new touchpoint in the process would be a notification after three days of tracing, if the baggage was still missing. This notification would direct customers to self-service portal to update the content of the baggage into the file. When baggage is missing more than three days, the content information in the file will give more possibilities for WorldTracer system to find similar baggage and matches globally. After intensive testing the process and communication templates were

approved and ready for implementation. When all system related enhancements were done and implemented, the process documentation was updated.

New processes and enhancements were to be introduced to the airports. All communication of process changes in ground handling goes through Ground Operations unit and Delivery Service Managers, who all have their own airports and markets to look after. At the same time new reporting and analytics was developed with Finnair analytics team to get the latest data of mishandled baggage numbers for all stakeholders' use. These reports were built in Finnair Power BI solution as part of Operational Performance reporting. Mishandled baggage section in Operational Performance report include data about baggage statistics and trends in general, mishandled baggage statistics including numbers, fault stations and month to month comparison of different reasons the baggage has been mishandled. Reports also include data of mishandled baggage handling time, how long the tracing and delivery takes as well as self-service rates at each station. With these data it was possible to follow station level performance and define targets and key performance metrics for different events and self-service reporting.

An important part of every project is the communication plan and change management. This work was done by one of the project streams and in addition to the communication plan, this stream documented all new processes and enhancements. Finnair Ground Operations Manual (GOM) also needed to be updated with some new processes and instructions for stations and these changes needed to be communicated to relevant stakeholders such as airport ground handling agents, contact centres, Baggage Recovery team and management. As it was not possible to deliver all new processes and enhancements during this project due to resource and technical limitations, the next stage enhancements were defined and documented.

During the project some critical next stage enhancements were defined. These included automated delayed baggage report creation and engagement letter feedback processes. Both processes were dependent on resourcing and technical capabilities and needed to be scheduled for 2024. The processes were linked to Finnair customer communication system renewal project and after the new system was implemented, it was possible to develop automated report creation and customer feedback functionalities.

With automated delayed baggage report creation, it was possible to get more proactive customer notifications and better customer experience by creating a delayed baggage report from the loading data automatically. If the baggage is mishandled according to loading data, this information is shared with WorldTracer, and system automatically creates a delayed baggage report for the customers. This report proactively includes customer name, phone and e-mail information, flight and date information and baggage tag number. When customers arrive to the destination, they receive

an SMS and e-mail informing that their baggage has been left behind and that the delayed baggage report has been created on their behalf. Customers can then login to the self-service portal with the file reference number, update the baggage type and colour, delivery address and confirm that all other information in the report is correct. This automated file creation is considered as self-service reporting because there is no need to contact an agent at the airport or contact centre.

There has been some variation in the number of delayed baggage reports created in self-service during the past two years. In January 2023 34,9% of reports were created online and after the project there was a steady rise of the self-service usage percentage. At the end of 2023 there was a significant drop in self-service usage and during 2024 the percentage declined until October 2024, when the automated file creation was implemented again. In January 2025 the self-service percentage was 81,1%, which is a very high rate in the airline industry.

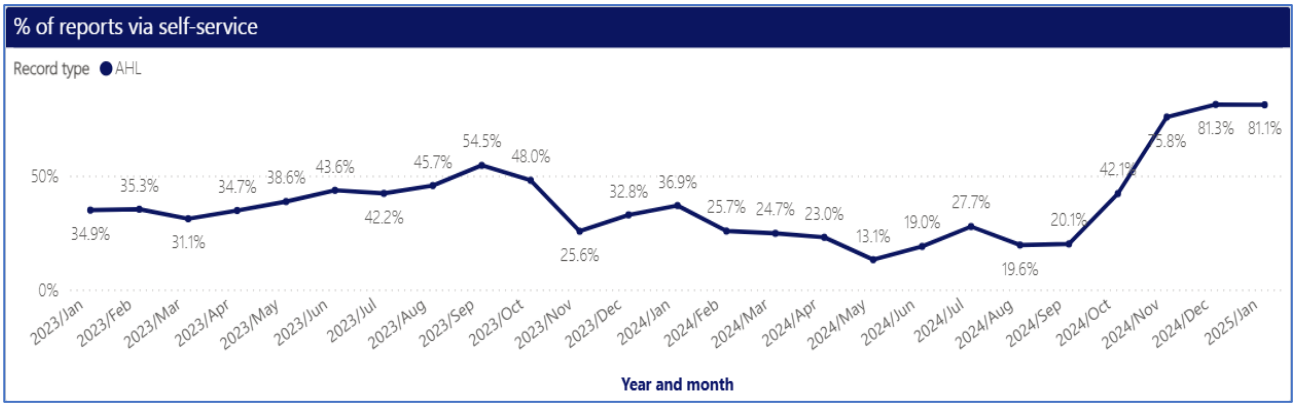

Figure 8. Delayed baggage reporting in self-service (Finnair Power BI)

Same time with automated file creation Finnair implemented a customer feedback process for delayed baggage. This customer satisfaction survey is called Delayed baggage engagement letter. The survey is sent to all customers who have made a delayed baggage report after their baggage have been delivered. Customers can rate their experience between one to five stars and leave also open feedback. In December 2024 Finnair received total of 11 118 delayed baggage reports in the whole network and 1290 customers responded to the feedback survey resulting to 11,6% response rate. In January 2025 the response rate was 12,23%. With the data from the feedback survey, it is possible to analyse mishandled baggage performance according to station and flight level, route and airport pair and in different traffic categories. In the next chapter the engagement letter survey data is analysed concentrating on written feedback and how customers have responded to the enhancements implemented after the disrupted baggage project.

4.2 Net promoter score and customer feedback survey

Net Promoted Score (NPS) is one of the key performance indicators Finnair is using to measure customer satisfaction through customer journey touchpoints. The NPS score is valued in a scale from -100 to 100. Finnair's Customer Voice -survey is sent to thousands of customers each month after their flights. In Customer Voice -survey Finnair is measuring customer satisfaction in usability of Finnair website for flight booking, airport processes including check-in and departure gate and boarding processes, level of inflight service as well as arrival processes. Delayed baggage handling is measured as one of the arrival processes.

Before the disrupted baggage project enhancement implementations in May 2023 the NPS score for delayed baggage handling was 27. There was a clear target to increase the NPS with new processes and customer service enhancements. However, after the implementations had been in use for a year in May 2024 the score had decreased to 23. After another six months and several new enhancements implemented late 2024, the NPS went up to 25 in January 2025. Overall, it seems that the enhancements and new processes after the project have not influenced the NPS and customers' willingness to promote Finnair to their friends and families, but it has been quite steadily around 25 before and after the project. But like Korneta (2018) states, NPS metrics provide little or no information on future consumer behaviour. NPS does not clarify the reasons behind customer's willingness to promote the company, nor does it define or list the service attributes leading to customer satisfaction or dissatisfaction. By looking only the NPS score, it is difficult to see the level of frustration and disappointment and company may lose customers, if corrective actions are not taken. This thesis presents corrective actions, improvements and recommendations.

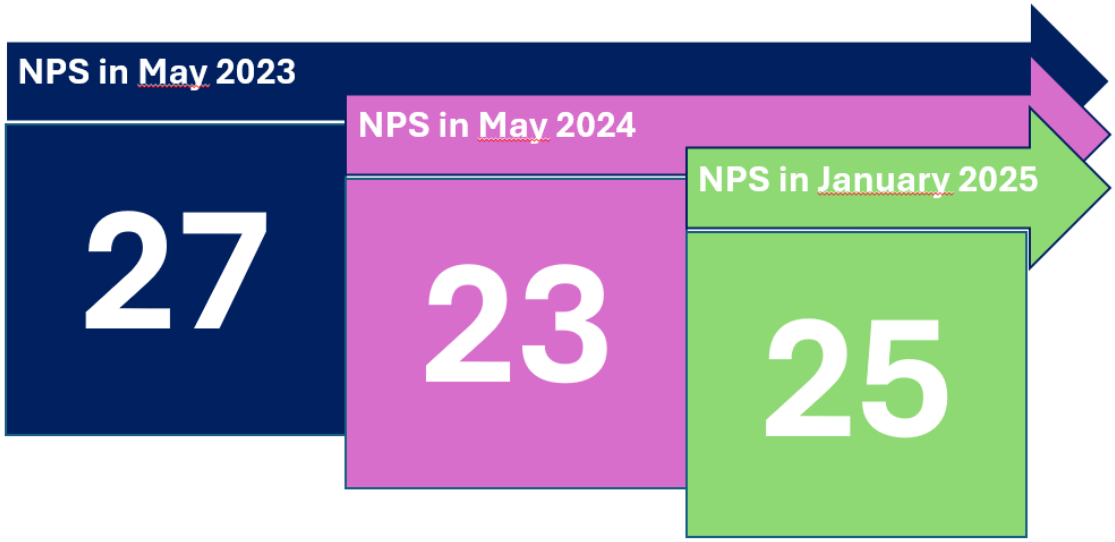

Figure 9. Delayed baggage handling Net Promoter Score in May 2023, May 2024 and January 2025 (Finnair Power BI)

In addition to delayed baggage handling NPS score from Finnair Customer Voice survey, Finnair is following customer feedback from delayed baggage handling through an engagement letter survey. All customers who have made a delayed baggage report to Finnair, receive a customer satisfaction engagement letter when their baggage has been delivered (Appendix 1). Customer can give a rating between one and five reflecting to their satisfaction level of the delayed baggage service, communication and delivery. They can also give open feedback and recommendations to improve the service.

From mid-October until the end of December 2024, customers left total of 997 open feedback. From that feedback satisfaction scores one (1) and two (2) as well as four (4) and five (5) were chosen for this study. According to Sezgen et al. (2019) to analyse large amount of unstructured data manually and objectively is very difficult (Sezgen et al. 2019, 67). To ease the analysing of the feedback Finnair's internal artificial intelligence tool Finnair GPT was used to analyse open feedback and to recognize the most commented topics from the highest and the lowest customer satisfaction scores. The feedback in each satisfaction score categories were further analysed for each month (October, November and December) separately. From the analysis enhancement and recommendation topics were found, both valued as good and bad by the customers.

Table 4. Number of feedback in Engagement letters with open feedback, 2024.

Feedbacks 2024	October	November	December	Total 2024
Rating 5	57	124	168	**349**
Rating 4	21	44	74	**139**
Rating 2	14	42	64	**120**
Rating 1	34	117	238	**389**
Total 2024	**126**	**327**	**544**	**997**
Average rating	**3,46/5**	**3,34/5**	**3,09/5**	**3,29/5**

The average rating of delayed baggage handling for each month is reported in Finnair Power BI. Engagement letter survey was introduced in October 2024, so there is no previous data available and in this thesis the data is analysed from the first three months, October, November and December. In principle delayed baggage is a negative experience for the customers. However, the overall experience is rated above average when the rating is between one and five and that can be considered as a satisfactory result.

In October the average rating was 3,46 and in November a little bit lower, 3,34. In December there was a significant drop on the rating resulting to 3,09. The reasons for lower average rating in December can be found in disruption events. On 9th of December Finnair pilots were on strike and Finnair cancelled 140 flights. On another strike day 13th of December Finnair cancelled 150 flights. Even though these flights were cancelled before the day of departure, they always cause significant disruption at the airport also for baggage handling.

The walkout of the Finnish Aviation Union members at Helsinki airport on 2nd of December had the biggest impact on baggage handling. As this walkout was not pre-announced by the union, thousands of baggage was left behind at Helsinki airport causing severe disruption to Finnair customers. This can be seen in the average rating of delayed baggage in December, as it dropped 0,25 points from November. Most of the delayed baggage from union walkout were able to be delivered to the customers within two days, which might have an impact on the rating staying above three.

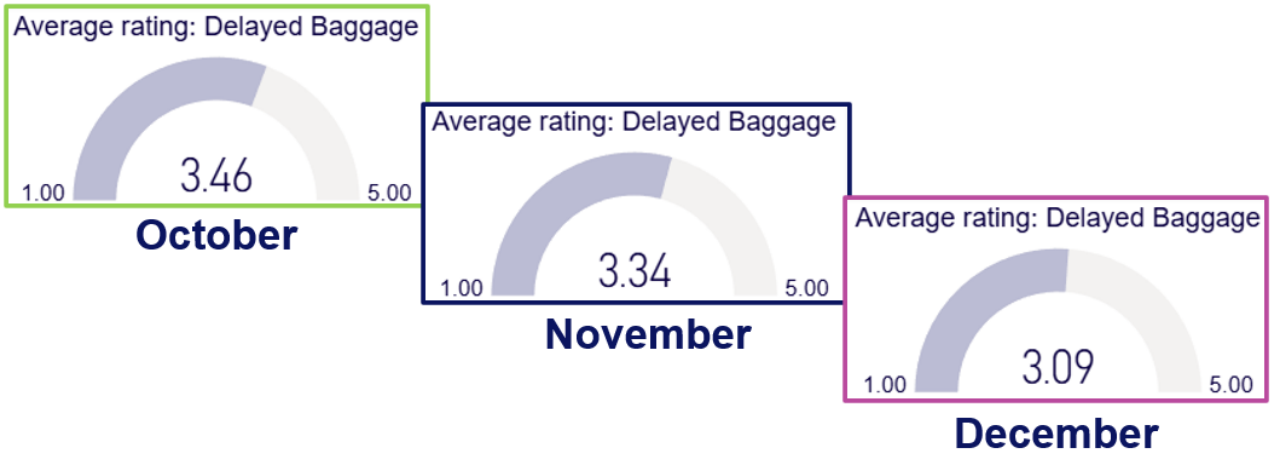

Figure 10. Engagement letter average rating in October 2024, November 2024 and December 2024 (Finnair Power BI)

4.2.1 Feedback results rated 5

These customers have rated the delayed baggage handling as five on a scale one to five. In the feedback the most top-rated aspect was a quick delivery of delayed baggage. Customers have appreciated the speed of the tracing and delivery within 24-48 hours which have minimized inconvenience. They have also appreciated the communication, in many feedback rated as excellent and updates via e-mail, text messages and phone have been highly valued. Overall, the proactive communication and updates during the tracing process are mentioned in many feedback. Customers also mention an efficient online system and the ability of reporting and tracking baggage delays online are considered convenient and effective.

Customer service, both at the airport and during baggage delivery, is a strong positive factor. Many customers mention the helpful and friendly staff which themselves are creating a more positive customer experience in a disappointing situation. Also, prompt notifications and information about the delayed baggage immediately upon arrival has been a positive experience. These proactive notifications save customers' time, and they don't need to wait for their baggage when the airline knows that they are left behind.

The convenience of having baggage delivered to homes, hotels, or other preferred locations is well received. Some customers might expect that they need to pick-up the baggage from the airport once it arrives but have been pleasantly surprised that the baggage is delivered to them. Offering choices regarding delivery locations and timing enhances satisfaction as many customers appreciate flexibility in delivery. Providing a more precise delivery window and real-time tracking for baggage delivery would reduce the inconvenience of waiting at home.

Customers appreciate a smooth and hassle-free process. The easier the process is, the better the experience for the customers. Regular status updates make customers feel reassured that the tracing process is in control and in progress and they appreciate to receive continuous updates on the status of their baggage. Many customers commented positively about the proactivity and how the airport agents take the initiative to assist and reassure customers about the baggage tracing and delivery. This certainly improves customer experience.

While feedback is mostly positive, there are still areas where improvements could enhance the customer experience. Many customers are initially confused about baggage claim procedures. Clearer instructions, better signage and information at the airport could reduce frustration. These kinds of improvements are often out of airline's control, but the feedback can be forwarded to the airport operators for future customer experience enhancements. We know that customers want to have more control in flight disruptions and delayed baggage handling does not differ from other disruption scenarios. Many customers wish to have advanced tracking capabilities, similar to many courier services, and implementing real-time app-based tracking for baggage delivery would give passengers more control and visibility of the process.

Some customers also wish faster and more accurate updates on the online service. If the tracking information is delayed in the online report it leads to uncertainty. That might also lead to an unnecessary contact to airline's customer service. To reduce long waiting times when calling customer service, chatbot and self-service options' could be further developed and expanded. In addition, the online form usability should be improved as some users face issues filling out forms due to format restrictions and unclear fields. This form is used when requesting more information of the baggage content after it has been in tracing for three days. Some non-English speaking customers are

commenting about the lack of multilingual support. Instructions and customer service for non-English speaking customers is not in proper level, including Finnish speaking customers.

It is important that all stakeholders communicate with each other, and they all have up-to-date information of the progress of the tracing and delivery processes. Miscommunication between baggage handling, customer service, and delivery teams can cause delays or confusion, so some customers are missing better coordination between departments. Some customers are also missing recovery measures at the airport. Customers experience initial frustration when their baggage is delayed. Offering small compensation, such as essential items or airport vouchers, could improve their experience. Exploring options such as proactive notifications onboard the flight before baggage claim or offering on-the-spot assistance could help manage expectations and reduce initial discomfort of delayed baggage and a broken service promise. Obviously, Finnair's proactive delayed baggage notification has not reached these customers. Some customers don't open their mobile phones immediately after landing thus do not receive the text message or e-mail sent to them about the baggage.

4.2.2 Feedback results rated 4

These customers have rated the delayed baggage handling as four on a scale one to five. Many of the positive aspects are like the feedback given and rated as five earlier but still have room for improvement. In general customers receive timely and prompt alerts and notifications upon arrival. They also appreciate the efficient delivery, so once the baggage is found, the delivery is relatively smooth and quick. Airport and customer service representatives are seen as supportive, helpful, friendly and understanding. Also, the delivery personnel are polite and professional and generally courteous and friendly. Many customers appreciate personal service even though self-service and online options are available.

Customers appreciate good communication via e-mail and text messages and like the regular updates sent by the airline. They also find the ability to track delayed baggage online as a valuable feature. Some mention about baggage being damaged when delivered to them. Even though damage is uncommon, it is not completely eliminated. Customers seem to be happy, similar to customers rating five of the choice of flexible delivery options and being able to choose between home, hotel, or pick-up location. However, limited delivery services on weekends and for distant locations create additional inconvenience. Even though online reporting reduces paperwork and makes it easier to follow the tracing progress, some usability issues still remain, and applications could be more user-friendly. During the end of the year 2024, despite holidays and busy seasons, cases and deliveries are handled relatively well.

Although rated well, some areas show clear opportunities for improvement. The target for delivery of a delayed baggage to customer at Finnair is two days, but those customers who experience delays beyond two to three days are significantly more dissatisfied. For some customers also the inconsistencies in baggage tracking and lack of precise delivery estimates cause frustration. Some customers have experienced communication gaps between airline, baggage handling and delivery companies leading to misinformation, so better coordination between service providers would improve the process.

Online reporting systems also need improvement, and some forms have technical issues or are not user-friendly. Some customers struggle to find direct contact numbers for baggage inquiries, so an easier access to customer service would be required by some. Many customers also mention the lack of signage and guidance at the airport causing confusion. Obviously clearer airport procedures for delayed baggage are needed. If the airline knows about the potential baggage delays at the destination already at the time of check-in, informing the customers proactively could help setting the expectations. And at the arrival and in online instructions, many customers want clearer guidelines on reimbursement for essentials

4.2.3 Feedback results rated 2

These customers have rated the delayed baggage handling as two on a scale one to five. Among this group of feedback there are not so many positive comments. The key pain points in the delayed baggage handling experience revolve around significant delays, poor communication, and service inefficiencies. Many customers reported waiting several days for their baggage, far beyond acceptable timeframes. They find it difficult to reach representatives and customer service and not receiving clear responses make the issue even worse. Delayed baggage also causes additional expenses, extra costs and inconvenience for the customers and they feel that the compensation is not sufficient. Some customers feel that the online tracking and reporting are confusing and inefficient. Systems do not always work correctly which causes additional stress for the customers.

Poor handling during delivery leads to a negative final experience when some customers have found their baggage being damaged, wet, or dirty upon arrival. Missing and unclear information have also frustrated customers and misinformation regarding expected delivery times also lead to uncertainty. Some feel that proactive communication on delivery timing is lacking, and customers are left in the dark about when to expect their baggage. Inefficient logistics lead to delays and, in some cases, misplaced deliveries. Some customers comment that delivery services are unreliable, with baggage arriving at incorrect locations or being left unattended.

Despite this group consists of overwhelmingly negative feedback, some positive aspects are listed as well. Online tracking was appreciated, when it was functioning correctly and the tracking system worked. Some customers were happy about the notifications and found that airport agents provided good support, when available. Despite delays, customers did receive their baggage, some even earlier than expected.

Customers who rated the service as two found many areas for enhancement and development. To reduce the delays, a faster baggage retrieval and delivery processes, possibly through better routing, additional staffing, or prioritization methods, should be implemented. Real-time tracking and updates should be improved by developing a more transparent tracking system with real-time notifications, ideally integrated into Finnair mobile app. Communication and accuracy could be enhanced by ensuring personnel provide consistent, accurate and proactive updates on baggage status and delivery times. Customer service availability could be expanded by reducing waiting times and improving accessibility via multiple channels such as phone, chat, social media etc. and forms, and instructions should be more intuitive to prevent confusion. Many customers are missing temporary overnight kits to ease inconvenience. And obviously increased compensations for essential item reimbursements.

To improve baggage handling procedures, airline should minimize instances of damaged, wet, or dirty baggage through better handling and storage practices. Also, optimizing routing and logistics for delayed baggage could be done by using data-driven solutions to streamline baggage delivery efficiency and accuracy. Finnair should also implement stricter performance standards and accountability measures for delivery companies and their services. Finnair could also offer more proactive assistance at check-in by notifying customers about potential delays earlier in their journey. Airports on the other hand, could provide clearer information and signage at the baggage claim and arrival service areas.

4.2.4 Feedback results rated 1

These customers have rated the delayed baggage handling as one on a scale one to five. The most severe pain points in the delayed baggage handling experience revolve around extremely long delays in tracing and delivery, poor communication, customer service failures, and damaged or mishandled baggage. Many customers waited between three to seven days or even more for their baggage, causing major frustration and inconvenience. A lack of proactive updates made the experience even more stressful and long waiting times, unanswered calls and e-mails, and unhelpful responses added to the frustration. With many customers there were online tracking system issues. It was often inaccurate, outdated, or simply did not work at all. Also incorrect, misleading or conflicting information from personnel caused more confusion.

Some customers commented on the fact that the baggage was left behind at the transfer station despite adequate connection time between the flights. Some baggage never made it onto flights despite customers having reasonable layovers. Customers felt significant inconvenience when they had to purchase essential items due to delayed baggage. This caused extra costs for the customers, and they felt that there was insufficient, or no compensation offered. Delivery services were unreliable, with delays on weekends or baggage being sent to the wrong location. Many customers reported receiving their baggage in poor condition, sometimes with missing valuables. Fragile or specialized baggage, e.g., wheelchairs, musical instruments was particularly affected.

The number of positive topics was very limited amongst the customers rating the service as one. Even if the baggage was late, it was delivered, which is a positive thing. Some customers also received notifications and timely updates during the process and online tracking worked correctly in rare cases. Some staff members were helpful trying to solve the issues and a few customers were notified of delays already before check-in.

Customers rating the service as one had a few key areas for improvement and suggestions for enhancement and development. Reducing delivery delays to 24-48 hours could be done by optimizing baggage handling processes, improving logistics and baggage tracking from the airport to the final delivery location. And also, by increasing personnel and resources for peak hours to avoid backlog. Communication and customer service could be improved by proactive notifications via text messages, e-mail of Finnair app updates. Contact centres and airport arrival services should have shorter waiting times, more knowledgeable staff and 24/7 multilingual customer support for baggage inquiries.

Many customers are missing real-time and accurate baggage tracking via Finnair app. They are also missing a self-service chatbot or hotline for baggage tracking inquiries. Also, an improved online claim system would prevent from errors. All these improvements would upgrade online tracking and reporting systems. Baggage handling and delivery would be strengthened by improving handling procedures to reduce damaged baggage. Security checks should be enhanced to prevent missing items and better delivery options should be available on weekends and for late-night deliveries. Customers are also missing pre-approved expense compensation and clearer information and instructions for essential purchases as well as an overnight kit with basic necessities offered at the airport.

4.3 Customer feedback trends

From the engagement letter feedback there are some clear trends in each rating categories to be recognized for further analysis by the airline. The trends consist of delivery timelines, proactive

communication, online tracking and reporting, delivery options and flexibility, baggage condition, compensation, coordination and logistics, airport processes, signage and customer service.

Customers who rated delayed baggage handling service either five or four received their baggage usually within 24-48 hours and felt that the service was smooth and fast. The delivery took much longer for those customers with ratings two or one, several days or even a week. Customers appreciate the current delivery options but still wanted to have extended delivery times and faster delivery especially during weekends. Many customers want to have more control over the deliveries and choose options and schedules most suitable for them.

Regardless of the ratings given by the customers, all categories mentioned that the online tracking and especially tracking of the delivery should be real-time, which is much more convenient for the customer as they know exactly where the delivery company is at each moment and when the baggage is expected to customers' location. Real-time tracking ability is currently in progress with delivery company at Helsinki and domestic airports. At the outstations the local delivery contracts are made by the ground handling companies and real-time tracking is offered at limited stations only. Tracking service should be available in Finnair mobile application with sufficient notifications pushed to customers. This would also answer to many customers' wishes for smoother logistics and coordination between the teams handling the baggage deliveries, if all parties would be aware of real-time delivery status.

Proactive customer communication was well received by most of the customers. Many customers who rated this service as one mentioned that they never received any communication from the airline. This can be explained with the known fact that not all customers give their contact details by the time of flight booking and, in many cases, when the flight is booked via a travel agent, the agent adds their contact details in the booking instead of the customers'. This procedure causes much miscommunication, not only with delayed baggage notifications, but in all disruption related communication such as delay or cancellation messaging, rebooking solution or customer care related notifications. It also happens that many times customers do not open their mobile devices when arriving to a foreign country, thus don't receive any notifications from the airline.

Customer service was mainly rated well and commented on being friendly, helpful, supportive and courteous, but also sometimes hard to reach and unfriendly. Even though one of the project's objectives was to bring the customer service agents more available and visible at the arrival hall and baggage claims, this only applied to Helsinki airport. At the outstations Finnair can increase the visibility and guidance with branded roll-ups at the customer service desks, but each airport and its facilities and regulations are different, so it is impossible to build a cohesive and consistent way of working at all stations. This might be a reason why some customers felt that customer service is

not available at the airports. Many customers felt that the signage and guidance at the airports is poor and delayed baggage processes are unclear, thus causing high confusion amongst the customers. Customers rating higher scores felt the airport process easy, but still most of the customers mentioned that the instructions, signage and guidance at the baggage claims should be much better.

The highest rating customers felt that the self-service solution was efficient and convenient and were ready to use digital service. Customers with lower ratings found the solution being confusing with usability issues and inaccurate or even broken at times. This is something that the airline needs to work on for better customer experience. There were also many comments about customer service not available or unreachable outside of airport, when customers wanted to follow-up the tracing of their baggage. Some customers felt that contacting Finnair was difficult and hard to reach and they ended up in a queue with a long waiting time especially at contact centre customer service. Still, especially those customers rating the service as five felt that customer service was accessible via multiple channels, phone, chat and e-mails. This might again be related to customers' readiness to use digital channels and not only trying to contact the airline by calling the customer service.

Baggage condition was a concern for some customers as they received their baggage delivered damaged without proper instructions of how to proceed with the repair or compensation. Compensation instructions and policies of delayed baggage was also mentioned in many feedback, regardless of the rating given by the customers. Airlines don't usually compensate for delayed baggage if customers are arriving home from their journey. It is expected that the homebound customers have sufficient clothing and personal belongings at home and do not carry their whole property with them while traveling.

Homebound customers sometimes requested for a goodwill compensation due to unsuccessful service. Many customers felt that the compensation offered for baggage delay was insufficient, not enough to cover the extra costs caused by the delayed baggage. Customers have a purpose for their travel and missing essential items for their trip can easily cause high costs for them. When Covid-19 pandemic started, Finnair amongst many airlines stopped giving out so called overnight kits for customers as first-aid, so customers did not need to purchase for example toothbrush or cosmetics while they waited for their baggage to arrive. The overnight kits were mentioned in the feedback as customers appreciate the gesture, when the airline is trying to recover the service.

Below is a table of customer feedback trends by rating that were recognized after analysing the feedback data. The enhancement recommendations can be found mainly in the rating two and one

categories, however, there are some improvements needed also according to those customers rating the service as four and five.

Table 5. Customer feedback trends by rating.

Trend	Rating 5	Rating 4	Rating 2	Rating 1
Delivery timelines	Bags delivered within 24-48 hours	Mostly smooth delivery	Several days delays	Delays 3-7 days
Proactive communication	Excellent proactive updates	Timely alerts	Occasional notifications helped	No proactive updates
Online tracking and reporting	Efficient, convenient self-service	Some usability issues, otherwise valued tracking	Confusing, sometimes fails	Inaccurate or broken system
Staff responsiveness	Friendly, helpful staff	Supportive, courteous agents	Hard to reach, mixed support	Unreachable or unhelpful
Delivery options and flexibility	Flexible home/hotel delivery	Flexible, limited on weekends and distance	Unreliable, wrong or unattended delivery	Wrong address, no weekend service
Baggage condition	No damage reported	Rare damage	Common reports of damage	Frequent damages, missing valuables
Compensation and essential support	Suggest goodwill compensation	Unclear reimbursement guidance	Insufficient compensation	No compensations, extra costs
Coordination and logistics	Seamless logistics	Some gaps between teams	Insufficient routing and delivery	Bags missed despite layover, process problems
Airport processes and signage	Easy process at the airport	Poor signage and instructions	No guidance at arrivals and baggage claims	Unclear procedures, high confusion
Customer service accessibility	Accessible via multiple channels	Some contact difficulties	Long waits, hard to reach	Support unavailable, no 24/7 access

5 Discussion

5.1 Findings and recommendations

The objectives of the thesis were to introduce Finnair disrupted baggage project and its outcomes, results, enhancements and processes. The aim was also to evaluate if project objectives were met and if they have an impact on disrupted baggage NPS, self-service rate and customer satisfaction. It is clear that the enhancements implemented after the project did not have an impact on NPS as it did stay almost on the same level from pre-project time in May 2023 (NPS 27) to one year after the project in May 2024 (23). In January 2025 NPS has got up a couple of numbers to 25, so even the phase two enhancements implemented after September 2024 have not had a significant impact on delayed baggage NPS.

Park et. al (2019, 188) explain that positive and negative emotions of customers, social words, comparison, risky and monetary values effect significantly on their satisfaction. The feedback results show that overall, the positive aspects of the baggage handling process are well-received by the customers. They are satisfied with the strong communication, efficient self-service options and systems, and relatively fast resolutions and the baggage handling process is functioning reasonably well. The list of enhancement topics is growing as the rating decreases and enhancements in tracking accuracy, real-time updates, multilingual support, and better airport signage could further improve customer satisfaction.

Customer satisfaction measurement gives in a successful, immediate, important and objective way to express customers' expectations and preferences, thus considered as the most reliable feedback (AlKheder 2021, 2). Customer satisfaction was measured by Finnair engagement letter feedback survey. The survey was introduced in October 2024 so there is no pre-project data available for the thesis. However, the feedback survey data show a decline in customer satisfaction from the first three months of the survey. The decline, especially in December, can be explained by several disruptions in December 2024 when there were two strikes by Finnair pilots as well as one walkout of baggage handling personnel at Helsinki airport. All these disruption events effected on thousands of customers and baggage and hundreds of flights. The number of delayed baggage in December was four times bigger than in October.

According to Sezgen et al. airlines need to understand their diverse customer base for their service improvement strategies. Disruptions happen and cannot be avoided so dissatisfaction is reality in the industry when things are not always going as planned. There can be a gap between passenger expectations and service performance perceptions causing negative disconfirmation for the customers. Particularly the must-be elements, such as baggage delivery, that are not fulfilled cause

excessive dissatisfaction. However, fulfilling those expectations do not enhance customer satisfaction as they are perceived as guaranteed features and should be delivered without failures anyway. (Sezgen et al. 2019, 66-67.)

IATA mandates airlines to track the loading of the baggage as part of the Resolution 735 (IATA, 3.2.2025.). According to the feedback, many customers expect the airline to inform them about the status of their baggage during the loading process and especially if the baggage is not loaded onboard the flight. This is a clear improvement subject for Finnair and the notification to customer should be delivered through Finnair mobile app. Customers appreciate the information and have more trust on the airlines' baggage processes, if they have visibility and status information of the whereabouts of their baggage after check-in. Koenig et al. (2019) mention that the tracking ensures that passengers know the status of their baggage at each stage and helps reduce the number of lost or delayed bags (Koenig et al. 2019, 438).

The feedback analysis show that customers appreciate and expect more delivery options to be offered. Currently airport teams are contacting customers directly to agree about the schedule and arrangements. Another option could be to offer online service where customers could choose the delivery schedule by themselves. Core customers such as top tier frequent flyers and business class customers could be offered more options to choose from than economy class customers. They could be offered more personalized and speedy delivery options, if they wish to have such service. For weekend and long-distance deliveries customers wish to have more options as well and the overall speed of delivery need to be reviewed for better customer experience. Especially the delivery processes at outstations need more reliability, better control and follow-up by the ground handling companies and Finnair as a customer. Customers also appreciate better online tracking possibilities so the work on digital solutions and Finnair mobile application need to be prioritized.

Some customers mentioned their baggage being delivered damaged. Baggage can be broken, get wet in rainy conditions or miss valuables when delivered to the customers. Missing valuables from baggage is extremely rare but it is very important for the airlines to get these incidents reported for further investigation and compensations. It would be good customer service to include a pre-created damaged baggage report with the baggage delivery, with clear instructions of further actions for the customers. This service would decrease the need for customers to contact the airline for damaged baggage reports, and they could follow the instructions for repair or replacement of the damaged baggage.

It has been already mentioned that airline customers have numerous reasons to travel and delivering the baggage the next day might not have much or any value for them. In many cases

customers' problem cannot be recovered immediately and they need to be compensated on the spot. According to Wyld et. al, when a customer is lost, to get a new customer is six times more expensive than retaining the present customer. (Wyld et al. 2005, 384.) As Vazquez-Casielles et al. are stating, to retain customers, it is not enough to solve the problem, but customers also expect financial compensation to maintain the relationship with the company. (Vazquez-Casielles et al. 2012, 86). Compensation for the delayed baggage was one of the topics mentioned often in the feedback.

Airlines' liability in baggage mishandling and pilferage cases is limited under the Montreal Convention 1999 (MC99) implemented in 2003, as it provides a simplified liability for baggage. MC99 is designed to be a single, universal treaty to govern airline liability around the world and it gives passengers fairer compensation and greater protection. MC99 also brings greater certainty about the rules governing liability for the airlines. The liability limits are expressed as Special Drawing Rights (SDR), which is an international reserve currency introduced by the International Monetary Fund (IMF). The maximum compensation for delayed, damaged or lost baggage is 1288 SDR per person, regardless of number of pieces of baggage. (IATA MC99 2025.) Currently 1288 SDR equals to 1579 EUR.

Customers felt that the compensation offered in baggage delays was not sufficient enough compared to the inconvenience caused and they expected more monetary compensation. Sometimes the compensation policies were not clear to the personnel and better guidelines and instructions were needed for them as well as for the customers. They expected the essentials to be better compensated, and perhaps an overnight kit could solve the problem with the necessities as the first aid. If Finnair would re-introduce overnight kits at the arrival services, even at Helsinki airport, many customers would be satisfied even for the gesture that the airline is trying to recover the service failure. In reducing the negative effects of service failure, service recovery is playing an important role (Halpern & Mwesiumo 2021, 11). In addition to an overnight kit, other goodwill compensations could be considered like Avios frequent flyer points or a small gift card issued at the arrival service or a voucher for an airport coffee shop. These gestures may not be enough to retain unsatisfied customers but could cover some of the financial compensations. It is obvious that no airline wishes to offer higher monetary compensations than is required. But like Vazquez-Casielles et al. have said, those customers who receive financial compensation are more satisfied and those lacking a financial compensation may feel anger if they feel that they paid for a quality service and received a service of a substantial lower value (Vazquez-Casielles et al. 2012, 88).

Iqbal et al. (2018) present a hypothesis that self-service techniques' service quality has positive and significant relationship with customer satisfaction (Iqbal et al. 2018, 7). According to the

feedback surveys in this thesis this hypothesis is true as many customers who rated five for the delayed baggage process also mention that reporting the delayed baggage by self-service application was efficient and convenient. So, the quality and user experience of self-service solution was satisfactory for them. On the other hand, those customers who rated one or two for the delayed baggage process complain that the self-service reporting was confusing, inaccurate and sometimes fails during the process. So, customers who found the self-service technique useful and user-friendly were more satisfied than those who did not. According to Otieno and Govender (2016) online services and technology-based delivery is an attractive choice for many customers who have become used to automation if the customer interface is not too complicated and intimidating. (Otieno & Govender 2016, 389). Gures et al. (2018) mention that if airlines want to increase the passengers' actual usage of SST, they should enhance the functionality and provide user-friendly, simple and easy-to-use, customized and excellent services right at first time. They also suggest that airlines could encourage customers for use of self-service by offering them some incentives such as giving bonus points, price discounts, free tickets etc. These might motivate customers to use self-service techniques and with a good experience, customers might use them again for their future flights. (Gures et al. 2018, 218.)

According to SITA (2024) customers want more control over their travel experience. Airlines can build trust and encourage the use of digital tools for better visibility and communication towards the customers. Clearly the online services and user-friendliness need to be reviewed as they could provide more information for customers to follow the tracking and tracing process. Many customers are hoping that the reporting, tracking and notifications would be available in Finnair mobile app.

Bogicevic et al. mention that self-service technologies allow customers taking responsibility for their airport service transactions and confidence benefits from the use of SSTs can form realistic service expectations at airports (Bogicevic et al. 2017, 353). Self-service reporting has clearly improved the quality of reports and information, when customers are giving all the necessary information by themselves. Often customer service agents are in a hurry and fill in the report only the most necessary information, but more complete information there is in the report, the faster the tracing process is and customers receive their baggage in due time.

Iqbal et al. (2018) also highlight that when customers can complete the transaction more quickly and conveniently, it leads to perception of enhanced service, and they don’t need to wait for service personnel when the services are provided by a technological interface. (Iqbal et al. 2018, 4). Numerous feedback mentioned that customers find it hard to find service personnel at the airports. The guidance and signage are poor and there are no staff guiding the customers at the baggage belts. Koenig et al. (20019) mention that in many cases the arrival baggage carousel can be a key

element in the process when passengers evaluate the quality of their journey as it is usually the place where passengers realise their baggage is either late or lost (Koenig et al. 2019, 35).

Customer guidance being one of the project deliverables for Helsinki airport is an improvement recommendation for Finnair. It is clear that the objective is not taken into practice at the arrival service and service personnel are not guiding the customers effectively to use the self-service. This leads to customer frustration when they need to wait in line for service personnel. Queueing and waiting are often associated with poor and negative service experience, so to reduce the waiting times at the airport has been a major objective of service providers (Kokkinou & Cranage 2013, 435). Rather than waiting for the customers at the service desk, if the agents are effectively guiding and helping the customers to use the self-service at the baggage belt areas, they are able to better serve those customers who are not familiar with the digital solutions. As said by Halpern and Mwesiumo (2021) not all passengers are interested in using airport technologies and technology could be a solution for those wanting to use self-service and digital options. It would free up staff for personal service for those who prefer attention. (Halpern & Mwesiumo 2021, 11-12.)

One of the objectives and deliverables on the project was enhance customer communication. According to Brida et al. (2016) mobile technology and devices are seen as a primary platform for information access also in travel industry as they can provide real-time information and connect both users and suppliers. They say that air transport industry should take this into account as there are customers and travellers who naturally demand alternative ways of being informed and connected. (Brida et al. 2016. 213.) In the feedback analysis many customers were satisfied with the efficient communication and notifications they received. However, many also missed clearer instructions and real-time notifications in Finnair mobile app which is something Finnair should strongly invest in in the future. The mobile app could offer better baggage tracking possibilities and information for customers. Finnair app could also show the location of baggage and status of onloading and offloading at least at Helsinki airport which is Finnair's hub.

There were also several customers requesting better communication between the stakeholders, airports, customer service and delivery companies. It is very important that all stakeholders follow the same communication guidance, and the instructions are consistent. It is also important for airline to have follow-up processes to ensure that the level of service and communication is performed as agreed. Finnair can also review the quality of customer communication and instructions on the website where customers are often directed for further information. The more transparent the communication towards customers is, there are more satisfied customers with less need to contact customer service.

Below is a figure of the findings are recommendations. This is a high-level summary of recommendations in baggage delivery, customer communication, online and self-service, instructions and customer service. As the study is not concentrating on any specific station in Finnair network, the recommendations can be implemented and applied in the levels suitable for each station. Finnair can use the results, findings and recommendations from this study for future aspects of customer experience in delayed baggage handling.

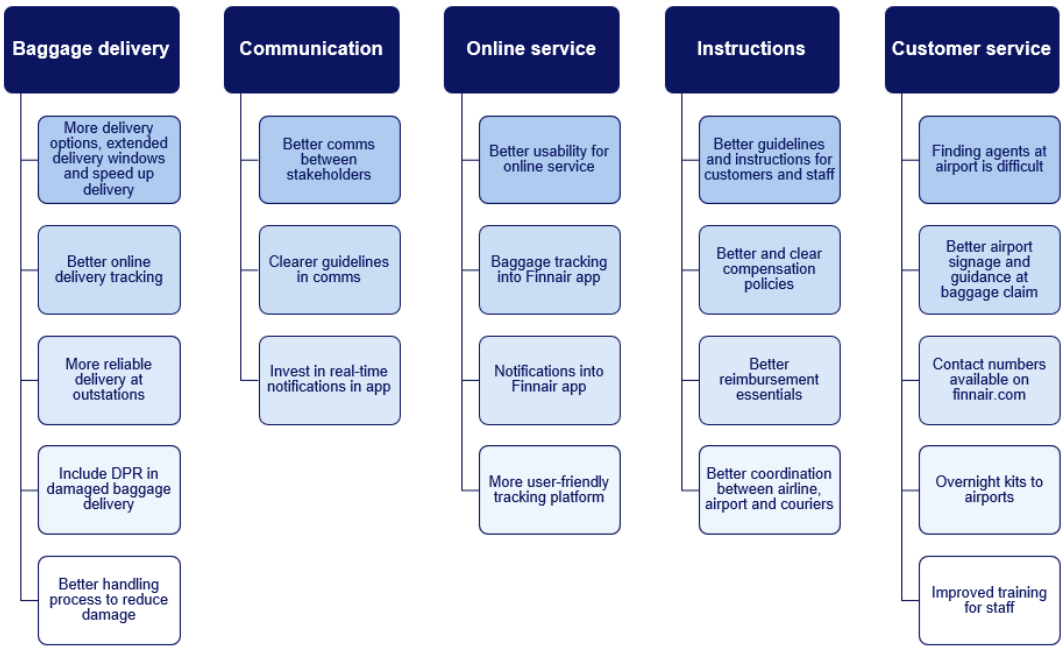

Figure 11. Findings and recommendations.

5.2 Limitations, and future research

Some limitations apply to this thesis study. This study did not consider other factors that may be significantly related to customer experience with delayed baggage handling. For instance, customers' socio-demographic factors are often associated with their experience of specific expected services. Customers' ability to use digital, online and mobile services might have influenced on their experience and feedback as not all customers are as ready and willing to use digital solutions as others. There was nothing specific in this study about what kind of devices customers are using and if that may have had an impact on their experience and feedback given in the engagement letter surveys. The fact that not all customers open their mobile devices and get online when arriving to their destination might also affected their attitude and practices at the airport upon arrival.

Some industrial actions had an effect on customer satisfaction and customer feedback results. In December 2024 the Finnish Aviation Union organized a baggage handling personnel walkout at Helsinki airport which affected on thousands of customers and left thousands of baggage at the airport. This incident surely had an impact on the customer feedback given on December. Even though most of the baggage was delivered to the customers within two days, it may have impacted on the average satisfaction rating of December 2024.

This thesis is studying only customer experience and satisfaction, and the personnel experience is out of scope. In the disrupted baggage project, there were some deliverables and new processes implemented at the airports impacting the customer service agents. The impact of these enhancements to personnel have not been studied in the thesis.

The evaluation of the feedback is done from the whole Finnair network, not of a specific station or country. No specific customer group has been selected for the thesis, but it includes all Finnair customers whose baggage had been delayed and mishandled on a Finnair operated flight. The concept of mishandled baggage often includes also damaged, lost and stolen baggage, but this thesis concentrates on processes, communication and customer experience around delayed baggage only. The outcome of the thesis is to introduce the pros and cons of the delayed baggage handling processes and how to improve the service quality, self-service options and customer communication.

Even though there are many research and studies already made of delayed baggage handling, there are interesting topics for future research also. At Finnair there is strong interest in developing baggage handling and delayed and damaged baggage processes are part of a bigger whole. There is also a strong bet on digital applications and self-services in the company, which will impact customer experience in a significant way and baggage processes should be included in the digital development framework.

In the sustainability point of view, I urge Finnair to study and research more about possibilities in using reusable or permanent digital baggage tags. Current paper tags are not environmentally sustainable and introducing the reusable or permanent digital baggage tags may have an impact on some customers' decision in choosing the airline and Finnair for their travels. This could give Finnair a competitive advantage in the market.

Finnair should also research more about the usage of different digital tags e.g. Apple Airtag and how these new technology innovations can improve tracking and delivery of delayed baggage. On Finnair long haul flights customers already receive information about flight connections and rebooking on the inflight entertainment system (IFE). Maybe this channel could also be used for

notifying customers about their delayed baggage offering them a possibility to update the automated pre-created WorldTracer file already during the flight via IFE or customers' own mobile device connected to aircraft wi-fi. This option could be researched and evaluated by Finnair in the future.

Which ones of these recommendations presented in this study will be taken in the development pipeline and what is their impact on customers, personnel and processes, is a topic for a new study in the future.

5.3 Process evaluation

The process of writing the thesis has been a learning experience. It has given me new perspective in delayed baggage handling, processes, theories and studies done about the subject. Even though I was the project manager of Finnair disrupted baggage project and had good background knowledge of the topic due to my long professional career in the industry, this work has given me new ideas and insights on the field that is constantly developing.

It has been very interesting to see how much academic data, studies, articles and other information there already is about baggage handling, airport processes, self-service processes and applications, customer experience and satisfaction, customer communication etc. I hope that I can use the theoretical knowledge presented in this thesis in my own work in the future. There are still many deliverables in the delayed baggage handling waiting to be implemented. It is interesting to see what recommendations and enhancements are taken into development and production at Finnair for better customer experience and higher feedback rating in the future.

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Appendices

Appendix 1. Finnair Delayed Baggage Engagement Letter

FINNAIR

Hello [redacted],

We recently delivered your baggage in delay for you from your flight **AY535 Helsinki Vantaa - Rovaniemi** on **26.03.2025.** We are sorry for any inconvenience this may have caused you. We hope that your journey continued smoothly despite the delayed baggage.

We would like to hear your feedback to be able to develop our services in the future.

How did we succeed in handling your delayed baggage?

★ ★ ★ ★ ★

We hope to continue to see you on our flights.